KYOTO UNIVERSITY

ILAS
INSTITUTE FOR LIBERAL ARTS AND SCIENCES




Liberal Arts and Sciences to learn in English 2023

英 語 で 学 ぶ 全 学 共 通 科 目

Liberal Arts and Sciences *to learn in* ENGLISH 2023

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Contents

Greeting from the Director

Twenty years have passed in the 21st century, and society is significantly changing as science and technology advances. It is now up to all of you to develop our society in a sustainable way.

The Institute for Liberal Arts and Sciences (ILAS) was established in April 2013 as an organization responsible for planning and implementing liberal arts and common education at the university. The Institute aims to provide students with a broad perspective, deep knowledge, and excellent creativity to play and active role in the international community, by teaching basic knowledge and exploration methods common to diverse academic fields. I hope students will improve their personal qualities through exposure to an advanced academic culture.

Since its founding, the university has upheld the philosophy of "self-learning" based on dialogue and has cultivated a "free academic culture" over its more than 100-year history. By thinking and experiencing for yourselves and by engaging in free dialogue with each other, I expect you to seek the principles and values that make human beings, society, and natural phenomena possible. Through this process, you will open up new intellectual horizons. I believe that this is what learning is all about.

In order to study, it is essential to have the attitude of humbly learning from the wisdom of our predecessors. And our liberal arts and common education aim to build a free and open intellectual space of r this purpose. However, rather than simply aiming to efficiently acquire knowledge and skills, you are encouraged to have high aspirations, tackle uncharted challenges, and try to "produce" new knowledge and skills "Self-learning," which is based on dialogue, is a way to redefine your learning in such a way.

Today's studies are becoming increasingly segmented into specialized fields. However, the issues facing the global community today arise in a way that cuts across fields of specialization. In order to solve these issues, it is necessary not only to have a deep understanding of your field of specialization but also to have a rich and profound liberal arts education that enables you to look at phenomena from various perspectives. I hope that you will broaden your horizons by learning and freely discussing with your fellow students from many different faculties with the varied knowledge and ideas that form the foundation of your studies in the subjects related to human beings, society, and nature, offered by the liberal arts and common education program at the university. Through such study, you will also deepen your bonds with each other. This experience will improve your ability to communicate with people of different values, cultures, and lifestyles and will be helpful for your future international activities.

Language is indispensable to improving your communication skills and living in harmony with people worldwide. The Institute offers a full range of classes in English that non-Japanese faculty members teach, as described in this brochure. In addition to English, language courses in eight other languages are offered. I hope that you will actively take these courses and hone your internationality.

The new coronavirus infection that struck the world in 2020 has significantly impacted our lives. We have been forced to face various restrictions, and it is undeniable that our perspective has tended to turn inward. On the other hand, the rapid spread of communication technology using the Internet has made it possible for us to interact in real time with researchers and students far from us. Diversifying methods for learning, exchanging opinions and discussing is expected to bring about new developments in the liberal arts and common education.

In light of these technological advancements, the Institute for Liberal Arts and Sciences will continue to provide a well-rounded education to all who study at the university. I hope that you will experience intellectually stimulating classes that enthusiastic professors teach and engage in frank and free discussions with your fellow students and that you will build up the strength to improve yourselves and flourish in the world in the post-Covid era.

I wish you all the best.

Hisashi Miyagawa
Director of Institute for Liberal Arts and Sciences

国際高等教育院長挨拶

21 世紀も 20 年が経ち、科学技術はますます進歩して社会が大きく変化しつつあります。今、皆さんには、これからの社会を持続可能な形で発展させていくことが期待されています。

国際高等教育院は、本学の教養・共通教育の企画及び実施について責任を負う組織として、2013 年 4 月に設置されました。様々な学問領域に共通する基礎的な知識とその探求方法を教授することで国際社会において活躍するための広い視野と深い教養、優れた創造力を身につけてもらおうと考えています。また高度な学術文化に触れることでそれぞれの人間性を磨いてほしいとも考えています。

本学は、開学以来、対話を根幹とする「自学自習」の理念を掲げ、百年を超える歴史の中で「自由の学風」を培ってきました。自ら考え、経験するとともに互いが自由に対話することで、人間、社会そして自然現象を成立させている原理・原則を探究する。そしてそれにより新たな知的地平を切り拓いていく。これが学問であると私たちは信じています。

学問を行うためには、先人の知恵を謙虚に学ぶ姿勢が大切です。しかし、単に知識やスキルを効率的に身につけることをめざすのではなく、ぜひ高い志を持って、未知の課題に取り組み、新しい知識やスキルを「生み出すこと」に挑戦してください。対話を根幹とする「自学自習」は、自らの学びをそのように切り換えるものです。そして本学の教養・共通教育は、そのための自由で闊達な知的空間を築くことを目標としています。

現在の学問は、専門分野の細分化が進んでいます。しかし、今、地球社会の抱える課題は、専門分野を横断する形で生じています。課題解決には、専攻する分野の深い理解はもちろん、多様な視点から事象を見つめることができる豊かで深い教養が必要となります。本学の教養・共通教育が提供する人間、社会、自然に関する科目で、基盤となるさまざまな知識や考え方を多様な学部の学生とともに学び、自由に議論することで視野を広げていってください。またそのような学びで互いの人間的な絆を深めてください。その経験は、様々な価値観や文化・生活習慣を持つ人々とのコミュニケーション力の向上につながり、今後皆さんが国際的に活躍をしていく上で役立つでしょう。

コミュニケーション力を向上させ、世界の人々との共生をめざす上で語学を欠かすことはできません。教育院では、この冊子で紹介するように外国人教員が担当する英語による授業を充実させています。また英語の他にも計 8 カ国語の語学授業を提供しています。これらの科目を積極的に履修して、どんどん国際性を磨いてほしいと思います。

2020 年に世界をおそった新型コロナウイルス感染症は私たちのくらしに大きな影響を与えました。様々な制限を強いられた中で、視線が内向きになった傾向が否めません。しかし一方でインターネットを利用したコミュニケーション技術が急速に普及し、遠く離れたところにいる研究者や学生とリアルタイムで対話ができるようになりました。学習・意見交換・議論の方法の多様化は、教養・共通教育にも新たな発展をもたらすことが期待されます。

このような技術の進歩をふまえ、国際高等教育院は今後も本学で学ぶ皆さんに充実した教養・共通教育を提供します。熱意ある先生方の知的刺激に溢れた授業に触れ、学友と率直で自由な議論を試み、自らを高めてポストコロナの時代に世界で羽ばたくための力を蓄えてください。

皆さんの発展を祈ります。

国際高等教育院長　宮川 恒

Courses 授業科目一覧

Lecture code	Course title	Instructor	No. of credits	No. of weekly time blocks	Semester	Day/ Period	Target year	Eligible students	Page
Humanities and Social Sciences		***Philosophy***							
H165001	Ethics I-E2	Campbell, Michael	2	1	1st	Mon/2	Mainly 1st & 2nd	All	21
H166001	Ethics II-E2	Campbell, Michael	2	1	2nd	Mon/2	Mainly 1st & 2nd	All	22
H155001	Logic I-E2:Sentential Logic and Deductions	SAHKER, Ethan Kyle	2	1	1st	Fri/4	Mainly 1st & 2nd	All	23
H156001	Logic II-E2:Quantificational Logic and Deductions	SAHKER, Ethan Kyle	2	1	2nd	Wed/4	Mainly 1st & 2nd	All	24
H149001	The History of Eastern Thought I-E2	CATT, Adam Alvah	2	1	1st	Wed/2	All	Liberal Arts	25
H150002	Science of Religion I-E2	CATT, Adam Alvah	2	1	2nd	Wed/2	All	Liberal Arts	26
H151001	History of Modern Science-E2	D'SOUZA, Rohan Ignatious	2	1	1st	Tue/3	All	All	27
H154001	Philosophy of Modern Science-E2	D'SOUZA, Rohan Ignatious	2	1	2nd	Tue/3	All	All	28
H161001	Japanese Philosophy I-E2	WIRTZ, Fernando Gustavo	2	1	1st	Thu/2	All	All	29
H162001	Japanese Philosophy II-E2	WIRTZ, Fernando Gustavo	2	1	2nd	Thu/2	All	All	31
H163001	Philosophy of Nature I-E2	WIRTZ, Fernando Gustavo	2	1	1st	Thu/4	All	All	33
H164001	Philosophy of Nature II-E2	WIRTZ, Fernando Gustavo	2	1	2nd	Thu/4	All	All	35
Humanities and Social Sciences		***History and Civilization***							
H281001	Japanese History I-E2	VAN STEENPAAL, Niels	2	1	1st	Wed/1	All	All	37
H281003	Japanese History I-E2	KNAUDT, Till	2	1	1st	Wed/2 Wed/3	All	All	38
H282001	Japanese History II-E2	VAN STEENPAAL, Niels	2	1	2nd	Wed/1	All	All	39
H282003	Japanese History II-E2	KNAUDT, Till	2	1	2nd	Wed/2 Wed/3	All	All	40
H290001	Oriental History I-E2	FORTE, Erika	2	1	1st	Tue/2	All	All	41
H291001	Oriental History II-E2	FORTE, Erika	2	1	2nd	Tue/2	All	All	42
H275001	Western History I-E2	BHATTE, Pallavi Kamlakar	2	1	1st	Fri/2	All	All	43
H275002	Western History I-E2	BHATTE, Pallavi Kamlakar	2	1	1st	Fri/3	All	All	45
H274001	Western History II-E2	BHATTE, Pallavi Kamlakar	2	1	2nd	Fri/2	All	All	47
H274002	Western History II-E2	BHATTE, Pallavi Kamlakar	2	1	2nd	Fri/3	All	All	48
H280001	Introduction to Asian Societies-E2	Not fixed	2	1	2nd	Tue/2	Mainly 1st & 2nd	Liberal Arts	49
H279001	Religion in Contemporary Society-E2	Not fixed	2	1	2nd	Tue/4	Mainly 1st & 2nd	Liberal Arts	50

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H283001	Japanese Intellectual History I-E2	VAN STEENPAAL, Niels	2	1	1st	Tue/2	All	All	51
H284001	Japanese Intellectual History II-E2	VAN STEENPAAL, Niels	2	1	2nd	Tue/2	All	All	52
H292001	Japanese Popular Culture I-E2	MURPHY, Mahon	2	1	1st	Wed/2	Mainly 1st & 2nd	All	53
H293001	Japanese Popular Culture II-E2	MURPHY, Mahon	2	1	2nd	Wed/2	Mainly 1st & 2nd	All	54
Humanities and Social Sciences		***Arts, Literature and Linguistics***							
H394001	History of Oriental Art I-E2	FORTE, Erika	2	1	1st	Wed/4	All	All	55
H395001	History of Oriental Art II-E2	FORTE, Erika	2	1	2nd	Wed/4	All	All	56
H381001	Introduction to Linguistic Science-E2	CATT, Adam Alvah	2	1	1st	Wed/1	All	Liberal Arts	57
H382001	Introduction to Japanese Linguistics I-E2	CATT, Adam Alvah	2	1	2nd	Wed/1	All	Liberal Arts	58
H383001	Intercultural Communication I-E2	TANGSEEFA, Decha	2	1	1st	Wed/4	All	All	59
H384001	Intercultural Communication II-E2	TANGSEEFA, Decha	2	1	2nd	Wed/4	All	All	61
Humanities and Social Sciences		***Pedagogy, Psychology and Sociology***							
H727001	Pedagogy I-E2	Jeremy Rappleye	2	1	1st	Wed/1	Mainly 1st & 2nd	All	63
H728001	Pedagogy II-E2	Jeremy Rappleye	2	1	2nd	Thu/1	Mainly 1st & 2nd	All	64
H744001	Psychology I-E2	DE ALMEIDA, Igor	2	1	1st	Wed/3	Mainly 1st & 2nd	All	65
H745001	Psychology II-E2	DE ALMEIDA, Igor	2	1	2nd	Wed/3	Mainly 1st & 2nd	All	66
H739001	Psychoanalysis-E2	TAJAN, Nicolas Pierre	2	1	1st	Tue/3	All	All	67
H721001	Sociology I-E2	Stephane Heim	2	1	1st	Mon/2	All	All	68
H743001	Social Psychology-E2	DE ALMEIDA, Igor	2	1	2nd	Wed/2	Mainly 1st & 2nd	All	69
H740001	Psychoanalysis II-E2	TAJAN, Nicolas Pierre	2	1	2nd	Tue/3	All	All	70
H715001	Advanced Lecture for Pedagogy I-E2	Jeremy Rappleye	2	1	1st	Wed/2	Mainly 1st & 2nd	All	71
H716001	Advanced Lecture for Pedagogy II-E2	Jeremy Rappleye	2	1	2nd	Thu/2	Mainly 1st & 2nd	All	72
H709001	Introduction to Educational Psychology I-E2	Emmanuel MANALO	2	1	1st	Mon/3	Mainly 1st & 2nd	All	73
H710001	Introduction to Educational Psychology II-E2	Emmanuel MANALO	2	1	1st	Fri/4	Mainly 1st & 2nd	All	74
H708001	Introduction to Educational Studies I-E2	Emmanuel MANALO	2	1	1st	Mon/1	Mainly 1st & 2nd	All	75
H711001	Introduction to Educational Studies II-E2	Emmanuel MANALO	2	1	1st	Fri/3	Mainly 1st & 2nd	All	76

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H724001	Introduction to Globalization Studies-E2	Stephane Heim	2	1	1st	Wed/3	All	All	77
H725001	Introduction to Social Research-E2	Stephane Heim	2	1	2nd	Mon/3	All	All	78
H726001	Sociology of Work and Organizations-E2	Stephane Heim	2	1	2nd	Wed/3	All	All	79
H712001	Introduction to Sociological Observation-E2:Understanding Environmental Challenges	TRENCHER, Gregory	2	1	1st	Thu/1	Mainly 1st & 2nd	All	80
H717001	Introduction to Risk Communication-E2	SAMADDAR, Subhajyoti	2	1	2nd	Wed/3	Mainly 1st & 2nd	All	81
H718001	Introduction to Society and Community Studies-E2	SAMADDAR, Subhajyoti	2	1	2nd	Wed/2	Mainly 1st & 2nd	All	82
H734001	Introduction to Ritual Studies-E2	LAHOURNAT, Florence	2	1	1st	Thu/3	Mainly 1st & 2nd	All	83
H733001	Disaster and Culture-E2	LAHOURNAT, Florence	2	1	2nd	Thu/3	Mainly 1st & 2nd	All	84
H722001	Introduction to Comparative Psychology-E2	Duncan Wilson	2	1	1st	Wed/4	All	All	85
H723001	Introduction to Primate Behavior and Cognition-E2	Duncan Wilson	2	1	2nd	Wed/4	All	All	86
Humanities and Social Sciences		***Regions and Cultures***							
H598003	Cultural Anthropology I-E2	De Antoni, Andrea	2	1	1st	Thu/2	All	All	87
H598001	Cultural Anthropology I-E2	LOPEZ, Mario Ivan	2	1	1st	Mon/3	Mainly 1st & 2nd	All	88
H598004	Cultural Anthropology I-E2	De Antoni, Andrea	2	1	2nd	Wed/2	All	All	89
H598002	Cultural Anthropology I-E2	LOPEZ, Mario Ivan	2	1	2nd	Mon/3	Mainly 1st & 2nd	All	90
H802002	Human Geography-E2	BAARS, ROGER CLOUD	2	1	1st	Thu/2	Mainly 1st & 2nd	All	91
H802003	Human Geography-E2	BAARS, ROGER CLOUD	2	1	2nd	Thu/2	Mainly 1st & 2nd	All	92
H815002	Topics in Cultural Anthropology I-E2	De Antoni, Andrea	2	1	2nd	Thu/2	All	All	93
H815001	Topics in Cultural Anthropology I-E2	De Antoni, Andrea	2	1	1st	Thu/3	All	All	94
H817001	Topics in Human Geography VIII-E2(Governing urban sustainability challenges)	TRENCHER, Gregory	2	1	2nd	Thu/1	Mainly 2nd	All	95
H813001	Contemporary Japanese Architecture-E2	DANIELL, Thomas Charles	2	1	1st	Tue/3	Mainly 1st	All	96
H812001	Theory of Landscape Design-E2:House and Gardens of Kyoto	DANIELL, Thomas Charles	2	1	2nd	Tue/3	Mainly 1st	All	97
H589001	Environmental Anthropology-E2	D'SOUZA, Rohan Ignatious	2	1	1st	Fri/3	All	All	98
H591001	Introduction to Globalization I-E2	LOPEZ, Mario Ivan	2	1	1st	Tue/3	Mainly 1st & 2nd	All	99
H592001	Introduction to Globalization II-E2	LOPEZ, Mario Ivan	2	1	2nd	Tue/3	Mainly 1st & 2nd	All	100

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H814001	Introduction to Urban Geography-E2	BAARS, ROGER CLOUD	2	1	1st	Thu/4	All	All	101
H814002	Introduction to Urban Geography-E2	BAARS, ROGER CLOUD	2	1	2nd	Thu/4	All	All	102
H806001	Introduction to Urban Planning-E2	SAMADDAR, Subhajyoti	2	1	1st	Wed/3	Mainly 1st & 2nd	All	103
H801001	Environmental Histories of South Asia-E2	D'SOUZA, Rohan Ignatious	2	1	2nd	Fri/3	All	All	104
H808001	Food and Globalization I-E2	Hart Nadav FEUER	2	1	1st	Wed/2	Mainly 1st & 2nd	All	105
H809001	Food and Globalization II-E2	Hart Nadav FEUER	2	1	2nd	Wed/2	Mainly 1st & 2nd	All	106
Humanities and Social Sciences		***Jurisprudence, Politics and Economics***							
H926002	Jurisprudence-E2	ALVAREZ ORTEGA, Miguel	2	1	2nd	Tue/5	Mainly 1st & 2nd	All	107
H938001	Political Science I-E2	TANGSEEFA, Decha	2	1	1st	Wed/3	All	All	108
H939001	Political Science II-E2	TANGSEEFA, Decha	2	1	2nd	Wed/3	All	All	110
H934001	Introduction to Economics-E2	TOU Shunhan	2	1	1st	Wed/1	Mainly 1st	All	113
H935001	Principles of Economics-E2	TOU Shunhan	2	1	2nd	Wed/1	Mainly 1st	All	114
H936001	Economy and Society I-E2	TOU Shunhan	2	1	1st	Wed/2	Mainly 2nd	Liberal Arts	115
H937001	Economy and Society II-E2	TOU Shunhan	2	1	2nd	Wed/2	Mainly 2nd	Liberal Arts	116
H917001	Contemporary Economics I-E2	MA, Teng	2	1	1st	Wed/3	All	All	117
H917002	Contemporary Economics I-E2	MA, Teng	2	1	1st	Wed/4	All	All	118
H918001	Contemporary Economics II-E2	MA, Teng	2	1	2nd	Wed/3	All	All	119
H918002	Contemporary Economics II-E2	MA, Teng	2	1	2nd	Wed/4	All	All	120
H919001	Introduction to Management-E2	WANG, Tao	2	1	1st	Mon/2	All	All	121
H919002	Introduction to Management-E2	WANG, Tao	2	1	1st	Mon/3	All	All	122
H920001	Contemporary Management-E2	WANG, Tao	2	1	2nd	Mon/2	All	All	123
H920002	Contemporary Management-E2	WANG, Tao	2	1	2nd	Mon/3	All	All	124
H946001	Introduction to Game Theory-E2	Zhou, Yu	2	1	1st	Fri/3	Mainly 1st	All	125
H946002	Introduction to Game Theory-E2	Zhou, Yu	2	1	1st	Fri/4	Mainly 1st	All	126
H947001	Applied Game Theory-E2	Zhou, Yu	2	1	2nd	Fri/4	Mainly 1st	All	127

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H947002	Applied Game Theory-E2	Zhou, Yu	2	1	2nd	Fri/3	Mainly 1st	All	128
H928001	Japan's Political Economy-E2	HIJINO Ken	2	1	1st	Tue/2	Mainly 1st & 2nd	All	129
H948001	Democracy in Crisis-E2 :Government of, by, and for whom?	HIJINO Ken	2	1	1st	Wed/3	Mainly 1st & 2nd	All	130
H929001	Japanese Politics-E2	HIJINO Ken	2	1	2nd	Tue/2	2nd or above	All	132
H952001	Local Government in Comparative Perspective-E2	HIJINO Ken	2	1	2nd	Mon/3	Mainly 1st & 2nd	All	133
H943001	International History 1900 to the Present-E2	MURPHY, Mahon	2	1	1st	Wed/4	2nd or above	All	134
H944001	An International History of East Asia 1839-1945-E2	MURPHY, Mahon	2	1	2nd	Wed/4	Mainly 1st & 2nd	All	135
H949001	Theories of Justice and Human Rights-E2	ALVAREZ ORTEGA, Miguel	2	1	1st	Tue/5	Mainly 1st & 2nd	All	136
H949002	Theories of Justice and Human Rights-E2	ALVAREZ ORTEGA, Miguel	2	1	2nd	Wed/5	Mainly 1st & 2nd	All	137
Natural Sciences		***Mathematics***							
N157001	Calculus with Exercises A	Karel SVADLENKA	3	2	1st	Tue/2 Wed2	Mainly 1st	Science	138
N158001	Calculus with Exercises B	Karel SVADLENKA	3	2	2nd	Tue/2 Wed2	Mainly 1st	Science	139
N159001	Linear Algebra with Exercises A	COLLINS, Benoit Vincent Pierre	3	2	1st	Mon/3 Tue2	Mainly 1st	Science	140
N160001	Linear Algebra with Exercises B	COLLINS, Benoit Vincent Pierre	3	2	2nd	Mon/3 Tue/2	Mainly 1st	Science	141
N168001	Mathematical Description of Natural Phenomena	CHANG, Kai-Chun	2	1	1st	Tue/3	Mainly 1st	Science	142
N178001	Mathematical Description of Natural Phenomena-E2	ISLAM, A K M Mahfuzul	2	1	1st	Tue/2	Mainly 1st	Science	143
N174001	Quest for Mathematics I-E2	Li, Douglas	2	1	1st	Thu/3	Mainly 1st & 2nd	Liberal Arts	144
N174002	Quest for Mathematics I-E2	Arseniy Aleksandrovich, Kuzmin	2	1	1st	Tue/2	Mainly 1st & 2nd	All	145
N174003	Quest for Mathematics I-E2	Li, Douglas	2	1	2nd	Thu/3	Mainly 1st & 2nd	Liberal Arts	146
N175001	Quest for Mathematics II-E2	UEDA, Fukuhiro	2	1	1st	Thu/4	All	All	147
N175002	Quest for Mathematics II-E2	UEDA, Fukuhiro	2	1	2nd	Thu/4	All	All	148
N169001	Advanced Calculus I-Vector Calculus	QURESHI, Ali Gul	2	1	1st	Wed/5	2nd or above	Science	149
N170001	Advanced Calculus II-Differential Equations	QURESHI, Ali Gul	2	1	2nd	Wed/5	2nd or above	Science	150
N106001	Advanced Linear Algebra	CHANG, Kai-Chun	2	1	1st	Fri/2	2nd or above	Science	151
N162001	Function Theory of a Complex Variable-E2	Li, Douglas	2	1	1st	Fri/2	Mainly 2nd	Science	152

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N164001	Nonlinear Mathematics-E2	Li, Douglas	2	1	2nd	Fri/3	Mainly 2nd	Science	153
N161001	Honors Mathematics A-E2	Karel SVADLENKA	2	1	2nd	Tue/3	Mainly 1st	Science	154
N165001	Honors Mathematics B-E2	COLLINS, Benoit Vincent Pierre	2	1	1st	Tue/3	Mainly 2nd	Science	155
Natural Sciences		**Data Science**							
N804001	Introductory Statistics-E2	VEALE, Richard Edmund	2	1	1st	Fri/3	All	All	156
N804002	Introductory Statistics-E2	VANDENBON, Alexis	2	1	2nd	Tue/2	All	All	157
N815001	Mathematical Statistics-E2	Croydon, David Alexander	2	1	1st	Thu/3	Mainly 2nd	Science	158
N815002	Mathematical Statistics-E2	Croydon, David Alexander	2	1	2nd	Thu/1	Mainly 2nd	Science	159
N809001	Basic Data Analysis-E2	VANDENBON, Alexis	2	1	1st	Tue/2	All	All	160
N816001	Second Course in Statistics-E2	Croydon, David Alexander	2	1	2nd	Thu/2	Mainly 2nd	All	161
N813002	Data Analysis Practice I-E2	Martin Robert	2	1	1st	Wed/4	All	All	162
N814001	Data Analysis Practice II-E2	PATAKY, Todd	2	1	2nd	Fri/3	All	All	163
Natural Sciences		**Physics**							
N208001	Fundamental Physics A	QURESHI, Ali Gul	2	1	1st	Thu/4	Mainly 1st	Science	165
N261002	Fundamental Physics A-E2	LIM, Shunghoon	2	1	1st	Tue/2	Mainly 1st	Science	166
N209001	Fundamental Physics B	QURESHI, Ali Gul	2	1	2nd	Thu/4	Mainly 1st	Science	167
N264001	Fundamental Physics B-E2	DE ZOYSA, Menaka	2	1	2nd	Thu/3	Mainly 1st	Science	168
N264002	Fundamental Physics B-E2	BANERJEE, Amit	2	1	2nd	Tue/3	Mainly 1st	Science	169
N256001	Elementary Experimental Physics-E2	WENDELL,Roger	2	2	2nd	Fri/3 Fri/4	Mainly 1st	Science	170
N277001	Thermodynamics-E2	DECHANT, Andreas	2	1	2nd	Thu/3	Mainly 1st	Science	171
N255001	Elementary Course of Physics A-E2	PETERS,Robert	2	1	1st	Mon/3	All	Science	172
N271001	Elementary Course of Physics B-E2	Arseniy Aleksandrovich, Kuzmin	2	1	2nd	Tue/2	Mainly 1st	Science	173
N211001	Advanced Dynamics	KIM, SUNMIN	2	1	2nd	Tue/3	Mainly 1st	Science	174
N276001	Advanced Dynamics-E2	BANERJEE, Amit	2	1	2nd	Tue/4	Mainly 1st	Science	175
N207001	Physics of Wave and Oscillation	KIM, SUNMIN	2	1	1st	Thu/4	Mainly 2nd	Science	176
N275001	Physics of Wave and Oscillation-E2	BANERJEE, Amit	2	1	1st	Fri/4	Mainly 2nd	Science	177

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N251001	Advanced Course of Electromagnetism-E2	LIM, Shunghoon	2	1	1st	Tue/1	Mainly 2nd	Science	178
N260002	Physics for All-E2	ISLAM, A K M Mahfuzul	2	1	1st	Tue/3	Mainly 1st & 2nd	Liberal Arts	179
N260003	Physics for All-E2	DECHANT, Andreas	2	1	1st	Wed/3	Mainly 1st & 2nd	Liberal Arts	180
N260004	Physics for All-E2	Not fixed	2	1	2nd	Tue/3	Mainly 1st	All	181
N253001	A Guide to Modern Physics A-E2	WENDELL,Roger	2	1	1st	Tue/3	All	All	183
N272001	Fundamentals of Materials I-E2	GAO, Si	2	1	1st	Thu/2	Mainly 1st & 2nd	Science	184
N273001	Fundamentals of Materials II-E2	GAO, Si	2	1	2nd	Mon/2	Mainly 1st & 2nd	Science	185
N263001	Introduction to Light Control-E2	DE ZOYSA, Menaka	2	1	1st	Mon/3	Mainly 2nd	Science	186
N257001	Introduction to Statistical Physics-E2	PETERS,Robert	2	1	2nd	Wed/4	Mainly 1st & 2nd	Science	187
N249001	Theory of Special Relativity-E2	Antonio De Felice	2	1	2nd	Wed/2	Mainly 1st & 2nd	All	188
N254001	Analytic Dynamics-E2	PETERS,Robert	2	1	1st	Tue/3	Mainly 2nd	Science	189
N270001	Introduction to Quantum Physics-E2	Arseniy Aleksandrovich, Kuzmin	2	1	2nd	Tue/4	Mainly 2nd	Science	190
N274001	Soft Matter Physics-E2:From Condensed Matter to Life	BRANDANI, Giovanni・Bruno	2	1	2nd	Wed/5	Mainly 1st & 2nd	Science	191
N269001	Introduction to Plasma Science-E2	Arseniy Aleksandrovich, Kuzmin	2	1	2nd	Tue/3	Mainly 1st	All	192
N248001	Introduction to Cosmology-E2	Antonio De Felice	2	1	1st	Wed/2	Mainly 1st & 2nd	All	193
Natural Sciences		***Chemistry***							
N371001	Essentials of Basic Physical Chemistry-E2	ARIVAZHAGAN RAJENDRAN	2	1	1st	Mon/2	Mainly 1st & 2nd	Science	194
N365001	Basic Physical Chemistry (thermodynamics)-E2	ARIVAZHAGAN RAJENDRAN	2	1	1st	Mon/3	Mainly 1st & 2nd	Science	195
N365002	Basic Physical Chemistry (thermodynamics)-E2	Nguyen Thanh Phuc	2	1	2nd	Wed/1	Mainly 1st & 2nd	Science	196
N366003	Basic Physical Chemistry (quantum theory)-E2	Nguyen Thanh Phuc	2	1	1st	Wed/1	Mainly 1st & 2nd	Science	197
N366002	Basic Physical Chemistry (quantum theory)-E2	ARIVAZHAGAN RAJENDRAN	2	1	2nd	Mon/2	Mainly 1st & 2nd	Science	198
N368002	Basic Organic Chemistry I-E2	Juha Lintuluoto	2	1	1st	Thu/2	Mainly 1st	Science	199
N368003	Basic Organic Chemistry I-E2	Amelie Perron	2	1	1st	Tue/4	Mainly 1st & 2nd	Science	200
N369002	Basic Organic Chemistry II-E2	Juha Lintuluoto	2	1	2nd	Thu/2	Mainly 1st	Science	201
N369003	Basic Organic Chemistry II-E2	Amelie Perron	2	1	2nd	Tue/4	Mainly 1st & 2nd	Science	202

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N374001	Fundamental Chemical Experiments-E2	Cedric Tassel Juha Lintuluoto	2	2	1st	Wed/3･4 Fri/3･4	Mainly 1st	Science	203
N374002	Fundamental Chemical Experiments-E2	Cedric Tassel Juha Lintuluoto	2	2	2nd	Wed/3･4 Fri/3･4	Mainly 1st	Science	204
N384001	Outline of Chemistry I(Its History and Fundamentals)-E2	GAO, Si	2	1	2nd	Thu/2	Mainly 1st & 2nd	All	206
N391001	Outline of Chemistry II(Its History & Fundamentals)-E2	Yi Wei	2	1	1st	Wed/2	Mainly 1st & 2nd	All	207
N385001	Chemistry for non-science majors I-E2	PINCELLA, Francesca	2	1	1st	Mon/4	All	Liberal Arts	208
N386001	Chemistry for non-science majors II-E2	PINCELLA, Francesca	2	1	2nd	Mon/4	All	Liberal Arts	209
N362001	Everyday Life Chemistry-E2	Amelie Perron	2	1	2nd	Thu/4	Mainly 1st & 2nd	All	210
N387001	Chemistry on Natural and Human Environments-E2	PINCELLA, Francesca	2	1	2nd	Tue/4	All	Liberal Arts	211
N367001	Chemistry of Sustainable Energy-E2	ARIVAZHAGAN RAJENDRAN	2	1	2nd	Mon/3	All	Science	212
N377001	Revisiting Basic Organic Chemistry I-E2	LANDENBERGER, Kira Beth	2	1	2nd	Thu/4	Mainly 2nd	Science	213
N378001	Revisiting Basic Organic Chemistry II-E2	LANDENBERGER, Kira Beth	2	1	1st	Thu/4	Mainly 2nd	Science	214
N382001	Revisiting Basic Physical Chemistry (quantum theory)-E2	Not fixed	2	1	2nd	Tue/3	Mainly 2nd	Science	215
N390001	Thermodynamics in Everyday Life-E2	THUERMER, Stephan	2	1	1st	Mon/3	Mainly 1st & 2nd	Science	216
N394001	Analytical Chemistry and Forensic Science-E2	MURDEY, Richard James	2	1	2nd	Mon/5	Mainly 1st & 2nd	Science	217
N393001	Introduction to the Chemistry of Materials-E2	MURDEY, Richard James	2	1	2nd	Mon/4	Mainly 1st & 2nd	Science	218
N363001	Introduction to Inorganic Chemistry A-E2	Cedric Tassel	2	1	1st	Tue/3	Mainly 1st & 2nd	Science	219
N364001	Introduction to Inorganic Chemistry B-E2	Cedric Tassel	2	1	2nd	Tue/3	Mainly 1st & 2nd	Science	220
N361001	Organic Chemistry of Life-E2	Amelie Perron	2	1	1st	Thu/4	Mainly 1st & 2nd	Science	221
N372001	Introduction to Surface Chemistry-E2	THUERMER, Stephan	2	1	2nd	Mon/3	Mainly 2nd	Science	222
Natural Sciences		***Biology***							
N937001	Introduction to Biology and Life Science-E2	BRANDANI, Giovanni・Bruno	2	1	1st	Thu/3	Mainly 1st & 2nd	All	223
N937002	Introduction to Biology and Life Science-E2	BRANDANI, Giovanni・Bruno	2	1	2nd	Thu/3	Mainly 1st & 2nd	All	224
N938001	Fundamentals of Organismal and Population Biology-E2	BARNETT, Craig Antony	2	1	1st	Mon/2	Mainly 1st & 2nd	All	225
N923001	Fundamentals of Cell and Molecular Biology-E2	TAKENAKA, Mizuki	2	1	1st	Fri/2	Mainly 1st & 2nd	All	226
N924001	Introduction to Plant Science-E2	TAKENAKA, Mizuki	2	1	2nd	Fri/2	Mainly 1st & 2nd	All	227

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N941001	Basic Biology and Metabolism-E2	CAMPBELL, Douglas Simon	2	1	2nd	Tue/4	All	All	228
N492001	Principles of Genetics-E2	Shohab YOUSSEFIAN	2	1	1st	Tue/2	Mainly 1st & 2nd	Science	229
N491001	Introduction to Molecular Biotechnology-E2	Shohab YOUSSEFIAN	2	1	1st	Tue/3	Mainly 1st & 2nd	Science	230
N490001	Introduction to Biochemistry-E2	Shohab YOUSSEFIAN	2	1	2nd	Tue/2	Mainly 1st & 2nd	Science	231
N490002	Introduction to Biochemistry-E2	Marco,Marques Candeias	2	1	2nd	Tue/2	Mainly 1st & 2nd	Science	232
N490003	Introduction to Biochemistry-E2	Shohab YOUSSEFIAN	2	1	2nd	Tue/3	Mainly 1st & 2nd	Science	233
N490004	Introduction to Biochemistry-E2	Marco,Marques Candeias	2	1	2nd	Tue/3	Mainly 1st & 2nd	Science	234
N494001	Introductory Plant Ecology-E2	Garry John PILLER	2	1	1st	Wed/3	Mainly 1st & 2nd	Science	235
N495001	Principles of Horticulture-E2	Garry John PILLER	2	1	2nd	Wed/3	Mainly 1st & 2nd	Science	236
N496001	Conservation Biology-E2	Andrew MacIntosh	2	1	1st	Mon/3	All	Science	237
N498001	Animal Behavior-E2	Andrew MacIntosh	2	1	1st	Mon/4	All	Science	238
N497001	Comparative Cognition-E2	Andrew MacIntosh	2	1	2nd	Mon/3	All	Science	240
N499001	Zoo Biology-E2	Andrew MacIntosh	2	1	2nd/int	-	All	Science	242
N911001	Basic Biology-E2	Adam Tsuda GUY	2	1	1st	Mon/3	Mainly 1st & 2nd	Science	243
N912001	Basic Genetic Engineering-E2	Adam Tsuda GUY	2	1	2nd	Wed/2	Mainly 1st & 2nd	Science	244
N901001	Introduction to Genetics and Evolution-E2	Adam Tsuda GUY	2	1	2nd	Mon/3	Mainly 1st & 2nd	Science	245
N913001	Introduction to Behavioral Neuroscience A-E2	VEALE, Richard Edmund	2	1	1st	Fri/5	All	All	246
N914001	Introduction to Behavioral Neuroscience B-E2	VEALE, Richard Edmund	2	1	2nd	Fri/5	All	All	247
N932001	Introduction to Molecular Cell Biology-E2	CAMPBELL, Douglas Simon	2	1	1st	Tue/4	All	All	248
N940001	Introduction to Biosciences-E2	CAMPBELL, Douglas Simon	2	1	2nd	Wed/4	All	All	249
N928001	Introduction to Biological Data Analysis-E2	Martin Robert	2	1	1st	Tue/2	All	Science	250
N927001	Introduction to Computational Molecular Biology-E2	Martin Robert	2	1	2nd	Wed/4	All	Science	251
N904001	Chromosome Biology-E2	CARLTON, Peter	2	1	1st	Tue/5	Mainly 1st & 2nd	All	252
N907001	Practical Computing for Biologists-E2	CARLTON, Peter	2	1	2nd	Tue/5	Mainly 1st & 2nd	Science	254
N925001	Biological Sciences through Scientific Articles I-E2	TAKENAKA, Mizuki	2	1	1st	Tue/5	Mainly 1st & 2nd	All	255

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N926001	Biological Sciences through Scientific Articles II-E2	TAKENAKA, Mizuki	2	1	2nd	Tue/5	Mainly 1st & 2nd	All	256
N929001	Introduction to Plant Physiology-E2	Daniel Epron	2	1	2nd	Mon/2	Mainly 1st & 2nd	All	257
N939001	Introduction to Ecology and Evolution-E2	BARNETT, Craig Antony	2	1	2nd	Mon/2	Mainly 1st & 2nd	All	258
N943001	Microorganisms in our Lives-E2	KIM, Minsoo	2	1	1st	Thu/3	Mainly 1st & 2nd	All	259
N942001	Introduction to Immunology-E2:The body's defense system	KIM, Minsoo	2	1	2nd	Thu/3	Mainly 1st & 2nd	All	260
Natural Sciences		**Earth Science**							
N533001	Introduction to Earth Science A	ZHU Fan	2	1	1st	Fri/1	Mainly 1st	Science	261
N560001	Introduction to Earth Science B-E2	ZWINGMANN, Horst Friedrich August	2	1	2nd	Wed/1	Mainly 1st & 2nd	Science	262
N563001	How the Earth Works I-E2:Environmental Change	ENESCU, Bogdan Dumitru	2	1	1st	Wed/4	All	All	263
N564001	How the Earth Works II-E2:Earth's History	ENESCU, Bogdan Dumitru	2	1	2nd	Thu/4	All	All	264
N565001	Introduction to General Astronomy-E2	LEE, Shiu Hang	2	1	1st	Wed/4	All	All	265
N566001	Science on Water, Soil and Ecosystems-E2	KOCH, Michael Conrad	2	1	2nd	Fri/2	Mainly 1st & 2nd	All	266
N562001	Field Earth Science-E2	ZWINGMANN, Horst Friedrich August	2	1	2nd	Wed/2	2nd or above	Science	267
N537001	Introduction to Engineering Geology	ZHU Fan	2	1	2nd	Tue/5	Mainly 2nd	Science	268
N558001	Introduction to Mineral Resources-E2	MCLELLAN, Benjamin	2	1	2nd	Wed/1	Mainly 1st & 2nd	Science	269
N559001	Introduction to Hydrology-E2	Sameh Kantoush	2	1	1st	Thu/4	Mainly 1st & 2nd	Science	270
N561001	Advanced Practice of Earth Science-E2	ZWINGMANN, Horst Friedrich August	4	2	2nd/int	-	Mainly 2nd	Science	271
Informatics									
T008001	Practice of Basic Informatics	ZHU Fan	2	1	1st	Tue/4	Mainly 1st	Science	273
T056003	Practice of Basic Informatics-E2	ISLAM, A K M Mahfuzul	2	1	1st	Fri/2	Mainly 1st	All	275
T056004	Practice of Basic Informatics-E2	CHU, Chenhui	2	1	1st	Tue/2	All	All	276
T056001	Practice of Basic Informatics-E2	HADFI Rafik	2	1	2nd	Fri/5	All	All	277
T015001	Basic Informatics	CHANG, Kai-Chun	2	1	2nd	Tue/4	Mainly 1st	Science	278
T051001	Basic Informatics-E2	HADFI Rafik	2	1	1st	Wed/2	All	All	279
T051002	Basic Informatics-E2	EVEN, Jani Juhani luc	2	1	2nd	Tue/5	All	All	280
T018001	Information and Society-E2	HADFI Rafik	2	1	1st	Mon/5	All	All	281

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T018002	Information and Society-E2	HADFI Rafik	2	1	2nd	Mon/2	All	All	282
T062001	Mathematics for Informatics I-E2	EVEN, Jani Juhani luc	2	1	1st	Tue/5	All	All	283
T019001	Information Network-E2	THIES, Holger	2	1	2nd	Wed/5	All	All	284
T063001	Programming Practice (Python) -E2	EVEN, Jani Juhani luc	2	1	2nd	Mon/5	All	All	285
T063002	Programming Practice (Python) -E2	THIES, Holger	2	1	1st 2nd	Tue/5 Thu/5	All	All	287
T061001	Programming Practice (Java) -E2	EVEN, Jani Juhani luc	4	2	1st	Mon/4 Mon/5	All	All	289
T058001	Programming Practice (R)-E2:For managing and analysing data	Daniel Epron	2	1	2nd	Mon/5	Mainly 1st & 2nd	All	290
T050001	Processing and Analyzing Data I-E2:Shell-based data processing fundamentals	VEALE, Richard Edmund	2	1	2nd	Fri/3	All	All	291
T057001	Fundamentals of Artificial Intelligence-E2	CHU, Chenhui	2	1	2nd	Mon/2	All	All	293
T057002	Fundamentals of Artificial Intelligence-E2	CHU, Chenhui	2	1	1st	Mon/2	All	All	294
T047001	Information Literacy for Academic Study-E2	CHU, Chenhui	2	1	2nd	Tue/2	All	All	295
T052003	Introduction to Algorithms-E2	Jesper Jansson	2	1	1st	Mon/2	All	All	296
T052002	Introduction to Algorithms-E2	Jesper Jansson	2	1	2nd	Mon/2	All	All	297
T065001	Introduction to Formal Languages-E2	Jesper Jansson	2	1	1st	Mon/1	All	All	298
T065002	Introduction to Formal Languages-E2	Jesper Jansson	2	1	2nd	Mon/1	All	All	299
Health and Sports		***Health and Sports Sciences***							
U156001	Health Psychology I-E2	DE ALMEIDA, Igor	2	1	1st	Wed/2	All	All	300
U149001	Introduction to Basic Concepts of Health Psychology-E2:Communication Issues and Decision-making in Patient Care	ANAGNOSTOU, Despoina	2	1	1st	Tue/3	All	All	301
U148001	Structures and Mechanisms of Human Movement-E2	PATAKY, Todd	2	1	1st	Fri/3	Mainly 1st & 2nd	All	302
U104001	Basics of the Human Body-E2	RAUDZUS, Fabian	2	1	1st	Tue/5	All	All	303
U106001	Introduction to Lifestyle Related Diseases-E2	RAUDZUS, Fabian	2	1	2nd	Tue/5	All	All	304
U145001	Biology and Sociology of Chronic Diseases-E2	LUO, Yan	2	1	1st	Thu/3	All	All	305
U144001	Nutrition and Health-E2	LUO, Yan	2	1	2nd		All	All	306
U155001	Psychopathology I-E2	TAJAN, Nicolas Pierre	2	1	2nd	Tue/5	All	All	307
U135001	Introduction to Medical Psychology-E2	SAHKER, Ethan Kyle	2	1	2nd	Fri/4	All	All	308

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U154001	Cultural Aspects of Health Care-E2	ANAGNOSTOU, Despoina	2	1	2nd	Tue/3	All	All	309
Career Development		***International Communication***							
W224001	Theory and Practice in Scientific Writing and Discussion (Pharmaceutical Sciences, English)A-E3	CAMPBELL, Douglas Simon	2	1	1st	Mon/4	2nd or above	Science	310
W225001	Theory and Practice in Scientific Writing and Discussion (Pharmaceutical Sciences, English)B-E3	Martin Robert	2	1	2nd	Mon/4	2nd or above	Science	311
W236001	Scientific English II-E3(Presentation & Discussion)	ZHU Fan	2	1	1st	Fri/3	2nd or above	Science	313
W237001	Advanced Scientific English-E3(Debate)	SCHMOECKER, Jan-Dirk	2	1	2nd	Wed/2	2nd or above	Science	314
W228001	Business English-E3	WILLIAM BABER	2	1	1st	Tue/2	2nd or above	All	315
W228002	Business English-E3	WILLIAM BABER	2	1	2nd	Thu/4	2nd or above	All	316
W229001	Business Thinking-E3	WILLIAM BABER	2	1	1st	Wed/2	2nd or above	All	317
W230001	Negotiation-E3	WILLIAM BABER	2	1	2nd	Wed/4	2nd or above	All	318
W231001	Digesting Scientific English-E3	Duncan Wilson	2	1	1st	Fri/4	2nd or above	All	319
W232001	Scientific Writing and Presenting in English-E3	Duncan Wilson	2	1	2nd	Fri/4	2nd or above	All	320
Interdisciplinary Sciences		***Interdisciplinary Sciences***							
Y102001	Interdisciplinary Sciences-E2:Global Changes	YODEN, Shigeo	2	1	2nd	Thu/5	Mainly 1st	All	321
Interdisciplinary Sciences		***Environmental Sciences***							
Y213001	Introduction to Sustainable Development-E2	MCLELLAN, Benjamin	2	1	1st	Thu/2	Mainly 1st & 2nd	All	323
Y213002	Introduction to Sustainable Development-E2	TRENCHER, Gregory	2	1	2nd	Thu/2	Mainly 1st & 2nd	All	324
Y208001	Chemistry, Society and Environment-E2	MCLELLAN, Benjamin	2	1	1st	Thu/1	Mainly 1st & 2nd	Science	325
Y209001	Human-environmental Interactions-E2	TRENCHER, Gregory	2	1	1st	Thu/5	Mainly 1st & 2nd	All	326
Y227001	Climate Change and Human Activities-E2:Introduction to Humanosphere	Luce, Hubert	2	1	1st	Fri/4	Mainly 1st & 2nd	All	327
Y226001	Environmental Monitoring for Humanosphere-E2:Introduction to Humanosphere	Luce, Hubert	2	1	2nd	Fri/4	Mainly 1st & 2nd	All	329
Y221001	Sustainable Forest Environment-E2	KOCH, Michael Conrad	2	1	1st	Fri/2	Mainly 1st & 2nd	All	330
Y225001	Introduction to Biogeochemistry-E2	Daniel Epron	2	1	1st	Mon/2	Mainly 1st & 2nd	All	331
Y212001	Introduction to Food Sustainability-E2	Garry John PILLER	2	1	2nd	Thu/2	Mainly 1st & 2nd	All	332
Y214001	Natural Disaster Science-E2	Sameh Kantoush	2	1	2nd	Thu/4	All	All	333
Seminars in Liberal Arts and Sciences									
Z002075	ILAS Seminar-E2 :Global Environmental Issues	Daniel Epron	2	1	1st	Mon/5	Mainly 1st	All	334

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Z002002	ILAS Seminar-E2:Introduction to Logic, Proofs and Programs	THIES, Holger	2	1	1st	Mon/5	Mainly 1st	All	335
Z002026	ILAS Seminar-E2 :Methods in Ecology and Natural History	BARNETT, Craig Antony	2	1	1st	Mon/5	Mainly 1st	All	336
Z002003	ILAS Seminar-E2 :The wonderful world of quantum physics	PETERS,Robert	2	1	1st	Mon/5	Mainly 1st	All	337
Z002039	ILAS Seminar-E2 :Topics in Frontier Physics	WENDELL,Roger	2	1	1st	Mon/5	Mainly 1st	All	338
Z002071	ILAS Seminar-E2 :Clinical and ethical issues within palliative care- the European Context	ANAGNOSTOU, Despoina	2	1	1st	Tue/5	Mainly 1st	All	339
Z002058	ILAS Seminar-E2 :Food Systems in Asia	Hart Nadav FEUER	2	1	1st	Tue/5	Mainly 1st	All	340
Z002073	ILAS Seminar-E2 :History and Theory of Modern Architecture	DANIELL, Thomas Charles	2	1	1st	Tue/5	Mainly 1st	All	341
Z002084	ILAS Seminar-E2 :Introduction to Organic Electronics	MURDEY, Richard James	2	1	1st	Tue/5	Mainly 1st	All	342
Z002021	ILAS Seminar-E2 :Logic, critical thinking and argument (Natural Sciences and Engineering)	MCLELLAN, Benjamin	2	1	1st	Tue/5	Mainly 1st	All	343
Z002078	ILAS Seminar-E2 :Mental Health and Social Isolation in Japan	TAJAN, Nicolas Pierre	2	1	1st	Tue/5	Mainly 1st	All	344
Z002079	ILAS Seminar-E2 :Nanostructured Materials	GAO, Si	2	1	1st	Tue/5	Mainly 1st	All	345
Z002082	ILAS Seminar-E2 :Sensors in Everyday Life	PINCELLA, Francesca	2	1	1st	Tue/5	Mainly 1st	All	346
Z002031	ILAS Seminar-E2 :What are Liquids? Answers from Physics, Chemistry and Engineering	THUERMER, Stephan	2	1	1st	Tue/5	Mainly 1st	All	347
Z002010	ILAS Seminar-E2 :A Beginners' guide to Carrying out Field Surveys and Qualitative Research	SAMADDAR, Subhajyoti	2	1	1st	Wed/5	Mainly 1st	All	349
Z002093	ILAS Seminar-E2 :Chaos theory	DECHANT, Andreas	2	1	1st	Wed/5	Mainly 1st	All	351
Z002085	ILAS Seminar-E2 :Computer simulations in Biology	BRANDANI, Giovanni・Bruno	2	1	1st	Wed/5	Mainly 1st	All	352
Z002097	ILAS Seminar-E2 :Critical Thinking in Ethics	Campbell, Michael	2	1	1st	Wed/5	Mainly 1st	All	353
Z002008	ILAS Seminar-E2 :Frontiers in Theoretical Physics I	Antonio De Felice	2	1	1st	Wed/5	Mainly 1st	All	354
Z002004	ILAS Seminar-E2 :Frontiers of Earthquake Science	ENESCU, Bogdan Dumitru	2	1	1st	Wed/5	Mainly 1st	All	355
Z002014	ILAS Seminar-E2 :Introduction to Human Genetics and Genetic Disease	Marco,Marques Candeias	2	1	1st	Wed/5	Mainly 1st	All	356
Z002095	ILAS Seminar-E2 :Physiological Neuroscience	RAUDZUS, Fabian	2	1	1st	Wed/5	Mainly 1st	All	357
Z002090	ILAS Seminar-E2 :Psychology of Addiction	SAHKER, Ethan Kyle	2	1	1st	Wed/5	Mainly 1st	All	358
Z002083	ILAS Seminar-E2 :Religion and Law	ALVAREZ ORTEGA, Miguel	2	1	1st	Wed/5	Mainly 1st	All	359
Z002080	ILAS Seminar-E2 :Introduction to Probability	Croydon, David Alexander	2	1	1st	Thu/4	Mainly 1st	All	360

Courses 授業科目一覧

Lecture code	Course title	Instructor	No. of credits	No. of weekly time blocks	Seme-ster	Day/ Period	Target year	Eligible students	Page
Z002091	ILAS Seminar-E2 :A stroll around materials chemistry - Superconducting materials	Yi Wei	2	1	1st	Thu/5	Mainly 1st	All	361
Z002041	ILAS Seminar-E2 :Encounters with modern arithmetic	UEDA, Fukuhiro	2	1	1st	Thu/5	Mainly 1st	All	362
Z002019	ILAS Seminar-E2 :How to Read a Scientific Paper	Adam Tsuda GUY	2	1	1st	Thu/5	Mainly 1st	All	363
Z002022	ILAS Seminar-E2 :Introduction to Stem and iPS Cells	Marco,Marques Candeias	2	1	1st	Thu/5	Mainly 1st	All	364
Z002017	ILAS Seminar-E2 :Introduction to Biomedical Presentation and Debate	Walinda, Erik	2	1	1st	Thu/5	Mainly 1st	All	365
Z002018	ILAS Seminar-E2 :Introduction to the biology of nematodes	CARLTON, Peter	2	1	1st	Thu/5	Mainly 1st	All	367
Z002061	ILAS Seminar-E2 :Introduction to cross-cultural communication	LAHOURNAT, Florence	2	1	1st	Thu/5	Mainly 1st	All	368
Z002068	ILAS Seminar-E2 :Programming for data analysis	VANDENBON, Alexis	2	1	1st	Thu/5	Mainly 1st	All	370
Z002050	ILAS Seminar-E2 :The Invisible Universe	LEE, Shiu Hang	2	1	1st	Thu/5	Mainly 1st	All	371
Z002052	ILAS Seminar-E2 :Wonders of semiconductor	DE ZOYSA, Menaka	2	1	1st	Thu/5	Mainly 1st	All	372
Z002099	ILAS Seminar-E2 :Fundamentals of Earth's atmosphere dynamics and climate	Luce, Hubert	2	1	1st	Fri/5	Mainly 1st	All	373
Z002089	ILAS Seminar-E2 :How to make nano-machines	BANERJEE, Amit	2	1	1st	Fri/5	Mainly 1st	All	375
Z002027	ILAS Seminar-E2 :Introduction to life science and scientific conversation	Walinda, Erik	2	1	1st	Fri/5	Mainly 1st	All	376
Z002086	ILAS Seminar-E2 :It's a Bug's Life - bacteria and viruses	KIM, Minsoo	2	1	1st	Fri/5	Mainly 1st	All	377
Z002069	ILAS Seminar-E2 :Let's create 3D computer animations	PATAKY, Todd	2	1	1st	Fri/5	Mainly 1st	All	378
Z002056	ILAS Seminar-E2 :Regional Disaster Prevention	KOCH, Michael Conrad	2	1	1st	Fri/5	Mainly 1st	All	380
Z002100	ILAS Seminar-E2 :Experiential short training course in basic life sciences using marine organism	Martin Robert	2	1	1st/int	-	Mainly 1st	All	381
Z002046	ILAS Seminar-E2 :Applying Data Science and AI to Healthcare - Novel Approaches in Modern Epidemiology	LUO, Yan	2	1	1st	Fri/5	Mainly 1st	All	383
Z002013	ILAS Seminar-E2 :How to Study Atoms and Molecules with the Help of Light	THUERMER, Stephan	2	1	2nd	Tue/5	Mainly 1st	All	384
Z002016	ILAS Seminar-E2 :Frontiers in Theoretical Physics II	Antonio De Felice	2	1	2nd	Wed/5	Mainly 1st	All	386
Z002033	ILAS Seminar-E2 :Biochemistry Principles	Walinda, Erik	2	1	2nd	Thu/5	Mainly 1st	All	387
Z002034	ILAS Seminar-E2 :Introduction to the biology of nematodes	CARLTON, Peter	2	1	2nd	Thu/5	Mainly 1st	All	388
Z002036	ILAS Seminar-E2 :Introduction to Bird Study - Ornithology	BARNETT, Craig Antony	2	1	2nd	Mon/5	Mainly 1st	All	389
Z002037	ILAS Seminar-E2 :Earthquakes & Volcanoes - Prediction and Hazards	ENESCU, Bogdan Dumitru	2	1	2nd	Thu/5	Mainly 1st	All	390

Lecture code	Course title	Instructor	No. of credits	No. of weekly time blocks	Seme-ster	Day/ Period	Target year	Eligible students	Page
Z002038	ILAS Seminar-E2 :Biochemistry Principles	Walinda, Erik	2	1	2nd	Fri/5	Mainly 1st	All	391
Z002045	ILAS Seminar-E2 :Critical thinking and Communication skills	LUO, Yan	2	1	2nd		Mainly 1st	All	392
Z002049	ILAS Seminar-E2 :Discussions in Biomechanics and Biophysics	Not fixed	2	1	2nd	Mon/5	Mainly 1st	All	393
Z002053	ILAS Seminar-E2 :What is light?	DE ZOYSA, Menaka	2	1	2nd	Thu/5	Mainly 1st	All	394
Z002057	ILAS Seminar-E2 :Geo-Disaster Risk Reduction and Prevention	KOCH, Michael Conrad	2	1	2nd	Fri/5	Mainly 1st	All	395
Z002059	ILAS Seminar-E2 :Food Systems in Asia	Hart Nadav FEUER	2	1	2nd	Tue/5	Mainly 1st	All	396
Z002066	ILAS Seminar-E2 :Introductory Bioinformatics	VANDENBON, Alexis	2	1	2nd	Thu/5	Mainly 1st	All	397
Z002070	ILAS Seminar-E2 :Let's simulate human movement	PATAKY, Todd	2	1	2nd	Fri/5	Mainly 1st	All	398
Z002072	ILAS Seminar-E2 :Understanding and critical appraisal of qualitative research methods in health care	ANAGNOSTOU, Despoina	2	1	2nd	Tue/5	Mainly 1st	All	400
Z002074	ILAS Seminar-E2 :Radical Art and Politics in Japan 1960-70	DANIELL, Thomas Charles	2	1	2nd	Tue/5	Mainly 1st	All	402
Z002076	ILAS Seminar-E2 :Technology and Modern Society - A Historical Perspective	ISLAM, A K M Mahfuzul	2	1	2nd	Fri/5	Mainly 1st	All	403
Z002087	ILAS Seminar-E2 :Encounters with modern arithmetic	UEDA, Fukuhiro	2	1	2nd	Thu/5	Mainly 1st	All	404
Z002088	ILAS Seminar-E2 :How to make scientific Breakthrough- Learning from Nobel discoveries	KIM, Minsoo	2	1	2nd	Fri/5	Mainly 1st	All	405
Z002092	ILAS Seminar-E2 :Physics of Life	DECHANT, Andreas	2	1	2nd	Wed/5	Mainly 1st	All	406
Z002094	ILAS Seminar-E2 :Climate change impacts on the humanosphere	Luce, Hubert	2	1	2nd	Fri/5	Mainly 1st	All	407
Z002096	ILAS Seminar-E2 :Disorders of the Nervous System	RAUDZUS, Fabian	2	1	2nd	Wed/5	Mainly 1st	All	408
Z003006	ILAS Seminar (Overseas) :Conflict Management[Global Water Issues]	SUMI, Tetsuya	2	1	1st/int	-	Mainly 1st	All	409
Common Graduate Courses		***Social Responsibility and Profitability***							
G107001	Research Ethics and Integrity (Science and Technology)	MURDEY, Richard James	0.5	1	1st/int	-		Science	411
G107002	Research Ethics and Integrity(Humanities and Social Sciences)	Campbell, Michael	0.5	1	1st/int	-		Liberal Arts	412
G107003	Research Ethics and Integrity(Humanities and Social Sciences)	Campbell, Michael	0.5	1	2nd/int	-		Liberal Arts	413
G107004	Research Ethics and Integrity(Life Science)	MURDEY, Richard James	0.5	1	1st/int	-		Science	414

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How to read Syllabi シラバスの見方

注意:ここに掲載されている授業内容は 2023 年 2 月時点のものです。内容が変更されている可能性がありますので、最新の授業内容は KULASIS をご確認ください。
Notice: Syllabi in this booklet are based on the information as of February, 2023. The information described herein is subject to change, so find the latest information on KULASIS.

※ ILASセミナー用フォーマット / For ILAS Seminars

Lecture code: 講義コード

Course number					
Course title (and course title in English)	授業科目名 ＜英訳＞			Instructor's name, job title, and department of affiliation	担当者所属 職名・氏名
Group	群			Field(Classification)	分野（分類）
Language of instruction	使用言語	Old group	旧群※ 1	Number of credits	単位数
Number of weekly time blocks	週コマ数	Class style	授業形態	Year/semesters	開講年度・開講期※ 2
Days and periods	曜時限※ 3	Target year	配当学年	Eligible students	対象学生

[Overview and purpose of the course]
授業の概要・目的

[Course objectives]
到達目標

[Course schedule and contents)]
授業計画と内容※ 4

[Course requirements]
履修要件

[Evaluation methods and policy]
成績評価の方法・観点※ 4

[Textbooks]
教科書

[Study outside of class (preparation and review)]
授業外学修（予習・復習）等

[Other information (office hours, etc.)]
その他（オフィスアワー）等

Lecture code: 講義コード

Course number					
Course title (and course title in English)	授業科目名 ＜英訳＞			Instructor's name, job title, and department of affiliation	担当者所属 職名・氏名
Group	群	Number of credits	単位数	Number of weekly time blocks	週コマ数
Class style	授業形態	Year/semesters	開講年度・開講期※ 2	Quota (Freshman)	受講定員 (1回生定員)
Target year	配当学年	Eligible students	対象学生	Days and periods	曜時限※ 3
Classroom	教室			Language of instruction	使用言語
Keyword	キーワード				

[Overview and purpose of the course]
授業の概要・目的

[Course objectives]
到達目標

[Course schedule and contents)]
授業計画と内容※ 4

[Course requirements]
履修要件

[Evaluation methods and policy]
成績評価の方法・観点※ 4

[Textbooks]
教科書

[Study outside of class (preparation and review)]
授業外学修（予習・復習）等

[Other information (office hours, etc.)]
その他（オフィスアワー）等

※ 1
平成24年度以前入学者用の群を表記しています。平成24年度以前入学者については、この欄に記載した群により、学部ごとに修得すべき全学共通科目の単位数が決められています。

In this space, course groups for students enrolled in or before 2012 are described. The required number of credits for liberal arts and sciences courses from each group is fixed by each faculty for enrolled students enrolled in or before 2012.

※ 2
First Semester (前期）: From April to September
Second Semester (後期）: From October to March

※ 3
1st period: 8:45 - 10:15
2nd period: 10:30 - 12:00
3rd period: 13:15 - 14:45
4th period: 15:00 - 16:30
5th period: 16:45 - 18:15

※ 4
ここに掲載されているシラバスは、各科目の概要を伝えるものです。科目を選択する際の参考にしてください。実際の授業は、教員と参加する学生によって作られていくものです。そのため、授業の進捗状況や受講生の習熟度などによって、「授業計画と内容」、「成績評価の方法・観点」が変わる場合があります。それらの変更については、教員が授業の中で受講生に直接伝えることを原則としています。

Syllabi in this booklet describe the overview of each course. Please refer to it when you select courses. Instructors and students who attend the class make the actual course. Therefore, “Course schedule and and contents” and “Evaluation methods and policy” might bechanged based on the progress of the course or proficiency level of the students. In that case, the changes should be informed from the instructor to students directly in class.

Lecture code: H165001

Course number	U-LAS00 10030 LE34				
Course title (and course title in English)	Ethics I-E2 Ethics I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Letters Assistant Professor,Campbell, Michael		
Group	Humanities and Social Sciences	Field(Classification)	Philosophy(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course concerns the topic of practical necessity. Practical necessities are considerations that play a special role in shaping deliberation over what to do. Their most easily visible manifestation is in claims to the effect that one 'must' or 'cannot' do something. We deal with such limits whenever we obey a sign which says ' private, no entry', or say that we cannot make it to an appointment on time, or when it is said that it is our duty to stand up for what we think is right. The distinctive features of practical necessity, supposing there to be such, may show us something about the nature of agency, as well as helping us to understand the relation of agents to the world around them.

Worries surrounding the concept of practical necessity came to a head in British philosophy immediately after the Second World War, when notions such as duty and obligation had been thrown into sharp relief. As such, the category provides a useful lens through which to examine the philosophical views of the philosophers of that time. In this course we will look at the ways in which this concept has been deployed in moral philosophy, beginning with the work of Joseph Butler and Immanuel Kant and then moving into 20th Century moral philosophy.

[Course objectives]

・To familiarise students with some of the aims, methods and problems of contemporary moral philosophy.
・To develop a deepened understanding of certain perennial questions concerning the nature of action, moral responsibility and goodness.
・ To introduce a tradition of thought concerning ethics spanning from the 18th to the 20th Centuries.
・To develop students' ability to reason critically, to construct and critique arguments and to write philosophical essays in English.

[Course schedule and contents)]

During the course we will consider how the concept of practical necessity has been deployed throughout the history of Western philosophy, paying particular attention to the development and change of the concept between the 18th Century and the 20th Century.

During the first few weeks I will introduce the historical and conceptual background. The conceptual background will include the distinction between theoretical and practical reason; the relations between judgements of necessity, possibility and what ought to be done; and the relations between judgements of rightness and of goodness.

Continue to Ethics I-E2(2)↓↓↓

Ethics I-E2(2)

After this, we will go on to consider in detail the work of Bishop Butler and Immanuel Kant, paying particular attention to Butler's Fifteen Sermons (1726) and Kant's Groundwork for the Metaphysics of Morals (Grundlegung zur Metaphysik der Sitten) (1785).

We will then jump ahead to the 20th Century where we will first consider briefly the work of the British pre-War moral philosophers, especially HA Pritchard and GE Moore, and then will go on to consider how the concept of practical necessity was taken up in the post-War period, paying particular attention to the work of RM Hare, Philippa Foot, Peter Winch and Iris Murdoch.

1-3 Introduction: the conceptual and historical background
4-5: Joseph Butler
6-9: Immanuel Kant
10-11: The Pre-War philosophers
12-14: The Post-War philosophers
15: Feedback class

[Course requirements]

A good level of English comprehension (listening, reading and writing) is necessary for this course. No previous knowledge of philosophy is presumed, though familiarity with the background concepts of the discipline will be an advantage.

[Evaluation methods and policy]

There will be a series of short quizzes or writing assignments spread out through the semester. This is to encourage students to practice writing and to help guide the students in their reading outside of class.

Assessment will be based on quiz (40%) and final paper (60%).

Final grade will be given in raw score form (out of 100).

[Textbooks]

The primary text which students will require is a copy of Kant's Groundwork for the Metaphysics of Morals (Grundlegung zur Metaphysik der Sitten). This is widely available and has been translated into many languages. For the other thinkers, I will provide pdfs of the required reading on the PandA site.

[Study outside of class (preparation and review)]

Students will be expected to read the required text in preparation for the lecture. They will also be expected to complete quizzes periodically in the semester. Secondary literature will be made available for students who want to do extra reading. As the course develops students should also do preparatory work for their final paper.

[Other information (office hours, etc.)]

Communication via email and PandA. Instructors office hours to be found on KULASIS or by enquiry.

Lecture code: H166001

Course number	U-LAS00 10031 LE34				
Course title (and course title in English)	Ethics II-E2 Ethics II-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Letters Assistant Professor,Campbell, Michael		
Group	Humanities and Social Sciences	**Field(Classification)**	Philosophy(Foundations)		
Language of instruction	English	**Old group**	Group A	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・Second semester
Days and periods	Mon.2	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For all majors

[Overview and purpose of the course]

Truth, Courage and Justice in Socrates, Plato and Aristotle

Socrates Plato and Aristotle are arguably the three most significant philosophers in the Western canon. In this course students will be introduced to the key thoughts of three figures, and will see how their different philosophical and ethical convictions influenced the development of Western thought. We will approach these philosophers by considering how they understood the concepts of truth, courage and justice, and the interrelations between them. Along the way we will examine questions concerning the rationality of justice, whether being virtuous can be justified against skeptical challenge, and how virtue relates to our intellectual responsibilities in the pursuit of truth. Our primary texts will be selections from the early ‘Socratic’ dialogues of Plato, and selections from Plato’s Republic, and Aristotle’s Nicomachean Ethics and Politics.

[Course objectives]

- To familiarise students with some of the central aims, methods, and problems of Western philosophy, especially in metaphysics, ethics, and political philosophy.
- To introduce students to certain key texts and thinkers in the history of Western philosophy.
- To investigate the nature of courage and justice, and the relation of these notions to our understandings of truth, virtue, and human nature.
- To develop students' abilities to reason critically, to interpret philosophical texts, to construct and critique arguments, and to write philosophical essays in English.

[Course schedule and contents)]

Week 1 Introduction: studying Ancient Greek philosophy
Weeks 2-4 Socrates - the relation between virtue and knowledge, truth and dialectic, elenchus and aporia
Weeks 5-9 Plato's Republic - the distinction between nomos and phusis; the ring of Gyges; Thrasymachus' challenge
Weeks 10-14 Aristotle's Politics and Nicomachean Ethics - nature as telos; varieties of Aristotelian naturalism; reductive vs. non-reductive justifications of virtue
Week 16 Feedback class

Continue to Ethics II-E2(2)↓↓↓

Ethics II-E2(2)

[Course requirements]

A good level of English comprehension (listening, reading and writing) is necessary for this course. No previous knowledge of philosophy is presumed, though familiarity with the background concepts of the discipline will be an advantage.

[Evaluation methods and policy]

Evaluation will be conducted by quiz (40%) and final paper (60%). Students will be given a raw score grade (out of 100).

[Textbooks]

Primary texts for the course are Plato’s dialogues (especially The Republic and the early Socratic dialogues) and Aristotle’s Politics and Nicomachean Ethics. Both of these are widely available in translation in multiple languages. I recommend that students acquire copies of these texts. However, it is not mandatory, as students will be provided with copies of the requisite primary readings in pdf form at the start of the semester.

[Study outside of class (preparation and review)]

Students will be expected to read the required text in preparation for the lecture. They will also be expected to complete a series of quizzes throughout the semester to test their comprehension. Secondary literature will be made available for students who want to do extra reading. As the course develops students should also do preparatory work for their final term papers.

[Other information (office hours, etc.)]

Communication via email and PandA. Office hours to be advertised via KULASIS or by email on enquiry.

Lecture code: H155001

Course number	U-LAS00 10006 LE34		
Course title (and course title in English)	Logic I-E2 :Sentential Logic and Deductions Logic I-E2 :Sentential Logic and Deductions	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,SAHKER, ETHAN KYLE

Group	Humanities and Social Sciences	Field(Classification)	Philosophy(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.4	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

Students of all disciplines will learn the basic concepts of logic. This class is not based on mathematical logic, it is philosophical and a foundation of all logical reasoning. Logic is the study of evaluating thought processes and determining the quality of reasoning and argumentation. Students will learn how to develop and evaluate persuasive arguments through deductive reasoning. Deductive reasoning identifies a general “truth” and then determines the validity of the observational conclusions. First, an introduction to the philosophy and concepts of logic will be presented. Then, concrete methods and principles used to identify and evaluate reasoning will be discussed. The content of the course applies to everyday thought processes and will cover informal and formal logic with respect to word choice and deduction.
Students will actively practice:
(1) identifying propositions and arguments
(2) evaluating logical fallacies, syllogisms, and deduction
(3) using symbolic representation as quantifiers of logic and reasoning

[Course objectives]

(1) To develop an ability to evaluate the intent/meaning of statements and systematically evaluate validity.
(2) To gain skills in the extraction and development of valid logical conclusions.
(3) Students will practice writing phrases in English based on logical arguments, with emphasis on simplicity and clarity. After completion of the course, students should acquire improved communication skills in English and their native language.

[Course schedule and contents)]

(1) Course overview and introduction to logic
(2-3) Basic Concepts
(4-5) Language, meaning, and definition
(6-7) Informal fallacies
(8-9) Categorical propositions & Syllogisms
(10-11) Propositional logic & Deduction
(12-13) Predicate logic
(14) Review
(15) Final exam
(16) Feedback

Continue to Logic I-E2 :Sentential Logic and Deductions(2)↓↓↓

Logic I-E2 :Sentential Logic and Deductions(2)

[Course requirements]

None

[Evaluation methods and policy]

20% - Quizes
40% - Final Exam
20% - Short Personal Reflection Paper
20% - Attendance and Active Participation

[Textbooks]

Not used
Not required. Optional reference books are provided below

[References, etc.]

（**Reference book**）
Lee SF. (2017). 『Logic: A complete introduction.』 ISBN:B01J24WGYW

[Study outside of class (preparation and review)]

Students are recommended to review prior lecture content for 2-3 hours per week outside of class.

[Other information (office hours, etc.)]

Students are expected to complete assignments before class and come prepared to discuss the topics. One short personal reflection paper will also be required.

Lecture code: H156001

Course number	U-LAS00 10008 LE34		
Course title (and course title in English)	Logic II-E2 :Quantificational Logic and Deductions Logic II-E2 :Quantificational Logic and Deductions	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,SAHKER, ETHAN KYLE

Group	Humanities and Social Sciences	Field(Classification)	Philosophy(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.4	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

Students will develop applied skills in Logic II. Basic logic concepts and deductive reasoning will be advanced toward incorporating methods of inductive reasoning. Inductive reasoning takes observations and infers a general "truth" from those observations. As an extension of the methods and principles used to identify and use reasoning, students will learn causal and probabilistic theories and methods for the evaluation of reasoning.
Concepts and skills learned in Logic II will cover methodologies used within the humanities and the sciences. Students will actively practice:
(1) formation of comparisons for understanding and persuasion
(2) logic applied to statistical applications
(3) logic and reasoning in academic writing and evaluation

[Course objectives]

(1) To acquire the ability to assess an argument to determine the validity of the inductive reasoning methods.
(2) To learn to evaluate scientific writing based on the presented reasoning and statistical conclusions presented.
(3) To develop an enhanced ability to write clear and systematic arguments using systematic reasoning.

[Course schedule and contents)]

(1) Course overview and introduction to logic
(2-3) Analogy, legal and moral reasoning
(4-5) Methods for identifying causality
(6-7) Probability
(8-9) Statistical reasoning
(10-11) Hypothetical and scientific reasoning
(12-13) Evaluating science
(14) Review
(15) Final exam
(16) Feedback

Continue to Logic II-E2 :Quantificational Logic and Deductions(2)↓↓↓

[Course requirements]

None

[Evaluation methods and policy]

30% - Quizzes
20% - Short Personal Reflection Paper
30% - Research Design Project
20% - Attendance and Active Participation

[Textbooks]

Not used

[Study outside of class (preparation and review)]

Students are expected to complete assignments before class and come prepared to discuss the topics. One short personal reflection paper will also be required.

[Other information (office hours, etc.)]

Students may contact the instructor if they have questions and they may schedule an in-person appointment by email.

Lecture code: H149001

Course number	U-LAS00 10012 LE34		
Course title (and course title in English)	The History of Eastern Thought I-E2 The History of Eastern Thought I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Letters Associate Professor,CATT, Adam Alvah

Group	Humanities and Social Sciences	Field(Classification)	Philosophy(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.2	Target year	All students	Eligible students	For liberal arts students

[Overview and purpose of the course]

This course is designed as an introduction to early eastern philosophical and religious thought. We will begin with a reading of early Indian Vedic literature and then turn our focus to Zoroastrianism and early and later forms of Buddhism.

[Course objectives]

By the end of this course, students will have gained a basic understanding of eastern philosophical and religious thought.

[Course schedule and contents)]

The course is divided into the following four sections, each with a different theme.

1. Introduction (about 2 weeks)
Indo-Iranian and Indo-European origins; shared cultural, linguistic, and religious material; comparative mythology

2. The Vedas and Upanishads (about 5 weeks)
Vedic and the Vedic world: language, texts, and ritual; the Rigveda and the Upanishads

3. Zoroastrianism (about 4 weeks)
Zoroaster and his world; Zoroastrian religion and literature; shared Indo-Iranian religious and cultural themes

4. Buddhism (about 3 weeks)
The Buddha; Buddhist texts and schools; Japanese Buddhism

Feedback (1 week)

[Course requirements]

None

Continue to The History of Eastern Thought I-E2(2)↓↓↓

The History of Eastern Thought I-E2(2)

[Evaluation methods and policy]

Grades are based on attendance/class participation (30%), and assignments/exams (70%). Important: If you miss four or more classes, you will not be given credit for the course.

[Textbooks]

Relevant materials will be provided in class.

[Study outside of class (preparation and review)]

Readings will be assigned on a weekly basis, and you will be expected to prepare sufficiently for each class. In addition, there are brief writing assignments for each section.

[Other information (office hours, etc.)]

Office hours to be specified (check KULASIS). For questions about the course or to set up a meeting, email me at catt.adam.7c@kyoto-u.ac.jp. Please include "Eastern Thought I" in the mail header and your full name and student number in the email. Important: Make sure that you search for answers to questions yourself before contacting me by email.

Lecture code: H150002

Course number	U-LAS00 10015 LE34		
Course title (and course title in English)	Science of Religion I-E2 Science of Religion I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Letters Associate Professor,CATT, Adam Alvah

Group	Humanities and Social Sciences	Field(Classification)	Philosophy(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.2	Target year	All students	Eligible students	For liberal arts students

[Overview and purpose of the course]

This course provides an introduction to methods for understanding and evaluating religious ideas and practices, focusing in particular on modern approaches such as evolutionary biology and cognitive psychology to address the question of where religious beliefs come from and why we find them so compelling.

[Course objectives]

By the end of this course, students will have gained a basic understanding of the scientific study of religion.

[Course schedule and contents)]

After an introduction to the course, each class (out of a total of 15 classes including classes for feedback) will be based around addressing the following two questions:

1. Why do we have religious beliefs?
2. How can religious beliefs be explained using the tools of anthropology, evolutionary biology, and cognitive psychology?

We will read and discuss chapters from the following two books:

Boyer, Pascal (2001) Religion Explained: The Evolutionary Origins of Religious Thought. Basic Books.

Atran, Scott (2002) In Gods We Trust: The Evolutionary Landscape of Religion. Oxford University Press.

Class 1: Introduction
Class 2: Boyer, pp. 1-25 (up to "Religion and the Social Mind" heading)
Class 3: Boyer, pp. 26-50
Class 4: Atran, pp. 51-67 (up to section 3.6.)
Class 5: Atran, pp. 67-79
Class 6: Atran, pp. 83-100 (up to section 4.7.)
Class 7: Atran, pp. 100-113
Class 8: Atran, pp. 114-130 (up to section 5.6.)
Class 9: Atran, pp. 130-146
Class 10: Atran, pp. 174-186 (up to section 7.4.)
Class 11: Atran, pp. 186-196

Continue to Science of Religion I-E2(2)↓↓↓

Science of Religion I-E2(2)

Class 12: Video: Robert Sapolsky "The Biological Underpinnings of Religiosity" (1h22m)
Class 13: Atran, pp. 263-271 (up to section 10.8.)
Class 14: Atran, pp. 271-280
Class 15: Feedback

[Course requirements]

None

[Evaluation methods and policy]

Grades are based on attendance/class participation (30%), and assignments/exams (70%). Important: If you miss four or more classes, you will not be given credit for the course.

[Textbooks]

Relevant materials will be provided in class.

[References, etc.]

(**Reference book**)
Introduced during class

[Study outside of class (preparation and review)]

Readings will be assigned on a weekly basis, and you will be expected to prepare sufficiently for each class. Each student will be required to give a presentation on the readings.

[Other information (office hours, etc.)]

Office hours to be specified (check KULASIS). For questions about the course or to set up a meeting, email me at catt.adam.7c@kyoto-u.ac.jp. Please include "Religion" in the mail header and your full name and student number in the email. Important: Make sure that you search for answers to questions yourself before contacting me by email.

Lecture code: H151001

Course number	U-LAS00 10021 LE34				
Course title (and course title in English)	History of Modern Science-E2 History of Modern Science-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Asian and African Area Studies Professor,D'SOUZA, Rohan Ignatious		
Group	Humanities and Social Sciences	**Field(Classification)**	Philosophy(Foundations)		
Language of instruction	English	**Old group**	Group A	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Tue.3	**Target year**	All students	**Eligible students**	For all majors

[Overview and purpose of the course]

Broadly, in part one [semester: April-September], the course will introduce students to some of the main 'historiographical debates' that have shaped our understanding of modern science. In the standard narrative, the period between the discoveries of Galileo Galilei (1564-1642) and the mathematical formulations of Isaac Newton (1642-1726/27) has generally been considered to have inaugurated the scientific revolution. This course, however, will aim to view the same period as actually marked by an equally important shift that defined modern science: heralding the end of Aristotelianism and the re-emergence of Platonism.

[Course objectives]

By introducing students to some of the historiographical debates on the origins and defining features of what constitutes modern science, this course aims to achieve three main goals: a) a basic introductory understanding of some of the main ideas of the leading thinkers on modern science; b) a biographical sketch of the natural philosophers of the period leading up to the 'Scientific Revolution' and c) how history as a disciplinary field debates modern science as a distinct historical moment.

[Course schedule and contents)]

Each class will comprise a 90 minute session; involving a lecture of 60 minutes and followed by a 30 minute interactive discussion in which student participation will also be elicited through either group or individual presentations.
Four themes will be covered in this class and each theme will be covered in three to four weeks.(Total : 14 classes and one feedback)
a) Plato's (429?-347 B.C.E.) and Aristotle's (384-322 B.C.E.)
b) From Geocentricism to Heliocentrism
c) Mechanical Philosophy to the Newtonian World View
d) The Scientific Revolution

[Course requirements]

None

Continue to History of Modern Science-E2(2)↓↓↓

History of Modern Science-E2(2)

[Evaluation methods and policy]

There will be a regular cycle of written submissions and feedback through class discussions. The idea is to develop a credible capacity for reading and writing amongst those who take up the course.

Evaluations will be based on two tutorial assignments, which will carry a 50% grade for each.

[Textbooks]

Not used

[References, etc.]

(Reference book)

Steven Shapin 『The Scientific Revolution』 (University of Chicago Press 1996) ISBN:978-0226750217
Margaret J. Osler 『Reconfiguring the World: Nature, God and Human Understanding from the Middle Ages to Early Modern Europe』 (The John Hopkins Press: Baltimore 2010) ISBN:978-0801896569
Alfred North Whitehead 『Science and the Modern World』 (The Free Press: New York 1967 [1925]) ISBN: 978-0684836393
Deepak Kumar 『Science and the Raj : a study of British India』 (Oxford University Press; New Delhi 2006 (2nd edition) [1995]) ISBN: 978-0195680034
Hiromi Mizuno 『Science for the Empire: Scientific Nationalism in Modern Japan』 (Stanford University Press: Stanford 2008) ISBN:978-0804776561

(Related URL)

(Relevant sections and chapters from the above books will be assigned as readings for the course. Other reading materials such as articles or short write-ups may be included based on class discussions and interest.)

[Study outside of class (preparation and review)]

Students will be expected to have read at least five pages of pre-assigned reading, at the very minimum, before attending each class.

[Other information (office hours, etc.)]

Students can meet me during office hours with prior appointment.

Lecture code: H154001

Course number	U-LAS00 10022 LE34		
Course title (and course title in English)	Philosophy of Modern Science-E2 Philosophy of Modern Science-E2	Instructor's name, job title, and department of affiliation	Graduate School of Asian and African Area Studies Professor,D'SOUZA, Rohan Ignatious

Group	Humanities and Social Sciences	Field(Classification)	Philosophy(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course will introduce students to a growing sub-field termed as the philosophy of science. The central question that will be discussed concerns the lively debates over how science and scientific activity have been sought to be defined . Given the introductory nature of the course, the effort will be to first guide students towards understanding some of the basic philosophical discussions on induction and deduction and realism and anti-realism. Following which, we will survey the conceptual terrain from logical positivism, falsification, paradigm science and methodological anarchism.

[Course objectives]

The effort in this course is to help students understand how a focus on definitions can often be philosophically intractable and defy easy conceptualisation. The philosophy of modern science, moreover, will enable students to reflect on how the definitional boundaries between objectivity and subjectivity are fraught. Science, hence, is also open to sociological questioning and is becomes an important domain for enquiry in the social sciences.

[Course schedule and contents)]

Each class will comprise a 90 minute session; involving a lecture of 60 minutes and followed by a 30 minute interactive discussion in which student participation will also be elicited through either group or individual presentations.
Four themes will be covered in this class and each theme will be covered in three to four weeks.（Total:14 classes and one feedback）
a)Induction and deduction; realism and anti-realism; objectivity and subjectivity
b)Logical Positivism and Karl Popper’s ‘Problem of Demarcation’
c)Thomas Kuhn’s notion of ‘normal Science’ and the ‘paradigm shift’
d)Paul Feyerabend and the notion of being ‘Against Method’

[Course requirements]

None

Continue to Philosophy of Modern Science-E2(2)↓↓↓

Philosophy of Modern Science-E2(2)

[Evaluation methods and policy]

There will be a regular cycle of written submissions and feedback through class discussions and The idea is to develop a credible capacity for reading and writing amongst those who take up the course.
Evaluations will be based on two tutorial assignment, with 50% grade for each.

[Textbooks]

Not used

[References, etc.]

（Reference book）

Donald Gillies 『Philosophy of Science in the 20th Century』（Blackwell）ISBN:978-0631183587
Anthony O’Hear 『Karl Popper』（Routledge）ISBN:978-0415084802
Thomas Kuhn 『The Essential Tension』（University of Chicago Press）ISBN:978-0226458069
Alexander Bird 『Thomas Kuhn』（Princeton University Press）
Paul Horwich (ed.) 『World Changes』（MIT Press）ISBN:978-0262581387
Paul Feyerabend 『Killing Time: The Autobiography of Paul Feyerabend』（University of Chicago Press）ISBN:978-0226245324
Paul Feyerabend 『Against Method』（Verso; 4th edition ）ISBN:978-1844674428
G. Andersson 『Criticism and the History of Science: Kuhn's, Lakatos's and Feyerabend's Criticisms of Critical Rationalism』（Leiden: Brill）
C. Hooker and P. Churchland (ed.) 『Images of Science』（University of Chicago Press）ISBN:978-0226106540
Jarrett Leplin (ed.) 『Scientific Realism』（University of California Press）ISBN:978-0520051553

（Related URL）

(Relevant sections and chapters from the above books will be assigned as readings for the course. Other reading materials such as articles or short write-ups may be included based on class discussions and interest.)

[Study outside of class (preparation and review)]

Students will be expected to have read at least five pages of pre-assigned reading, at the very minimum, before attending each class.

[Other information (office hours, etc.)]

Students can meet me during office hours with prior appointment.

Lecture code: H161001

Course number	U-LAS00 10026 LE34		
Course title (and course title in English)	Japanese Philosophy I-E2 Japanese Philosophy I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Letters Assistant Professor,WIRTZ, Fernando Gustavo
Group	Humanities and Social Sciences	Field(Classification)	Philosophy(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

In this class we will think about the problem of what it means to do philosophy in Japan. To do this we need to think about the difference between "Japanese philosophy," "philosophy in Japan," and "thought" (思想). The focus of the seminar will be Japanese philosophy in the 20th century, especially the Kyoto-school.

[Course objectives]

In this class, students will learn to
-critically reflect on the universality of philosophy
-recognize the main ideas of Japanese philosophy in the 20th century
-reconstruct the arguments of the different authors

[Course schedule and contents)]

Session 1: Introduction
Session 2: Nishida Kitaro
Session 3: Nishida Kitaro
Session 4: Tanabe Hajime
Session 5: Miki Kiyoshi
Session 6: Miki Kiyoshi
Session 7: Tosaka Jun
Session 8: Tosaka Jun
Session 9: Nationalism
Session 10: Nationalism
Session 11: Women philosophers and Feminism
Session 12: Women philosophers and Feminism
Session 13: Karatani Kojin
Session 14: Karatani Kojin
Session 15: Summary, evaluation of learning achievements, feedback

[Course requirements]

None

[Evaluation methods and policy]

CLASS POLICIES
Attendance:
Regular and punctual attendance is strongly recommended. Students will be tested on material discussed in

Continue to Japanese Philosophy I-E2(2)↓↓↓

Japanese Philosophy I-E2(2)

class as well as on material from course readings. If students miss class they are expected to borrow notes from another student. Students should make a genuine effort to understand missed material before speaking to the instructor. It is very important that you read the assigned texts BEFORE the class. Otherwise, it will be hard to follow the class. Of course, if you don' t understand something, you will be able to ask during class. The instructor is prepared to help students understand material, but is not prepared to give a second lecture to those who miss class.

Course Readings:
Students are expected to complete all required readings for classes and assignments, and should come to class familiar with course material to be discussed. It is possible the order of the readings may be altered, or that some materials may be omitted or added to the reading schedule. Any modifications to the reading schedule will be announced in advance.
There are OBLIGATORY readings, and OPTIONAL readings.
For the readings, you will require at least 1 hour each week.
I do not upload my slides, sorry.

Evaluation:
We will regularly have small quizzes on PANDA. These will consist of simple comprehension questions.
The final exam will consist of similar questions and will be face-to-face.
I expect you to be both physically and mentally present for each session. I will also expect you to participate in class. Participation includes active participation in class.

Normally each Quiz is worth 10 points.
Quizzes are included in the final grade.
The final exam represents 60% of the grade. If the final exam is not taken, it is not possible to pass the course! (If for health reasons it is not possible to take the exam, it is possible to make it up, but I must be notified in time).
Class participation and some small assignments count as an extra grade. That is, you can earn extra points for class participation (including asking questions) and other small assignments.
If you don't understand something, you should ask. This is an introductory course and in English, so it is normal that some things are not understood at first. If you do not understand a word in English, ask the teacher or the TA.
Philosophy texts are difficult at the beginning. You must read them more than once. If you don't understand, ask! That's what it's all about.

[Textbooks]

Introduced during class.

[References, etc.]

（Reference book）

General Bibliography
Davis, B. W. (2020)『The Oxford handbook of Japanese philosophy』（Oxford University Press）
Fujita, M. (2018)『The Philosophy of the Kyoto School』（Springer Singapore）
Goto-Jones, C. S. (2005)『Political Philosophy in Japan Nishida, the Kyoto School and Co- Prosperity』（Routledge）
Goto-Jones, C. S. (2008)『Re-politicising the Kyoto school as philosophy』（Routledge）
Heisig, J. W., Kasulis, T. P., & Maraldo, J. (2011)『Japanese Philosophy: A Source Book (Vol. null)』

Continue to Japanese Philosophy I-E2(3)↓↓↓

Japanese Philosophy I-E2(3)

Krummel, J. W. M. (2019)『Contemporary Japanese philosophy : a reader』
Maraldo, J. C. (2017)『Japanese Philosophy in the Making I』（Chisokudo）
Murthy, V. S. f. F. W. M. (2017)『Confronting capital and empire : rethinking Kyoto school philosophy』
Uehara, M. (2009)『Japanese Aspects of Nishida’s Basho: Seeing the“Form without Form”』In W. K. Lam & C. Y. Cheung (Eds.), Frontiers of Japanese Philosophy 4: Facing the 21st Century（Nanzan Institute for Religion & Culture）
Yusa, M. (2017)『The Bloomsbury Research Handbook of Contemporary Japanese Philosophy』（Bloomsbury）

[Study outside of class (preparation and review)]

Students should read and prepare a text for each class.

[Other information (office hours, etc.)]

Whenever possible, materials in Japanese will also be provided together with the materials in English.

Lecture code: H162001

Course number	U-LAS00 10027 LE34				
Course title (and course title in English)	Japanese Philosophy II-E2 Japanese Philosophy II-E2	Instructor's name, job title, and department of affiliation	Graduate School of Letters Assistant Professor,WIRTZ, Fernando Gustavo		
Group	Humanities and Social Sciences	Field(Classification)	Philosophy(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

The objective of this seminar is to introduce the central concepts of contemporary Japanese philosophy through the relationship between philosophy and politics. To do so, we will investigate how Japanese philosophy during the 20th century thought about the problem of nation, culture and identity.

[Course objectives]

In this class, students will learn to:
-critically reflect on the universality of philosophy
-develop a critical perspective on the relationship between philosophy and politics
-form their own opinion on the problems of culture, nationalism and identity

[Course schedule and contents)]

Session 1: Introduction
Session 2: The problem of modernity
Session 3: The problem of modernity
Session 4: Marxism in Japan
Session 5: Marxism in Japan
Session 6: Marxism in Japan
Session 7: Marxism in Japan
Session 8: Nationalism
Session 9: Nationalism
Session 10: Nationalism
Session 11: Philosophy and gender
Session 12: Philosophy and gender
Session 13: Postwar philosophy
Session 14: Postwar philosophy
Session 15: Summary, evaluation of learning achievements, feedback

We will read: Nishida Kitaro, Nishitani Keiji, Tosaka Jun, Tanaka Mitsu, etc.

Continue to Japanese Philosophy II-E2(2)↓↓↓

Japanese Philosophy II-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

CLASS POLICIES
Attendance:
Regular and punctual attendance is strongly recommended. Students will be tested on material discussed in class as well as on material from course readings. If students miss class they are expected to borrow notes from another student. Students should make a genuine effort to understand missed material before speaking to the instructor. It is very important that you read the assigned texts BEFORE the class. Otherwise, it will be hard to follow the class. Of course, if you don' t understand something, you will be able to ask during class. The instructor is prepared to help students understand material, but is not prepared to give a second lecture to those who miss class.

Course Readings:
Students are expected to complete all required readings for classes and assignments, and should come to class familiar with course material to be discussed. It is possible the order of the readings may be altered, or that some materials may be omitted or added to the reading schedule. Any modifications to the reading schedule will be announced in advance.
There are OBLIGATORY readings, and OPTIONAL readings.
For the readings, you will require at least 1 hour each week.
I do not upload my slides, sorry.

Evaluation:
We will regularly have small quizzes on PANDA. These will consist of simple comprehension questions.
The final exam will consist of similar questions and will be face-to-face.
I expect you to be both physically and mentally present for each session. I will also expect you to participate in class. Participation includes active participation in class.

Normally each Quiz is worth 10 points.
Quizzes are included in the final grade.
The final exam represents 60% of the grade. If the final exam is not taken, it is not possible to pass the course! (If for health reasons it is not possible to take the exam, it is possible to make it up, but I must be notified in time).
Class participation and some small assignments count as an extra grade. That is, you can earn extra points for class participation (including asking questions) and other small assignments.
If you don't understand something, you should ask. This is an introductory course and in English, so it is normal that some things are not understood at first. If you do not understand a word in English, ask the teacher or the TA.
Philosophy texts are difficult at the beginning. You must read them more than once. If you don't understand, ask! That's what it's all about.

[Textbooks]

Not used

Continue to Japanese Philosophy II-E2(3)↓↓↓

Japanese Philosophy II-E2(3)

[References, etc.]

（**Reference book**）

General Bibliography
Davis, B. W. (2020)『 The Oxford handbook of Japanese philosophy』（Oxford University Press）
Fujita, M. (2018)『The Philosophy of the Kyoto School』（Springer Singapore）
Goto-Jones, C. S. (2005)『Political Philosophy in Japan Nishida, the Kyoto School and Co- Prosperity』（Routledge）
Goto-Jones, C. S. (2008)『Re-politicising the Kyoto school as philosophy』（Routledge）
Heisig, J. W., Kasulis, T. P., & Maraldo, J. (2011)『Japanese Philosophy: A Source Book (Vol. null)』
Krummel, J. W. M. (2019)『Contemporary Japanese philosophy : a reader』
Maraldo, J. C. (2017)『Japanese Philosophy in the Making I』（Chisokudo）
Murthy, V. S. f. F. W. M. (2017)『Confronting capital and empire : rethinking Kyoto school philosophy』
Uehara, M. (2009)『Japanese Aspects of Nishida’s Basho: Seeing the “Form without Form”』In W. K. Lam & C. Y. Cheung (Eds.), Frontiers of Japanese Philosophy 4: Facing the 21st Century（Nanzan Institute for Religion & Culture）
Yusa, M. (2017)『The Bloomsbury Research Handbook of Contemporary Japanese Philosophy』（Bloomsbury）

[Study outside of class (preparation and review)]

Students should read and prepare a text for each class.

[Other information (office hours, etc.)]

Whenever possible, materials in Japanese will also be provided together with the materials in English.

Lecture code: H163001

Course number	U-LAS00 10028 LE34				
Course title (and course title in English)	Philosophy of Nature I-E2 Philosophy of Nature I-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Letters Assistant Professor,WIRTZ, Fernando Gustavo		
Group	Humanities and Social Sciences	**Field(Classification)**	Philosophy(Foundations)		
Language of instruction	English	**Old group**	Group A	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Thu.4	**Target year**	All students	**Eligible students**	For all majors

[Overview and purpose of the course]

The concept of "nature" is extremely familiar to us, and yet it is extremely obscure. The difficulty in defining and demarcating the limits of this concept has to do with the way in which human beings have perceived their environment throughout history. In this seminar we will try to progressively deconstruct the concept of nature while making explicit the political and ethical implications of this term.

[Course objectives]

The main objective of the seminar is to provide students with the theoretical tools to be able to critically reflect on contemporary problems related to the concept of nature. Students will be able to recognize different philosophical perspectives and argue logically from their own point of view.

[Course schedule and contents)]

Session 1: Introduction: What is nature?
Session 2: The natural philosophy of the Romanticism
Session 3: The natural philosophy of the Romanticism
Session 4: The natural philosophy of the Romanticism
Session 5: The nature in Marxism
Session 6: The nature in Marxism
Session 7: Gender and nature
Session 8: Gender and nature
Session 9: Gender and nature
Session 10: Politics of nature
Session 11: Politics of nature
Session 12: Politics of nature
Session 13: Non-European understanding of nature?
Session 14: Non-European understanding of nature?
Session 15: Summary, evaluation of learning achievements, feedback

We will read Friedrich Wilhelm Joseph Schelling, Karl Marx, Donna Haraway, etc.

Continue to Philosophy of Nature I-E2(2)↓↓↓

Philosophy of Nature I-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

CLASS POLICIES
Attendance:
Regular and punctual attendance is strongly recommended. Students will be tested on material discussed in class as well as on material from course readings. If students miss class they are expected to borrow notes from another student. Students should make a genuine effort to understand missed material before speaking to the instructor. It is very important that you read the assigned texts BEFORE the class. Otherwise, it will be hard to follow the class. Of course, if you don’t understand something, you will be able to ask during class. The instructor is prepared to help students understand material, but is not prepared to give a second lecture to those who miss class.

Course Readings:
Students are expected to complete all required readings for classes and assignments, and should come to class familiar with course material to be discussed. It is possible the order of the readings may be altered, or that some materials may be omitted or added to the reading schedule. Any modifications to the reading schedule will be announced in advance.
There are OBLIGATORY readings, and OPTIONAL readings.
For the readings, you will require at least 1 hour each week.
I do not upload my slides, sorry.

Evaluation:
We will regularly have small quizzes on PANDA. These will consist of simple comprehension questions.
The final exam will consist of similar questions and will be face-to-face.
I expect you to be both physically and mentally present for each session. I will also expect you to participate in class. Participation includes active participation in class.

Normally each Quiz is worth 10 points.
Quizzes are included in the final grade.
The final exam represents 60% of the grade. If the final exam is not taken, it is not possible to pass the course! (If for health reasons it is not possible to take the exam, it is possible to make it up, but I must be notified in time).
Class participation and some small assignments count as an extra grade. That is, you can earn extra points for class participation (including asking questions) and other small assignments.
If you don't understand something, you should ask. This is an introductory course and in English, so it is normal that some things are not understood at first. If you do not understand a word in English, ask the teacher or the TA.
Philosophy texts are difficult at the beginning. You must read them more than once. If you don't understand, ask! That's what it's all about.

[Textbooks]

Introduced during class.

[Study outside of class (preparation and review)]

Students should read and prepare a text for each class.

Continue to Philosophy of Nature I-E2(3)↓↓↓

Philosophy of Nature I-E2(3)

[Other information (office hours, etc.)]

Whenever possible, materials in Japanese will also be provided together with the materials in English.

Lecture code: H164001

Course number	U-LAS00 10029 LE34		
Course title (and course title in English)	Philosophy of Nature II-E2 Philosophy of Nature II-E2	Instructor's name, job title, and department of affiliation	Graduate School of Letters Assistant Professor,WIRTZ, Fernando Gustavo
Group	Humanities and Social Sciences	Field(Classification)	Philosophy(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

In this course we will explore the central themes of the philosophy of nature in the context of the question of the animal and animality. Although "animal" and "nature" are not interchangeable categories, they are closely linked in the history of thought. From the problematization of these concepts, we will try to deconstruct the concept of nature and investigate the ethical significance of these problems in our present time.

[Course objectives]

Students will learn about the most recent issues in the field of philosophy of nature and animal and environmental ethics. At the same time, emphasis will be placed on the exercise of logical and discursive argumentation. Students will be able to discern the different philosophical levels within the semantic field of the "natural".

[Course schedule and contents)]

Session 1: Introduction: What is nature? What is an animal?
Session 2: Human beings and animal beings
Session 3: Animal rights and rights of nature
Session 4: Animal rights and rights of nature
Session 5: Animal rights and rights of nature
Session 6: Phenomenology and animals
Session 7: Phenomenology and animals
Session 8: Gender and animality
Session 9: Gender and animality
Session 10: Gender and animality
Session 11: Beyond animality and the future of animals
Session 12: Beyond animality and the future of animals
Session 13: Beyond animality and the future of animals
Session 14: Test
Session 15: Summary, evaluation of learning achievements, feedback

We will read Peter Singer, Ecofeminism, Care Ethics, Joseph von Uexk#252ll, Jacques Derrida, etc.

Continue to Philosophy of Nature II-E2(2)↓↓↓

Philosophy of Nature II-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

CLASS POLICIES
Attendance:
Regular and punctual attendance is strongly recommended. Students will be tested on material discussed in class as well as on material from course readings. If students miss class they are expected to borrow notes from another student. Students should make a genuine effort to understand missed material before speaking to the instructor. It is very important that you read the assigned texts BEFORE the class. Otherwise, it will be hard to follow the class. Of course, if you don't understand something, you will be able to ask during class. The instructor is prepared to help students understand material, but is not prepared to give a second lecture to those who miss class.

Course Readings:
Students are expected to complete all required readings for classes and assignments, and should come to class familiar with course material to be discussed. It is possible the order of the readings may be altered, or that some materials may be omitted or added to the reading schedule. Any modifications to the reading schedule will be announced in advance.
There are OBLIGATORY readings, and OPTIONAL readings.
For the readings, you will require at least 1 hour each week.
I do not upload my slides, sorry.

Evaluation:
We will regularly have small quizzes on PANDA. These will consist of simple comprehension questions.
The final exam will consist of similar questions and will be face-to-face.
I expect you to be both physically and mentally present for each session. I will also expect you to participate in class. Participation includes active participation in class.

Normally each Quiz is worth 10 points.
Quizzes are included in the final grade.
The final exam represents 60% of the grade. If the final exam is not taken, it is not possible to pass the course! (If for health reasons it is not possible to take the exam, it is possible to make it up, but I must be notified in time).
Class participation and some small assignments count as an extra grade. That is, you can earn extra points for class participation (including asking questions) and other small assignments.
If you don't understand something, you should ask. This is an introductory course and in English, so it is normal that some things are not understood at first. If you do not understand a word in English, ask the teacher or the TA.
Philosophy texts are difficult at the beginning. You must read them more than once. If you don't understand, ask! That's what it's all about.

[Textbooks]

The bibliography will be provided during class.

Continue to Philosophy of Nature II-E2(3)↓↓↓

Philosophy of Nature II-E2(3)

[References, etc.]

(Reference book)

The bibliography will be provided during class.

[Study outside of class (preparation and review)]

Students should read and prepare a text for each class.

[Other information (office hours, etc.)]

Whenever possible, materials in Japanese will also be provided together with the materials in English.

Lecture code: H281001

Course number	U-LAS01 10002 LE38				
Course title (and course title in English)	Japanese History I-E2 Japanese History I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Education Associate Professor,Niels van Steenpaal		
Group	Humanities and Social Sciences	Field(Classification)	History and Civilization(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.1	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course will offer an introduction to premodern Japanese history (~1600) from a global perspective. That is, we will approach the Japanese archipelago not as an isolated territory that seamlessly transformed into the nation state as we now know it, but as a geographical hub that has been shaped by various "foreign" encounters through the centuries. We will look at how trade, war, diplomacy and ideas fostered international connections that have played crucial roles in deciding the trajectory of Japan's development.

[Course objectives]

Upon the successful completion of this course, students will:
(1) have a general understanding of the major periods and events of Japanese premodern history.
(2) gain a sensibility for the way in which the history of nation states is intimately bound up with, and cannot be told separately from global events.

[Course schedule and contents)]

The weekly topic schedule is as follows:
1. Introduction
2. Early Migration
3. Jomon
4. Yayoi and Kofun
5. Early State Formation I
6. Early State Formation II
7. Imperial Period
8. Mongol Invasion I
9. Mongol Invasion II
10. East Asia War I
11. East Asia War II
12. Christianity I
13. Christianity II
14. Q&A
15. (final exam)
16. Feedback

[Course requirements]

As a survey introduction class, this course will require no reading preparations, but basic competence in

Continue to Japanese History I-E2(2)↓↓↓

Japanese History I-E2(2)

English is required to fruitfully engage in class and the exam. Furthermore, although not a strict requirement, it is recommended that the student will either precede or follow up this course with the fall semester Japanese History II.

[Evaluation methods and policy]

Grading will be based on a final exam only.
100%　Final Exam

[Textbooks]

Not used
Although this class does not feature any required readings, it does recommend you familiarize yourself with the general outline of the period under discussion each class.

[Study outside of class (preparation and review)]

Reviewing class notes and possibly clarifying unclear items through independent study.

[Other information (office hours, etc.)]

Students should be aware of the fact that student interest in this course always exceeds its capacity and that enrollment permission will be decided based on a random lottery.

Students who have inquiries of any kind are welcome to contact me by email. In doing so, however, please heed the following:
1.write in either Japanese or English, whichever language you are most proficient in.
2.write in a formal format appropriate to the university setting.
Emails that do not conform to both items will be sent back without a response.

Lecture code: H281003

Course number	U-LAS01 10002 LE38				
Course title (and course title in English)	Japanese History I-E2 Japanese History I-E2	Instructor's name, job title, and department of affiliation	Institute for Research in Humanities Associate Professor,KNAUDT，Till		
Group	Humanities and Social Sciences	Field(Classification)	History and Civilization(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.2/Wed.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

In class the participants will work on the course of modern Japanese history from the last years of the early modern period to the end of World War II in Asia. Special attention will be payed to questions of Meiji nation building and political representation, post-World War I industrialization and its social impact, and politics and culture in Japanese Empire in times of peace and total war.

[Course objectives]

Knowledge on key phenomena and research perspectives in prewar modern Japanese history.

[Course schedule and contents)]

1 Introduction
2 The end of the Tokugawa period (1850s~1868)
3~5 Nation building and representation in the Meiji period (1868~1912)
6~8 Industrialization, social movements and imperialism in Taisho; and prewar Showa Japan (1912~1937)
9 Colonialism
10-13 Politics and culture in times of total war (1937~1945)
14 Conclusion
15 Feedback

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on a written final report (60 %) and a midterm quiz (40%). Students absent from more than three classes cannot pass the course.

[Textbooks]

Reading materials will be handed out during class.

[References, etc.]

（Reference book）
Reading materials will be handed out during class.

[Study outside of class (preparation and review)]

Knowledge of modern Japanese history in the Asian and global context is appreciated.

[Other information (office hours, etc.)]

Lecture code: H282001

Course number	U-LAS01 10004 LE38				
Course title (and course title in English)	Japanese History II-E2 Japanese History II-E2		Instructor's name, job title, and department of affiliation	Graduate School of Education Associate Professor,Niels van Steenpaal	
Group	Humanities and Social Sciences	Field(Classification)	History and Civilization(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.1	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course will offer an introduction to early modern and modern Japanese history (1600~1911) from a global perspective. That is, we will approach the Japanese archipelago not as an isolated territory that seamlessly transformed into the nation state as we now know it, but as a geographical hub that has been shaped by various “foreign” encounters through the centuries. We will look at how trade, war, diplomacy and ideas fostered international connections that have played crucial roles in deciding the trajectory of Japan ’ s development.

[Course objectives]

Upon the successful completion of this course, students will:
(1) have a general understanding of the major periods and events of early modern and modern Japanese history.
(2) gain a sensibility for the way in which the history of nation states is intimately bound up with, and cannot be told separately from global events.

[Course schedule and contents)]

The weekly topic schedule is as follows:
1. Introduction
2. Tokugawa Order
3. Maritime Prohibition
4. The Dutch
5. The Chinese
6. Ryukyu & Ezo
7. The Rise of the West
8. Opium Wars
9. Opening Japan
10. Meiji Restoration
11. Sino-Japanese War
12. Russo-Japanese War I
13. Russo-Japanese War II
14. Q&A
15. (final exam)
16. Feedback

Continue to Japanese History II-E2(2)↓↓↓

Japanese History II-E2(2)

[Course requirements]

As a survey introduction class, this course will require no reading preparations, but basic competence in English is required to fruitfully engage in class and the exam. Furthermore, although not a strict requirement, it is recommended that the student will either precede or follow up this course with the spring semester Japanese History I.

[Evaluation methods and policy]

Grading will be based on a final exam only.
100% Final Exam

[Textbooks]

Not used
Although this class does not feature any required readings, it does recommend you familiarize yourself with the general outline of the period under discussion each class.

[Study outside of class (preparation and review)]

Reviewing class notes and possibly clarifying unclear items through independent study.

[Other information (office hours, etc.)]

Students should be aware of the fact that student interest in this course always exceeds its capacity and that enrollment permission will be decided based on a random lottery.

Students who have inquiries of any kind are welcome to contact me by email. In doing so, however, please heed the following:
1. write in either Japanese or English, whichever language you are most proficient in.
2. write in a formal format appropriate to the university setting.
Emails that do not conform to both items will be sent back without a response.

Lecture code: H282003

Course number	U-LAS01 10004 LE38		
Course title (and course title in English)	Japanese History II-E2 Japanese History II-E2	Instructor's name, job title, and department of affiliation	Institute for Research in Humanities Associate Professor,KNAUDT，Till

Group	Humanities and Social Sciences	Field(Classification)	History and Civilization(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.2/Wed.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

In class the participants will work on Japanese history from the time of US occupation until the “lost decade” of the 1990s. Special attention will be put on economic high growth’s impact on society, the environment, gender, and youth. Emphasizing Japan’s global entanglement, the course will introduce agents of socio-historical change in the late Showa period and early years of Heisei.

[Course objectives]

Knowledge of key phenomena and recent research perspectives of modern Japanese history after 1945.

[Course schedule and contents)]

1 Introduction
2~4 Japanese society under US occupation (1945~1952)
5~7 The era of economic high growth (1952~1973)
8~10 Crisis and society in late industrial Japan (1973~1995)
11~13 Social movements after 1945
14 Conclusion
15 Feedback

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on a written final report (60 %) and a midterm quiz (40%). Students absent from more than three classes cannot pass the course.

[Textbooks]

Reading materials will be handed out during class.

[References, etc.]

（**Reference book**）
Reading materials will be handed out during class.

[Study outside of class (preparation and review)]

Knowledge of modern Japanese history in the Asian and global context is appreciated.

[Other information (office hours, etc.)]

Lecture code: H290001

Course number	U-LAS01 10016 LE38		
Course title (and course title in English)	Oriental History I-E2 Oriental History I-E2	Instructor's name, job title, and department of affiliation	Institute for Research in Humanities Professor,FORTE, Erika
Group	Humanities and Social Sciences	Field(Classification)	History and Civilization(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

The topic of this course is: "History of Ancient China: From the Early dynasties to the end of the Tang 唐 period (ca. 21st c. BCE to 10th c. CE)."
The course offers a broad overview of major cultural, economic, and political developments of China, starting from the time of the first dynasties — the semi-mythical Xia 夏, the Shang 商 and the Zhou 周 dynasties (ca. 21th-8th c. BCE) — to the end of the Tang 唐 Empire (618-906). Emphasis is placed upon social, religious, and intellectual spheres and the derived changes in the material culture. The Chinese history will be examined especially in light of new knowledge gained through recent major archaeological discoveries.

[Course objectives]

- To gain an understanding of the Chinese culture and its historical context.
- To be able to identify major issues and significant events and have a clear timeline of ancient China's history.

[Course schedule and contents)]

1. General introduction to the course
2. China history: methodology, timeline
3. The Xia 夏 and the Shang 商 dynasties (ca. 2000-ca. 1050 BCE)
4. The Zhou 周 dynasty (ca. 1050-221 BCE) (Part I)
5. The Zhou 周 dynasty (Part II)
6. The First Empire: The Qin 秦 and the Han 漢 Dynasties (256 BCE-220 CE)
7. The Han 漢 Dynasty (II)
8. Period of Fragmentation: The Three Kingdoms 三國 (220-280); the Jin 晉 Dynasty (220-420); the Northern and Southern Dynasties 南北朝 (420-581)
9. The impact of Buddhism
10+11. Museum visit (equivalent to two classes, it is held on the 3rd Sunday of June)
12. The Sui 隋 Dynasty (581-618) and the Tang 唐 Dynasty (618-907)
13. The Tang Dynasty period (II)
14. Summary
15. Final exams
16. Feedback (on request)

Continue to Oriental History I-E2(2)↓↓↓

Oriental History I-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Attendance and participation are mandatory. Evaluation is based on preparation to class activities and active involvement in class discussion (20%); participation to museum excursion and related activity (a short report) (30%); final exam (50%).

[Textbooks]

Instructed during class
Relevant literature will be announced in class. Further learning material will be provided on PandA.

[References, etc.]

(**Reference book**)
Patricia Buckley Ebrey 『The Cambridge Illustrated History of China, 2nd edition』 (Cambridge University Press) ISBN:9780521124331
Valerie Hansen 『The Open Empire. A History of China to 1600』 (Norton)
Reference books are available at the Kyoto University libraries. Further material will be provided during the course (useful links to websites, readings, etc.).

[Study outside of class (preparation and review)]

Classes are taught with the frontal method. Students will be instructed, at the end of each class, on the relevant literature of the topic taught for reviewing the lesson. During the course there will be some class activities for which students will have to prepare before the classes (typically a small research or a reading to comment). The final exam consists of a multiple choice test. Preparation to this exam is based on notes that students have taken during the classes, on the material provided by the instructor, and on the suggested readings, available on PandA.

[Other information (office hours, etc.)]

Office times and receiving hours for students will be announced in class at the start of the course.
For the museum visit, students are responsible for transport expenses.
Students who decide to take part to the museum visit should be insured with the the insurance for study and research “Personal Accident Insurance for Students Pursuing Ed. & Rsch. (学生教育研究災害傷害保険)

Lecture code: H291001

Course number	U-LAS01 10017 LE38		
Course title (and course title in English)	Oriental History II-E2 Oriental History II-E2	Instructor's name, job title, and department of affiliation	Institute for Research in Humanities Professor,FORTE，Erika

Group	Humanities and Social Sciences	Field(Classification)	History and Civilization(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

The topic of this course is "History of China from Song 宋 to Qing 清 periods." It is a general introduction to the segment of history of premodern China that follows the collapse of the Tang 唐 empire, from the 10th century to the beginning of the 20th century. Through highlighting political, economic, religious, and philosophical developments in each of the dynastic regimes (Song 宋, Yuan 元, Ming 明 and Qing 清) that ruled over the Chinese territory , the course aims at understanding the major societal changes that lead eventually to the formation of modern China.

[Course objectives]

- To gain an understanding of the Chinese culture and its historical context.
- To be able to identify major issues and significant events and have a clear timeline of pre-modern China's history.

[Course schedule and contents)]

1. General introduction to the course
2. Sources, Methodology, Historical timeline
3. The Song 宋 Dynasty (I) (960-1127)
4. The Song 宋 Dynasty (II) (1127-1279)
5. Non-Han rulers (I): The Khitan/Liao (916-1125)
6. Non-Han rulers (II): The Jurchen/Jin (1115-1234) and the Tangut/Xia (1038-1227)
7. The Mongol conquest of China: the Yuan 元 dynasty (1279-1368)
8. The Ming 明 dynasty (I) (1368-1644)
9. The Ming 明 dynasty (II)

10+11.Museum visit (It is equivalent to two classes and is held on the 1st Sunday of December)

12.The Qing 清 empire (II)

13. The Qing 清 empire (I) (1644-1912)
14. Summary
15. Final examination
16. Feedback (on request)

Continue to Oriental History II-E2(2)↓↓↓

Oriental History II-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Attendance and participation are mandatory. Evaluation is based on preparation to class activities and active involvement in class discussion (20%); on participation to museum visit and related activity (30%); final written exam (multiple choice test, 50%).

[Textbooks]

Instructed during class
Relevant literature will be announced in class. Further learning material will be provided on PandA

[References, etc.]

（**Reference book**）
Patricia Buckley Ebrey 『The Cambridge Illustrated History of China, 2nd edition』（Cambridge University Press）ISBN:9780521124331
Valerie Hansen 『The Open Empire. A History of China to 1800』（Norton, 2000 and 2015）ISBN: 9780393938777
Reference books are available at the Kyoto University libraries

[Study outside of class (preparation and review)]

Classes are taught with the frontal method. Students will be instructed, at the end of each class, on the relevant literature of the topic taught for reviewing the lesson. During the course there will be some class activities for which students will have to prepare before the classes (typically a small research or a reading to comment). Participation to museum excursion is part of such activities. The final exam consists of multiple choice test. Preparation to this exam is based on notes that students have taken during the classes, on the material provided by the instructor, and on the suggested readings.

[Other information (office hours, etc.)]

Office times and receiving hours for students will be announced in class at the start of the course.
For the museum visit, students are responsible for transport expenses.
Students who decide to take part to the museum visit should be insured with the the insurance for study and research “Personal Accident Insurance for Students Pursuing Ed. & Rsch. (学生教育研究災害傷害保険)

Lecture code: H275001

Course number	U-LAS01 10008 LE38		
Course title (and course title in English)	Western History I-E2 Western History I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Human and Environmental Studies Senior Lecturer,BHATTE, Pallavi Kamlakar

Group	Humanities and Social Sciences	Field(Classification)	History and Civilization(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This is an introductory undergraduate course that enables students to find answers to a common yet less understood question, what is "Empire"? The course will focus on how Western colonialism has shaped the past and present of Asian, African and Latin American people. We will explore the meaning and significance of "Freedom" for the colonized by learning about their confrontation and challenges to Western imperialism in the form of resistance, political subversion, military uprisings and revolution. A variety of sources including films, government documents, secret documents, photographs, memoirs, speeches, political cartoons will be introduced to enhance learning and develop analytical skills.

[Course objectives]

The goals of this course are to guide students to

(a) compare alternative and compelling views and interpretations and assess their significance,

(b) become familiar with key debates of the period,

(c) assess primary sources in the light of historical research and

(d) present arguments clearly and concisely both orally and on paper.

[Course schedule and contents)]

Week: Content

1: Introduction to the course and Overview

2 & 3: What is “Empire”?
- Britain an the Modern World
- Empire outside of Europe
- Spain, Portugal and the “New World”
- Pirates and Rebels
- The Seven Years War

4: Review; Discussion; Activity based on 2 & 3

5 & 6: Revolution:

Continue to Western History I-E2(2)↓↓↓

Western History I-E2(2)

- American Revolution
- Declaration of Independence
- Haitian Revolution
- Declaration of the Rights of Man

7: Review; Discussion; Activity based on 5 & 6

8 & 9: Political Subversion:
- The Mughal Empire and Western Powers
- English East India Company and the Raj

10: Review; Discussion; Activity based on 8 & 9

11 & 12: Rebellion and Revolt:
- 1857 Indian Uprisings
- Latin American Revolutions

13: Review; Discussion; Activity based on 11 & 12
14: Conclusion and Summary
15: Final examination
16: Feedback

*Note: The schedule may change slightly depending on class requirements.

[Course requirements]

None

[Evaluation methods and policy]

A system of continuous evaluation will be adopted.

Although this will be a lecture styled course, students will be required to engage in discussions and/or presentations and submit written work in English as per instructions.

Final grade will be based on the following:

★ 10% Regular participation and activity in class.
★ 40% Two written responses to readings (20% each)
★ 50% Exam/Final Paper at the end of the course.

[Textbooks]

Not used
Reference materials and readings will be provided in class. Students will be expected to go through the handouts and bring them to class as per instruction.

[References, etc.]

(Reference book)
Introduced during class

Continue to Western History I-E2(3)↓↓↓

Western History I-E2(3)

[Study outside of class (preparation and review)]

No prior knowledge of history is required. Students should be able to participate in discussions with their classmates in English. All necessary out of class preparation announced in class is mandatory.

[Other information (office hours, etc.)]

Tuesdays 1:30-2:30 pm, and by appointment; email *in advance* to meet in person or set up remote meeting (via Zoom) during office hours.
Please visit KULASIS to find out about office hours.

Inclusivity & Classroom Behavior:

Please be respectful to everyone and everything in class.
I will remain mindful of the need to foster an inclusive academic environment and ask you to do the same. If you have any specific needs related to accessibility, please discuss them with me, confidentially, as soon as possible.

Academic Integrity:

Written work submitted throughout the course should adhere to the standards of academic honesty, as defined in the Kyoto University Student Handbook.

Lecture code: H275002

Course number	U-LAS01 10008 LE38		
Course title (and course title in English)	Western History I-E2 Western History I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Human and Environmental Studies Senior Lecturer,BHATTE, Pallavi Kamlakar
Group	Humanities and Social Sciences	Field(Classification)	History and Civilization(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This is an introductory undergraduate course that enables students to find answers to a common yet less understood question, what is "Empire"? The course will focus on how Western colonialism has shaped the past and present of Asian, African and Latin American people. We will explore the meaning and significance of "Freedom" for the colonized by learning about their confrontation and challenges to Western imperialism in the form of resistance, political subversion, military uprisings and revolution. A variety of sources including films, government documents, secret documents, photographs, memoirs, speeches, political cartoons will be introduced to enhance learning and develop analytical skills.

[Course objectives]

The goals of this course are to guide students to

(a) compare alternative and compelling views and interpretations
and assess their significance,

(b) become familiar with key debates of the period,

(c) assess primary sources in the light of historical research and

(d) present arguments clearly and concisely both orally and on paper.

[Course schedule and contents)]

Week: Content

1: Introduction to the course and Overview

2 & 3: What is “Empire”?
- Britain an the Modern World
- Empire outside of Europe
- Spain, Portugal and the “New World”
- Pirates and Rebels
- The Seven Years War

4: Review; Discussion; Activity based on 2 & 3

5 & 6: Revolution:

Continue to Western History I-E2(2)↓↓↓

Western History I-E2(2)

- American Revolution
- Declaration of Independence
- Haitian Revolution
- Declaration of the Rights of Man

7: Review; Discussion; Activity based on 5 & 6

8 & 9: Political Subversion:
- The Mughal Empire and Western Powers
- English East India Company and the Raj

10: Review; Discussion; Activity based on 8 & 9

11 & 12: Rebellion and Revolt:
- 1857 Indian Uprisings
- Latin American Revolutions

13: Review; Discussion; Activity based on 11 & 12
14: Conclusion and Summary
15: Final examination
16: Feedback

*Note: The schedule may change slightly depending on class requirements.

[Course requirements]

None

[Evaluation methods and policy]

A system of continuous evaluation will be adopted.

Although this will be a lecture styled course, students will be required to engage in discussions and/or presentations and submit written work in English as per instructions.

Final grade will be based on the following:

★ 10% Regular participation and activity in class.
★ 40% Two written responses to readings (20% each)
★ 50% Exam/Final Paper at the end of the course.

[Textbooks]

Not used
Reference materials and readings will be provided in class.Students will be expected to go through the handouts and bring them to class as per instruction.

[References, etc.]

(Reference book)
Introduced during class

Continue to Western History I-E2(3)↓↓↓

Western History I-E2(3)

[Study outside of class (preparation and review)]

No prior knowledge of history is required. Students should be able to participate in discussions with their classmates in English. All necessary out of class preparation announced in class is mandatory.

[Other information (office hours, etc.)]

Tuesdays 1:30-2:30 pm, and by appointment; email *in advance* to meet in person or set up remote meeting (via Zoom) during office hours.
Please visit KULASIS to find out about office hours.

Inclusivity & Classroom Behavior:

Please be respectful to everyone and everything in class.
I will remain mindful of the need to foster an inclusive academic environment and ask you to do the same. If you have any specific needs related to accessibility, please discuss them with me, confidentially, as soon as possible.

Academic Integrity:

Written work submitted throughout the course should adhere to the standards of academic honesty, as defined in the Kyoto University Student Handbook.

Lecture code: H274001

Course number	U-LAS01 10010 LE38				
Course title (and course title in English)	Western History II-E2 Western History II-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Human and Environmental Studies Senior Lecturer,BHATTE, Pallavi Kamlakar		
Group	Humanities and Social Sciences	**Field(Classification)**	History and Civilization(Foundations)		
Language of instruction	English	**Old group**	Group A	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・Second semester
Days and periods	Fri.2	**Target year**	All students	**Eligible students**	For all majors

[Overview and purpose of the course]

This is an introductory undergraduate course, providing students a basic narrative of major turning points that shaped modern Europe from the late 18th-century through the present, including the cause and the course of the two world wars.

The purpose of this course is to develop

(a) an understanding of some of the principle themes in modern Western History, and

(b) an ability to analyze historical evidence and historical interpretation, and

(c) an ability to express historical understanding verbally.

[Course objectives]

One of the goals of this course is to help students to consider multiple accounts of historical events in order to understand international relations from a variety of perspectives. Besides nurturing their English reading, writing and communication skills, the ultimate goal of this course is to provide a platform for students to discuss history in English.

[Course schedule and contents)]

Week : Content

1: Introduction to the course and Overview
2/3: The French Revolution and Napoleon
4/5: The Industrial Revolution and Pax Britannica
6/7: World War I
8/9: Interwar period and the rise of Fascist Italy, Germany and Japan
10/11: World War II
12/13: The Cold War
14: Post Cold War and the Contemporary Era
15: Final examination

Continue to Western History II-E2(2)↓↓↓

Western History II-E2(2)

16: Feedback & Summary of the Course

*Note: The schedule may change slightly depending on class requirements.

[Course requirements]

There are no prerequisites. This course is open to all students regardless of major. Enthusiasm and willingness to participate and share ideas in class is necessary.

[Evaluation methods and policy]

A system of continuous evaluation will be adopted.

Although this will be a lecture styled course, students will be required to engage in discussions and/or presentations and submit written work in English as per instructions.

Final grade will be based on the following:

★ 10% Regular participation and activity in class.
★ 40% Two written responses to readings (20% each)
★ 50% Exam/Final Paper at the end of the course.

[Textbooks]

Not used

[References, etc.]

(**Reference book**)
Introduced during class
Reference materials and readings will be provided in class as per requirements.
Students will be expected to go through the handouts and bring them to class as per instruction.

[Study outside of class (preparation and review)]

No prior knowledge of history is required. Students should be able to participate in discussions with their classmates in English. All necessary out of class preparation announced in class is mandatory.

[Other information (office hours, etc.)]

Tuesdays 1:30-2:30 pm, and by appointment; email *in advance* to meet in person or set up remote meeting (via Zoom) during office hours.
Please visit KULASIS to find out about office hours.

Inclusivity & Classroom Behavior:

Please be respectful to everyone and everything in class.
I will remain mindful of the need to foster an inclusive academic environment and ask you to do the same. If you have any specific needs related to accessibility, please discuss them with me, confidentially, as soon as possible.

Academic Integrity:

Written work submitted throughout the course should adhere to the standards of academic honesty, as defined in the Kyoto University Student Handbook.

Lecture code: H274002

Course number	U-LAS01 10010 LE38		
Course title (and course title in English)	Western History II-E2 Western History II-E2	Instructor's name, job title, and department of affiliation	Graduate School of Human and Environmental Studies Senior Lecturer,BHATTE, Pallavi Kamlakar

Group	Humanities and Social Sciences	Field(Classification)	History and Civilization(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Fri.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This is an introductory undergraduate course, providing students a basic narrative of major turning points that shaped modern Europe from the late 18th-century through the present, including the cause and the course of the two world wars.

The purpose of this course is to develop

(a) an understanding of some of the principle themes in modern Western History, and

(b) an ability to analyze historical evidence and historical interpretation, and

(c) an ability to express historical understanding verbally.

[Course objectives]

One of the goals of this course is to help students to consider multiple accounts of historical events in order to understand international relations from a variety of perspectives. Besides nurturing their English reading, writing and communication skills, the ultimate goal of this course is to provide a platform for students to discuss history in English.

[Course schedule and contents)]

Week : Content

1: Introduction to the course and Overview
2 & 3: The French Revolution and Napoleon
4 & 5: The Industrial Revolution and Pax Britannica
6 & 7: World War I
8 & 9: Interwar period and the rise of Fascist Italy, Germany, and Japan
10 & 11: World War II
12 & 13: The Cold War
14: Post Cold War and the Contemporary Era
15: Final examination

16: Feedback & Summary of the Course

Continue to Western History II-E2(2)↓↓↓

Western History II-E2(2)

*Note: The schedule may change slightly depending on class requirements.

[Course requirements]

There are no prerequisites. This course is open to all students regardless of major. Enthusiasm and willingness to participate and share ideas in class is necessary.

[Evaluation methods and policy]

A system of continuous evaluation will be adopted.

Although this will be a lecture styled course, students will be required to engage in discussions and/or presentations and submit written work in English as per instructions.

Final grade will be based on the following:

★ 10% Regular participation and activity in class.
★ 40% Two written responses to readings (20% each)
★ 50% Exam/Final Paper at the end of the course.

[Textbooks]

Not used

[References, etc.]

（Reference book）
Introduced during class
Reference materials and notes will be distributed in class as per requirements. Students will be expected to go through the handouts and bring them to class as per instruction.

[Study outside of class (preparation and review)]

No prior knowledge of history is required. Students should be able to participate in discussions with their classmates in English. All necessary out of class preparation announced in class is mandatory.

[Other information (office hours, etc.)]

Tuesdays 1:30-2:30 pm, and by appointment; email *in advance* to meet in person or set up remote meeting (via Zoom) during office hours.
Please visit KULASIS to find out about office hours.

Inclusivity & Classroom Behavior:

Please be respectful to everyone and everything in class.
I will remain mindful of the need to foster an inclusive academic environment and ask you to do the same. If you have any specific needs related to accessibility, please discuss them with me, confidentially, as soon as possible.

Academic Integrity:

Written work submitted throughout the course should adhere to the standards of academic honesty, as defined in the Kyoto University Student Handbook.

Lecture code: H280001

Course number	U-LAS01 10014 LE38		
Course title (and course title in English)	Introduction to Asian Societies-E2 Introduction to Asian Societies-E2	Instructor's name, job title, and department of affiliation	Kyoto University Not fixed
Group	Humanities and Social Sciences	Field(Classification)	History and Civilization(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.2	Target year	Mainly 1st & 2nd year students	Eligible students	For liberal arts students

[Overview and purpose of the course]

This course will introduce students to Asian history and civilization. While each of these regions has its own distinctive identities, we shall consider how overlapping historical, political and cultural experiences have engendered a shared sense of heritage and common destiny. We shall examine the struggles of Asians to protect or regain their sovereignty, and establish their identities in a rapidly arising and often volatile world order. We will look at how individuals in Asia respond to significant issues and challenges in four distinct historical themes: “Tradition and Modernity in Asia”, “Colonialism (Euro-American Imperialism)”, “War and its aftermath” and the “The future is Asian.”

[Course objectives]

At the end of this course, students will be able to achieve the following learning outcomes: (1) The ability to provide an historical portrait of the interrelationships between Asian societies and the wider global forces that have shaped the region. (2) The ability to engage in critical discussion and debate on some of the most pressing regional issues, including those in the areas of politics, the environment, history, culture and security.

[Course schedule and contents)]

1 Introduction and Course Queries
2 Tradition and Modernity in Asia 1: Filial piety in East Asia
3 Tradition and Modernity in Asia 2: Caste and Modern Society in South Asia
4 Group Discussion Session 1
5 Colonialism 1: The Age of Exploration in Southeast Asia
6 Colonialism 2: High Imperialism in Southeast Asia
7 Group Discussion Session 2
8 War and its Aftermath 1: Comfort Women in WW2
War and its Aftermath 2: War and Remembrance
9 Group Discussion Session 3
10 Group Discussion Session 4
11 Individual Discussion Session
12 Essay Writing Break
13 Conclusion

This schedule is tentative and should be used as a guide only

Continue to Introduction to Asian Societies-E2(2)↓↓↓

Introduction to Asian Societies-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Students will be evaluated according to four main criteria.

(1) Online reading analysis and comment (30%): Comment on readings uploaded on NowComment platform
(2) Original research essay (30%): Submit a self-authored essay of 2000-3000 words in length.
(3) Class discussion/online debate (30%): Work with group mates in a structured presentation/debate in class using the Kialo platform.
(4) Overall participation in lectures and individual sessions (10%): Ask questions and make comments during in-class and online activities. Participate in individual consultation session.

[Textbooks]

Parag KHANNA 『The Future is Asian』 （Weidenfield and Nicholson） ISBN:9781474610674 （**This is the research reading for the semester**）
There are three kinds of readings in this course.

(1) Research reading/s provide the content from which you will express your interpretations, analysis and opinions. It may also be the basis for the research essay. It may be read in any language, as long as they are official translations endorsed by the publisher.
(2) NowComment readings are texts, documents and other forms of media that are uploaded onto online platforms. Students are expected to comment online on these readings as part of their class assessment.
(3) Background readings provide additional information and data on the weekly class topics. These readings are not compulsory.

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

No prior knowledge of Asian studies is required. Students should be able to participate in discussions with their classmates in English. This may be face-to-face small group discussion or online. Students may also be asked to make short presentations in English based on the class topics.

[Other information (office hours, etc.)]

Consultation is by appointment via email to bautista@cseas.kyoto-u.ac.jp

Lecture code: H279001

Course number	U-LAS01 10015 LE38						
Course title (and course title in English)	Religion in Contemporary Society-E2 Religion in Contemporary Society-E2			**Instructor's name, job title, and department of affiliation**	Kyoto University Not fixed		
Group	Humanities and Social Sciences			**Field(Classification)**	History and Civilization(Foundations)		
Language of instruction	English	**Old group**	Group A	**Number of credits**	2		
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・Second semester		
Days and periods	Tue.4	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For liberal arts students		

[Overview and purpose of the course]

This course is an exploration into how religion impacts upon some of the major social, cultural, political and economic issues of today's world. We shall be focusing on specific case studies relating to religious fundamentalism, religious pluralism, new religious movements and spirituality from around the world. Specific attention will also be paid to considering how the rise of information technology and social media impact religious belief and practice. We consider case studies in inquiring into how religion influences the pursuit of knolwedge and scientific inquiry, including questions of ethics and morality in a rapidly globalizing world.

[Course objectives]

This course has two main learning outcomes for students: (1) the ability to assess how religion has figured as a critical factor in some of the major political and social issues facing the world today and (2) the ability to express an informed opinion on the themes of science and modernity, religious violence, extremism, radicalization and revivalism among others.

[Course schedule and contents)]

1 Introduction
2 Globalization and Religion
3 Discussion Session 1: How is religion affected by global events?
4 Religion and Technology
5 Discussion Session 2: Is ‘transhumanism' the new religion?
6 Religion and Secularization
7 Discussion Session 3: What is the relationship between religion and politics?
8 Religion and Terrorism
9 Discussion Session 4: Is religion a source of terrorism?
10 Individual Consultation Session
11 Essay Writing Break
12 Conclusion
13 Feedback Week

Note: This schedule is tentative and should be used as a guide only

Continue to Religion in Contemporary Society-E2(2)↓↓↓

Religion in Contemporary Society-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Students will be evaluated according to four main criteria.

(1) Online reading analysis and comment (30%): Comment on readings uploaded on NowComment platform
(2) Original research essay (30%): Submit a self-authored essay of 2000-3000 words in length.
(3) Class discussion/online debate (30%): Work with group mates in a structured presentation/debate in class using the Kialo platform.
(4) Overall participation in lectures and individual sessions (10%): Ask questions and make comments during in-class and online activities. Participate in individual consultation session.

[Textbooks]

Yuval Noah HARARI 『Homo Deus: A Brief History of Tomorrow』 （Harville Secker）ISBN: 9783406704024（*This is the research reading for the semester**）
There are three kinds of readings in this course.

(1) Research reading/s provide the content from which you will express your interpretations, analysis, and opinions. It may also be the basis for the research essay. It may be read in any language, as long as they are official translations endorsed by the publisher.
(2) NowComment readings are texts, documents and other forms of media that are uploaded onto online platforms. Students are expected to comment online on these readings as part of their class assessment.
(3) Background readings provide additional information and data on the weekly class topics. These readings are not compulsory.

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

No prior knowledge of religion is required. Students should be able to participate in discussions with their classmates in English. This will be face-to-face small group discussion or online forum. Students may also be asked to make short presentations in English based on the class topics.

[Other information (office hours, etc.)]

Consultation is by appointment via email to bautista@cseas.kyoto-u.ac.jp

Lecture code: H283001

Course number	U-LAS01 20013 LE38		
Course title (and course title in English)	Japanese Intellectual History I-E2 Japanese Intellectual History I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Education Associate Professor,Niels van Steenpaal
Group	Humanities and Social Sciences	Field(Classification)	History and Civilization(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course will introduce the student to the “intellectual history” of Japan, both as a body of knowledge, and as a particular historical method. That is, besides deepening our understanding of the philosophies, ideologies, and mentalities that helped shape Japan, we will also develop the skills necessary to meaningfully examine these ideas as academic problems. Rather than a chronological survey, the approach of this course is thematic. Each class will focus on the significance of one particular idea/phenomenon. The key terms for this semester will be space, time, and culture.

[Course objectives]

Upon the successful completion of this course, students will:
(1)be familiar with the presuppositions and narratives of historical theory.
(2)have a general understanding of the ideas and ideologies of the Japanese early modern and modern period.
(3)learn to use the historical method to question cultural assumptions.

[Course schedule and contents)]

The tentative weekly topic schedule is as follows:
1.Introduction
2.What is History?
3.What is Intellectual History?
4.What is Japan?
5.Premodern Time
6.Modern Time
7.Historical Time
8.Japanese Space
9.Asian Space
10.Oriental Space
11.Strange Space
12.What is Culture?
13.Japanese Culture
14.Japanese Self
15.(final exam)
16.Feedback

(Please note that the above themes and their order might vary from year to year)

Continue to Japanese Intellectual History I-E2(2)↓↓↓

Japanese Intellectual History I-E2(2)

[Course requirements]

As a survey introduction class, this course will require no reading preparations, but basic competence in English is required to fruitfully engage in class and the exam. Furthermore, although not a strict requirement, it is recommended that the student has a grasp of the basic outlines of Japanese history.

[Evaluation methods and policy]

Grading will be based on a final exam only.
100%   Final Exam

[Textbooks]

Not used

[Study outside of class (preparation and review)]

Reviewing class notes and possibly clarifying unclear items through independent study.

[Other information (office hours, etc.)]

Students should be aware of the fact that student interest in this course sometimes exceeds its capacity and that enrollment permission will be decided based on a random lottery.

Students who have inquiries of any kind are welcome to contact me by email. In doing so, however, please heed the following:
1. write in either Japanese or English, whichever language you are most proficient in.
2. write in a formal format appropriate to the university setting.
Emails that do not conform to both items will be sent back without a response.

Lecture code: H284001

Course number	U-LAS01 20014 LE38		
Course title (and course title in English)	Japanese Intellectual History II-E2 Japanese Intellectual History II-E2	Instructor's name, job title, and department of affiliation	Graduate School of Education Associate Professor,Niels van Steenpaal

Group	Humanities and Social Sciences	Field(Classification)	History and Civilization(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course will introduce the student to the "intellectual history" of Japan, both as a body of knowledge, and as a particular historical method. That is, besides deepening our understanding of the philosophies, ideologies, and mentalities that helped shape Japan, we will also develop the skills necessary to meaningfully examine these ideas as academic problems. Rather than a chronological survey, the approach of this course is thematic. Each class will focus on the significance of one particular idea/phenomenon. They key terms for this semester will be memory and religion.

[Course objectives]

Upon the successful completion of this course, students will:
(1) be familiar with the presuppositions and narratives of historical theory.
(2) have a general understanding of the ideas and ideologies of the Japanese early modern and modern period.
(3) learn to use the historical method to question cultural assumptions.

[Course schedule and contents)]

The tentative weekly topic schedule is as follows:
1.Introduction
2.What is Intellectual History?
3.What is Japan?
4.Edo as Central Magnificence
5.Edo as Uncivilized
6.Edo as Culture
7.Edo as Feudal
8.Edo as Early Modern
9.Edo as Postmodern
10.Japan as a Religious Community
11.Japan as Christian
12.Japan as Buddhist
13.Japan as Confucian
14.Japan as Shinto
15.(final exam)
16.Feedback

(Please note that the above themes and their order might vary from year to year)

Continue to Japanese Intellectual History II-E2(2)↓↓↓

[Course requirements]

As a survey introduction class, this course will require no reading preparations, but basic competence in English is required to fruitfully engage in class and the exam. Furthermore, although not a strict requirement, it is recommended that the student has a grasp of the basic outlines of Japanese history.

[Evaluation methods and policy]

Grading will be based on a final exam only.
100% Final Exam

[Textbooks]

Not used

[Study outside of class (preparation and review)]

Reviewing class notes and possibly clarifying unclear items through independent study.

[Other information (office hours, etc.)]

Students should be aware of the fact that student interest in this course sometimes exceeds its capacity and that enrollment permission will be decided based on a random lottery.

Students who have inquiries of any kind are welcome to contact me by email. In doing so, however, please heed the following:
1. write in either Japanese or English, whichever language you are most proficient in.
2. write in a formal format appropriate to the university setting.
Emails that do not conform to both items will be sent back without a response.

Lecture code: H292001

Course number	U-LAS01 20018 LE38						
Course title (and course title in English)	Japanese Popular Culture I-E2 Japanese Popular Culture I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Law Associate Professor,MURPHY, Mahon				
Group	Humanities and Social Sciences	Field(Classification)	History and Civilization(Issues)				
Language of instruction	English	Old group	Group A	Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester		
Days and periods	Wed.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors		

[Overview and purpose of the course]

The purpose of this class is to discuss the historical development of Japanese Popular Culture from its roots in the 19th Century to the end of the Second World War. The Meiji Period ushered in the opening of Japan attracting a new global audience to Japanese culture. This global interaction also impacted the development of popular culture in Japan. Combining high politics and diplomacy with sport, theatre, anime and mass media this class frames Japanese Popular Culture as shaped by domestic and international counter-culture trends. The course is suitable for both students who have previously studied popular culture and those who are new comers.

[Course objectives]

The Course has 3 goals
1 Gain an understanding of the history of popular culture
2 Recognize the political importance of popular culture
3 Read analyze and discuss academic texts in English

[Course schedule and contents)]

The course will develop as follows:

1. Introduction: What is Popular Culture?

The Birth of Popular Culture in Japan
2. Popular Culture in the Edo Period
3. What the Hell? Social Unrest in the Bakumatsu

Global Japanese Popular Culture
4. Foreign Experts in Japan during the Meiji Era
5. The 19th Century Global Japan Boom

Mass Media
6. The Evils of Baseball: Modern Sport
7. The Modern Girl: Popular Culture and Feminism
8. Pulp Fiction: Ero-Guro-Nonsense

Diplomacy and Popular Culture

Continue to Japanese Popular Culture I-E2(2)↓↓↓

Japanese Popular Culture I-E2(2)

9. Constructing a Culture of Peace: the 1920s
10. Creating a Popular Culture Empire
11. Sports Diplomacy: The 1940 Olympics

Popular Culture and War
12. Mobilizing Movie Stars for War
13. War and the Birth of the Anime Industry

14. Review
15. Exam
16. Feedback

Total:14 classes and 1 feedback class

[Course requirements]

None

[Evaluation methods and policy]

Evaluation is based on the following:

Active participation in class 20%
Assignments 40%
End of Term Paper 40%

- Those who are absent from four classes or more will not pass.

[Textbooks]

Not fixed

[Study outside of class (preparation and review)]

Every week students will read an academic text in English and complete an assignment in preparation for in class discussion.

[Other information (office hours, etc.)]

Lecture code: H293001

Course number	U-LAS01 20019 LE38						
Course title (and course title in English)	Japanese Popular Culture II-E2 Japanese Popular Culture II-E2			Instructor's name, job title, and department of affiliation	Graduate School of Law Associate Professor,MURPHY, Mahon		
Group	Humanities and Social Sciences			Field(Classification)	History and Civilization(Issues)		
Language of instruction	English	Old group	Group A	Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester		
Days and periods	Wed.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors		

[Overview and purpose of the course]

The purpose of this course is to study the historical development of popular culture in Japan from 1945 to the present day. The phenomenon of ‘Cool Japan’ is one of the distinctive features of the Japanese government’s use of popular culture as a diplomatic tool. This course will look at the development of popular culture from the ruins of post-war Japan into its current form as an integral part of Japan’s status as a ‘soft-power super-power’. The course will combine high politics and diplomacy with trends in music, manga and video games to show how popular culture came to be such an important political tool. The course is suitable for both students who have a deep understanding of popular culture and those who are new comers.

[Course objectives]

The Course has 3 goals
1 Gain an understanding of the history of popular culture
2 Recognize the political importance of popular culture
3 Read, analyze and discuss academic texts in English

[Course schedule and contents)]

The course will develop as follows:

1. Introduction: Popular Culture Theory

The Post-War Period
2. Chocolate and Tobacco: Horizontal Westernization in the 1940s.
3. King of the Monsters: Godzilla and Japan’s Atomic Age
4. Pro-Wrestling as a mass event: the rise of TV culture

Japan Back in the World
5. The 1964 Olympics: Rejoining the Family of Nations
6. Beatlemania hits Japan: Music and Revolution
7. Visualizing Popular Culture: The Manga Boom

Hi-Tech Popular Culture
8. Pachinko: A truly Japanese Popular Culture?
9. Nintendo takes over America: Video Games in the 1980s
10. Backlash: Anti-Japanese Movements in the USA

Continue to Japanese Popular Culture II-E2(2)↓↓↓

Japanese Popular Culture II-E2(2)

Japanese Popular Culture becomes Global Popular Culture
11. Dreaming of Sushi: Global Washoku
12. Anime and its International Impact
13. A 21st Century Popular Culture Super Power: Cool Japan

14. Review Lecture
15. Exam
16. Feedback

Total:14 classes and 1 feedback

[Course requirements]

None

[Evaluation methods and policy]

Evaluation is based on the following:

Active participation in class 20%
Assignments 40%
End of Term Paper 40%

- Those who are absent from four classes or more will not pass.

[Textbooks]

Not fixed

[Study outside of class (preparation and review)]

Every week students will read an academic text in English and complete an assignment in preparation for in class discussion.

[Other information (office hours, etc.)]

Lecture code: H394001

Course number	U-LAS02 10024 LE35		
Course title (and course title in English)	History of Oriental Art I-E2 History of Oriental Art I-E2	Instructor's name, job title, and department of affiliation	Institute for Research in Humanities Professor,FORTE， Erika
Group	Humanities and Social Sciences	Field(Classification)	Arts, Literature and Linguistics(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

The topic of this course is "A survey on the history of Chinese painting from the Han dynasty (206 BCE- 220 CE) through the Song dynasty (960-1279)."
While tracing the general development of pictorial art in China, attention will be paid to major themes such as narrative painting, landscape painting, the relationship between poetry and painting, devotional (particularly Buddhist) and secular pictorial representations, and the connection between painting and calligraphy.

[Course objectives]

-To gain a grounding in the study of the ancient Chinese painting and acquire art historical skills to identify major painted works of art of ancient China.
-To enable a broader understanding of ancient China’s artistic production process in relation to historical and cultural context of the period under examination.

[Course schedule and contents)]

1. General introduction to the course
2. Methodology and general overview on the history of painting in China
3. Painting during the Han 漢 period (206 BCE-220 CE)
4. Painting between the 3rd and the 6th century
5. Sui 隋代 and Tang 唐代 periods painting (581-906)
6. Buddhism and Buddhist painting
7. Murals from the Liao 遼 tombs (10th c.)
8. Song period 宋代 painting: general tendencies (960-1279)
9. Landscape painting

10+11. Museum visit (it is equivalent to two classes and is held on the 3rd Sunday of June)

12. The Qingming scroll 清明上河圖
13. Other themes in painting, 10th to 13th centuries
14. Summary of the course
15. Final exam
16. Feedback (on request)

Continue to History of Oriental Art I-E2(2)↓↓↓

History of Oriental Art I-E2(2)

[Course requirements]

No special prerequisites. A general knowledge on the history of China, although not compulsory, is recommended. Students might opt to combine this course with that of Oriental History I in the same semester.

[Evaluation methods and policy]

Attendance and participation are mandatory. Evaluation is based on preparation to class activities and active involvement in class discussion (20%); participation to museum excursion and related activity (a short report) (30%); final exam (50%).

[Textbooks]

Not used
Relevant literature will be announced in class. Further learning material will be provided on PandA

[References, etc.]

（**Reference book**）
Barnhart, Richard M., Yang Xin, Nie Chonzheng, James Cahill, Lang Shaojun, and Wu Hung (eds.) 『Three thousand years of Chinese painting』 （Yale University Press） ISBN:0300070136
Robert Thorp and Richard Ellis Vinograd 『Chinese Art and Culture』 （Harry N. Abrams） ISBN: 0810941457
Reference books are available at the Kyoto University libraries

[Study outside of class (preparation and review)]

Classes are taught with the frontal method. Art works are shown in PowerPoint presentations. Students will be instructed, at the end of each class, on the relevant literature for reviewing the lesson. There will be some activities for which students are required to prepare before the classes. Activities include discussion and analysis of one or two artworks, the preparation consists in a small research on the artworks or in a reading. There will be a museum excursion in a weekend day. The excursion is equivalent to two classes. The final exam is a written exam, in which students will be asked to analyze two works of arts that have been discussed and presented during the classes. Preparation to this exam is based on notes that students have taken during the classes, on the material provided by the instructor and on the suggested readings uploaded on PandA.

[Other information (office hours, etc.)]

Office times and receiving hours for students: by appointment.

For the museum visit, students are responsible for transport expenses.
Students who decide to take the class are advised to take the insurance for study and research “Personal Accident Insurance for Students Pursuing Education & Research. (学生教育研究災害傷害保険)”.

Lecture code: H395001

Course number	U-LAS02 10025 LE35		
Course title (and course title in English)	History of Oriental Art II-E2 History of Oriental Art II-E2	Instructor's name, job title, and department of affiliation	Institute for Research in Humanities Professor,FORTE，Erika
Group	Humanities and Social Sciences	Field(Classification)	Arts, Literature and Linguistics(Foundations)
Language of instruction	English	Old group	Group A
Number of credits	2	Number of weekly time blocks	1
Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.4	Target year	All students
Eligible students	For all majors		

[Overview and purpose of the course]

The topic of this course is "Narrative Art in China", and it will focus on the artistic production that has a narrative content, in other words, on works of art that illustrates stories. The stories depicted may come from religious background or be derived from legends, myths, or literature, supposedly widely known by the contemporary audience. Following the historical evolution of Chinese art, we will observe different types of narrative art as well as different methods adopted by the artists to display time and space, which may change according to various factors-cultural background, aesthetic choices, function of the art objects and so on.

[Course objectives]

- To gain a grounding in the study of the ancient Chinese art;
- To acquire art historical skills to identify subjects and content of ancient Chinese art;
- To enable a broader understanding of ancient China's artistic production process in relation to historical and cultural context of the period under examination.

[Course schedule and contents)]

1. General introduction to the course
2. Methodology and general overview on the history of painting in China
3. Modes of narration in art (I)
4. Modes of narration in art (II)
5. Time and space in Chinese art
6. Narration in Chinese art
7. Chinese narratives in art (I): Exemplar biographies
8. Chinese narratives in art (II): Historical narratives
9+10. Museum visit (it is equivalent to two classes and is held on the 1st Sunday of December)
11. Chinese narratives in art (III): Poetic narratives
12. Buddhist narratives (I): Jataka and avadana stories (previous lives of the Buddha)
13. Buddhist narratives (II): Buddha’s life stories
14. Summary
15. Final examination
16. Feedback (on request)

Continue to History of Oriental Art II-E2(2)↓↓↓

History of Oriental Art II-E2(2)

[Course requirements]

No special prerequisites. A general knowledge on the history of China, although not compulsory, is recommended.

[Evaluation methods and policy]

Attendance and participation are mandatory. Evaluation is based on preparation to class activities and active involvement in class discussion (20%); participation to museum excursion and related activity (report) (30%); final written exam (50%).

[Textbooks]

Relevant literature will be announced in class. Further material will be provided on PandA

[References, etc.]

（Reference book）

Thorp, R. and Vinograd, R. 『Chinese Art and Culture』（Harry N. Abrams）ISBN:0130889695
Sullivan, Michael, and Shelagh Vainker. 『The Arts of China. 6th, revised and expanded ed.』（University of California Press）ISBN:9780520294813
Buckley Ebrey, Patricia 『The Cambridge Illustrated History of China, 2nd edition』（Cambridge University Press）ISBN:9780521124331
Reference books are available at the Kyoto University libraries

[Study outside of class (preparation and review)]

Classes are taught with the frontal method. Art works are shown in PowerPoint presentations. Students will be instructed, at the end of each class, on the relevant literature of the topic taught for reviewing the lesson. There will be some activities for which students are required to prepare before the classes. Those activities include discussion and analysis of one or two artworks, the preparation consists in small research on the artworks or in a reading. There will be a museum excursion equivalent to two classes. The final exam consists of a written test where students analyze two of the artworks that have been discussed during classes. Preparation to this exam is based on notes that students have taken during the classes, on the material provided by the instructor and on the suggested readings uploaded on PandA.

[Other information (office hours, etc.)]

Office times and receiving hours for students: by appointment.

For the museum visit, students are responsible for transport expenses.
Students who decide to take part to the museum visit should be insured with the the insurance for study and research “Personal Accident Insurance for Students Pursuing Ed. & Rsch. (学生教育研究災害傷害保険).

Lecture code: H381001

Course number	U-LAS02 10018 LE37		
Course title (and course title in English)	Introduction to Linguistic Science-E2 Introduction to Linguistic Science-E2	Instructor's name, job title, and department of affiliation	Graduate School of Letters Associate Professor,CATT, Adam Alvah

Group	Humanities and Social Sciences	Field(Classification)	Arts, Literature and Linguistics(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.1	Target year	All students	Eligible students	For liberal arts students

[Overview and purpose of the course]

This course provides a basic introduction to the priniciples of linguistic science. It will cover the following core areas of study in the field of linguistics: phonetics, phonology, morphology, and language change.

[Course objectives]

After taking this course, students will have a basic understanding of how to critically consider and analyze actual linguistic data from a variety of languages.

[Course schedule and contents)]

The course is divided into the following five sections, each with a different theme. Exercises and readings will be regularly assigned to help you explore various descriptive and theoretical issues.

1. Introduction (about 2 weeks)
What is linguistics?; the nature of our knowledge of language; main areas of study in linguistics; the prescriptive (normative) vs. descriptive approach

2. Phonetics (about 3 weeks)
How are sounds produced and described?; articulatory phonetics: describing consonants and vowels; the International Phonetic Alphabet (IPA chart); phonetic features and natural classes

3. Phonology (about 3 weeks)
How do sounds in a language pattern?; the phonemic principle: phonemes and allophones; formulating phonological rules; seeing patterns in the data: minimal pairs, complementary distribution

4. Morphology (about 3 weeks)
How are words built?; units of meaning: morphemes and allomorphs; derivational vs. inflectional morphology; word formation: prefixes, suffixes, infixes, reduplication, compounding; inflectional categories: number, person, gender, case, tense, aspect

5. Language Change (about 3 weeks)
How and why do languages change over time?; language families; sound change and analogy; grammaticalization; reconstructing dead languages: protolanguages, the comparative method

Feedback (1 week)

Continue to Introduction to Linguistic Science-E2(2)↓↓↓

Introduction to Linguistic Science-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Grades are based on attendance/class participation (30%), and assignments/exams (70%). Important: If you miss four or more classes, you will not be given credit for the course.

[Textbooks]

Relevant materials will be provided in class.

[References, etc.]

（**Reference book**）
Fromkin, Victoria (editor) 『Linguistics: An Introduction to Linguistic Theory』（Blackwell, 2000）ISBN: 978-0-631-19711-9

[Study outside of class (preparation and review)]

Exercises and readings will be assigned for each section, and you will be expected to prepare sufficiently for each class.

[Other information (office hours, etc.)]

Office hours to be specified (check KULASIS). For questions about the course or to set up a meeting, email me at catt.adam.7c@kyoto-u.ac.jp. Please include “Linguistic Science” in the mail header and your full name and student number in the email. Important: Make sure that you search for answers to questions yourself before contacting me by email.

Lecture code: H382001

Course number	U-LAS02 10019 LE37				
Course title (and course title in English)	Introduction to Japanese Linguistics I-E2 Introduction to Japanese Linguistics I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Letters Associate Professor,CATT, Adam Alvah		
Group	Humanities and Social Sciences	Field(Classification)	Arts, Literature and Linguistics(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.1	Target year	All students	Eligible students	For liberal arts students

[Overview and purpose of the course]

If you are interested in linguistics and how linguists think about the Japanese language, then this is the course for you. This course is an introduction to scientific methods of understanding and analyzing the Japanese language using the tools of linguistics. We will focus on the areas of phonetics, phonology, morphology, syntax, semantics, and language change.

[Course objectives]

By the end of this course, you will have gained a good understanding of the basic areas of study in linguistics--phonetics, phonology, morphology, syntax, semantics, and language change--and how to use these tools to understand and analyze the Japanese language.

[Course schedule and contents)]

The course schedule is divided into the following seven sections, each with a different theme. Exercises will be regularly assigned to help you explore various descriptive and theoretical issues.

1. Introduction (about 2 weeks)
What is linguistics?; introduction to the Japanese language--its features, history, and genetic affiliation

2. Phonetics (about 2 weeks)
Describing consonants, vowels, accent

3. Phonology (about 3 weeks)
Phonemes, allophones, analyzing data sets, sequential voicing (rendaku), moras and syllables, describing accent

4. Morphology (about 2 weeks)
Parts of speech categories, the morpheme and morpheme types, types of word formation, transitive and intransitive verb pairs, nominalization

5. Syntax (about 3 weeks)
Constituency, word order, dislocation, scrambling, ellipsis, reflexive pronouns, passives

6. Semantics (about 1 week)
Tense and aspect, information structure

Continue to Introduction to Japanese Linguistics I-E2(2)↓↓↓

Introduction to Japanese Linguistics I-E2(2)

7. Language Change (about 2 weeks)
How the Japanese language has changed over time

Feedback (1 week)

Total：14 classes, 1 Feedback session

[Course requirements]

This course does not require any prerequisite knowledge, although a basic familiarity with Japanese is preferable.

[Evaluation methods and policy]

Grades are based on attendance/class participation (30%), and assignments/exams (70%). Important: If you miss four or more classes, you will not be given credit for the course.

[Textbooks]

Relevant materials will be provided in class.

[References, etc.]

（**Reference book**）

Tsujimura, Natsuko 『An Introduction to Japanese Linguistics, third edition』（Wiley Blackwell, 2014）ISBN:978-1-4443-3773-0

Shibatani, Masayoshi 『The Languages of Japan』（Cambridge University Press, 1990）ISBN:978-0-521-36918-3

[Study outside of class (preparation and review)]

Exercises will be assigned on a weekly basis, and you will be expected to prepare sufficiently for each class.

[Other information (office hours, etc.)]

Office hours to be specified (check KULASIS). For questions about the course or to set up a meeting, email me at catt.adam.7c@kyoto-u.ac.jp. Please include “Japanese Linguistics” in the mail header and your full name and student number in the email. Important: Make sure that you search for answers to questions yourself before contacting me by email.

Lecture code: H383001

Course number	U-LAS02 10020 LE37		
Course title (and course title in English)	Intercultural Communication I-E2 Intercultural Communication I-E2	Instructor's name, job title, and department of affiliation	Center for Southeast Asian Studies Associate Professor,TANGSEEFA, Decha

Group	Humanities and Social Sciences	Field(Classification)	Arts, Literature and Linguistics(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

In today's global community, how should a person conceptually prepare herself to be an effective "intercultural" communicator? Inconceivable even a decade ago, this era has witnessed tremendous transnational cultural flows -- of people, practices and products -- as well as local cultural complexities. Each not only encounters her own cultural intricacy, but also needs to effectively operate in culturally-complex contexts -- no matter in the cyber or physical spaces. These contexts range from the home and neighborhood; to places of work, worship and recreation; and to regions and the world.

For this academic year, the guiding concept for both Intercultural Communication I and II will be "cultural fluency." The two courses will be based on the second edition of my Thai book: "Light, Water and Rice Stalk: Cultural Fluency for Alterity" (2020). There are four sets of topics, the first two of which will be explored in this course and the latter two in Intercultural Communication II:

Part 1. "Cultural Fluency," Difference and Voice
Part 2. Basic Elements of "Cultural Fluency": AHA
Part 3. Listen to Others, Listen to Otherness
Part 4. Light, Rice Stalk and Cultural Fluency

The two courses explore concepts, theories and events as well as employ sounds (melodic or not) and images (moving or otherwise) -- as pedagogical tools -- to deepen students' understanding of effective "intercultural communication."

[Course objectives]

Since these two courses are predominantly conceptual/theoretical, they aim for students to be able to develop a set of conceptual abilities to think through processes of "intercultural communication." Students will, therefore, be doing a large amount of reading, discussing, and finally writing. (Note: all the readings can be accessed through PandA)

[Course schedule and contents)]

Week 1:
- Introduction and Course Queries

Part 1. "Cultural Fluency," Difference and Voice

Continue to Intercultural Communication I-E2(2)↓↓↓

Intercultural Communication I-E2(2)

Week 2:
- "Culture" in Social Sciences and Humanities

Week 3:
- "Fluency": An Etymology
- "Cultural Fluency" & Its Academic Landscape

Week 4:
- Culture & Time

Week 5:
- 1st Quiz

Week 6:
- Difference & Voice

Part 2. Basic Elements of "Cultural Fluency": AHA

Week 7:
- Multiculturalism

Week 8:
- Belonging

Week 9:
- 2nd Quiz

Week 10:
- Power

Week 11:
- Capitalization & Technologization-1

Week 12:
- Capitalization & Technologization-2

Week 13:
- Habit & Ability

Week 14:
- 3rd Quiz

Week 15:
- Course Summary

Week 16:
-Feedback Session

[Course requirements]

1) Good level of English language (TOEFL ITP score ≧525) is required (the full score is 677). (For more information on how to convert the score, among others, see: https://capman.es/sites/default/files/toefl_itp_official_score_report_soloinformativo.pdf)

2) Comparatively speaking, this course is both reading-intensive and writing-intensive. Thus, any students who plan to take too many courses in this semester will have a hard time fulfilling this course's requirements.

[Evaluation methods and policy]

3 Quizzes

Continue to Intercultural Communication I-E2(3)↓↓↓

Intercultural Communication I-E2(3)

Week 5　30%
Week 9　30%
Week 14　40%

Notes: Since this course is predominantly conceptual, students will be expected to demonstrate their conceptual understanding. The quizzes' questions will ask students to: a) define some of this course's key terms; b) apply those terms to analyze certain social realities in light of the course's overall theme -- i.e., "cultural fluency". Throughout the semester, therefore, each student must ensure that s/he will adequately have a good conceptual grasp of those key terms.

[Textbooks]

Olwell, Victoria 『"The Uses of 'Culture.'" In "American Literary History"』（2016. 28/1: 159-169.）
Williams, Raymond. 『"Culture." In "Keywords: A Vocabulary of Culture and Society. "』（2015 [1976]. New York: Oxford University Press. Pp. 49-54.）
Weidman, Amanda. 『"Anthropology and Voice." In "Annual Review of Anthropology,"』（2014. 43: 37-51.）
Colombo, Enzo. 『"Multiculturalisms: An Overview of Multicultural Debates in Western Societies." in "Current Sociology Review."』（2015. 63/6: 800#8211824 ）
Decha Tangseefa. 『"' I Want To Stay Forever In You.'" In "Myanmar's Mountain and Maritime Borderscapes: Local Practices, Boundary-making and Figured Worlds. " Su-Ann Oh (Ed.).』（2016. Singapore: ISEAS. Pp. 261-282. ）
Foucault, Michel. 『"Method." In "The History of Sexuality (Volume 1: An Introduction)"" 』（1990 [1978]. New York: Vintage Books. Pp. 92-102. ）
Foucault, Michel. 『"The Ethics of the Concern of the Self as a Practice of Freedom." In "Ethics: Subjectivity and Truth." Paul Rabinow (Ed.). Robert Hurley and Others. (Trans.).』（1997. New York: New Press. Pp.281-301. ）
Richard A. Lynch. 『"Foucault's Theory of Power." In "Michel Foucault: Key Concepts." Dianna Taylor (Ed.).』（2011. New York: Routledge. Pp. 13-26.）
Dobbs, Richard, James Manyika and Jonathan Woetzel. 『"An Intuition Reset." In "No Ordinary Disruption: The Four Global Forces Breaking All the Trends."』（2015. New York: PublicAffairs. Pp. 1-14.）

Tepper, Jonathan and Denise Hearn. 『"Introduction." In "The Myth of Capitalism: Monopolies and the Death of Competition."』（2019. New Jersey: John Wiley & Sons, Inc. Pp. xiii-xxi.）
Zuboff, Shoshana. 『"Introduction: Home or Exile in the Digital Future." In "The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power."』（2019. London: Profile Books Ltd. Pp. 3- 25.）
Duhigg, Charles. 『"Prologue: The Habit Cure." In "The Power of Habit: Why We Do What We Do In Life and Business."』（2014 [2012]. ew York: Random House Trade Paperbacks. Pp. xi-xx. ）
James, William. 『"The Laws of Habit." In "Talks to Teachers on Psychology to Students on Some of Life's Ideals."』（1899. New York: Henry Holt and Company. Pp. 64-78.）
Appadurai, Arjun. 『"The Future as Cultural Fact: Essays on the Global Condition."』（2013. London: Verso. Pp. 179-182. ）

（Related URL）

https://onlinemovie.cseas.kyoto-u.ac.jp/en/movie_tangseefa/(Instructor's URL)

Continue to Intercultural Communication I-E2(4)↓↓↓

Intercultural Communication I-E2(4)

[Study outside of class (preparation and review)]

Students will study each week's prepared PowerPoint slides as well as reading assignments before class time in order to effectively engage in class discussion.

[Other information (office hours, etc.)]

Consultations can be arranged as needed.

Lecture code: H384001

Course number	U-LAS02 10021 LE37		
Course title (and course title in English)	Intercultural Communication ll-E2 Intercultural Communication ll-E2	Instructor's name, job title, and department of affiliation	Center for Southeast Asian Studies Associate Professor,TANGSEEFA, Decha
Group	Humanities and Social Sciences	Field(Classification)	Arts, Literature and Linguistics(Foundations)
Language of instruction	English	Old group	Group A
Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture
Year/semesters	2023・Second semester		
Days and periods	Wed.4	Target year	All students
Eligible students	For all majors		

[Overview and purpose of the course]

In today's global community, how should a person conceptually prepare herself to be an effective "intercultural" communicator? Inconceivable even a decade ago, this era has witnessed tremendous transnational cultural flows -- of people, practices and products -- as well as local cultural complexities. Each not only encounters her own cultural intricacy, but also needs to effectively operate in culturally-complex contexts -- no matter in the cyber or physical spaces. These contexts range from the home and neighborhood; to places of work, worship and recreation; and to regions and the world.

For this academic year, the guiding concept for both Intercultural Communication I and II will be "cultural fluency." The two courses will be based on the second edition of my Thai book: "Light, Water and Rice Stalk: Cultural Fluency for Alterity" (2020). There are four sets of topics, the first two of which will be explored in this course and the latter two in Intercultural Communication II:

Part 1. "Cultural Fluency," Difference and Voice
Part 2. Basic Elements of "Cultural Fluency": AHA
Part 3. Listen to Others, Listen to Otherness
Part 4. Light, Rice Stalk and Cultural Fluency

The two courses explore concepts, theories and events as well as employ sounds (melodic or not) and images (moving or otherwise) -- as pedagogical tools -- to deepen students' understanding of effective "intercultural communication."

[Course objectives]

Since these two courses are predominantly conceptual/theoretical, they aim for students to be able to develop a set of conceptual abilities to think through processes of "intercultural communication." Students will, therefore, be doing a large amount of reading, discussing, and finally writing. (Note: All the readings can be accessed through PandA.)

[Course schedule and contents)]

Week 1:
- Introduction and Course Queries

Part 3. Listen to Others, Listen to Otherness

Continue to Intercultural Communication II-E2(2)↓↓↓

Intercultural Communication II-E2(2)

Part 3.1. A Child, Death and A Mother

Week 2:
- A Child, Death and A Mother

Part 3.2. Water & Becoming

Week 3:
- The Daodejing
Week 4:
- Smooth Space & On Influence-1
Week 5:
- Smooth Space & On Influence-2
Week 6:
- 1st Quiz
Week 7:
- "Before the Law"
Week 8:
- Future, Justice and Fluency
Week 9:
- Speech & Trauma
Week 10:
- 2nd Quiz

Part 3.3. Memory, Hearing and Listening

Week 11:
- Soundscape
Week 12:
- Listening
Week 13:
- Memory, Otherness and Violence

Part 4. Light, Rice Stalk and Cultural Fluency

Week 14:
- 3rd Quiz
Week15:
- Course Summary: Light, Rice Stalk and Cultural Fluency
Week 16:
- Feedback Session

[Course requirements]

1) Good level of English language (TOEFL ITP score ≧525) is required (the full score is 677). (For more information on how to convert the score, among others, see: https://capman.es/sites/default/files/toefl_itp_official_score_report_soloinformativo.pdf)

2) Comparatively speaking, this course is both reading-intensive and writing-intensive. Thus, any students who plan to take too many courses in this semester will have a hard time fulfilling this course's requirements.

Continue to Intercultural Communication II-E2(3)↓↓↓

Intercultural Communication II-E2(3)

[Evaluation methods and policy]

3 Quizzes

Week 6 30%
Week 10 30%
Week 14 40%

Notes: Since this course is predominantly conceptual, students will be expected to demonstrate their conceptual understanding. The quizzes' questions will ask students to: a) define some of this course's key terms; b) apply those terms to analyze certain social realities in light of the course's overall theme -- i.e., "cultural fluency". Throughout the semester, therefore, each student must ensure that s/he will adequately have a good conceptual grasp of those key terms.

[Textbooks]

Guha, Ranajit 『"The Small Voice of History." In "The Small Voice of History: Collected Essays." Partha Chatterjee (Ed. w/ an Intro.).』 (2009. Ranikhet, India: Permanent Black: 304-317.)
Lao Tzu 『"The Tao Te Jing." D. C. Lau (Trans.w/ an Intro.).』 (1963. New York: Penguin Books.)
Deleuze, Gilles and Felix Guattari 『"The Maritime Model." In "A Thousand Plateaus. Capitalism and Schizophrenia." Brian Massumi (Trans.). 』 (1987. Minneapolis: University of Minnesota Press. Pp. 478-482.)
Puett, Michael and Christine Gross-Loh. 『"On Influence: Laozi and Generating Worlds." In "The Path: What Chinese Philosophers Can Teach Us About the Good Life." 』 (2016. New York: Simon & Shuster. Pp. 65-83.)
Kafka, Franz 『"Before the Law." In "The Trial."』 (1984. New York: Schocken Books. Pp. 213-215.)
Agamben, Giorgio. 『"Homo Sacer: Sovereign Power and Bare Life." Daniel Heller-Roazen (Trans.). 』 (1998. Stanford: Stanford University Press. Pp. 1-12; 34-38.)
Derrida, Jacques et al. 『"The Villanova Roundtable: A Conversation with Jacques Derrida." In "Deconstruction in a Nutshell: A Conversation with Jacques Derrida." John D. Caputo (Ed.). 』 (1997. New York: Fordham University Press. Pp. 3-28.)
Friedman, Alan W.. 『"Introduction." In "Party Pieces: Oral Storytelling and Social Performance in Joyce and Beckett."』 (2007. Syracuse: Syracuse University Press. Pp. xv-xxviii.)
Pillen, Alex 『"Language, Translation, Trauma." In "Annual Review of Anthropology." 』 (2016. 45: 95-111.)
Schafer, R. Murray 『"Introduction." In "The Soundscape: Our Sonic Environment and the Tuning of the World."』 (1993 [1977]. Rochester, VT: Destiny Books. Pp. 3-12.)
Schafer, R. Murray 『"The Soundscape." In "Sound." Caleb Kelly (Ed.). 』 (2011. Cambridge, MA: The MIT Press. Pp. 110-112.)
Nancy, Jean-Luc. 『"Listening." In "Listening." Charlotte Mandell (Trans.). 』 (2007. New York: Fordham University Press. Pp. 1-22.)
Decha Tangseefa 『"A Journey of Animus?: Christianized Karens and Recollections of Karen-Burman Animosity." In "Exploring Religio-cultural Pluralism in Southeast Asia: Intercommunion, Localization, Syncretisation and Conflict." Nabil Chang-Kuan Lin (Ed.).』 (2019. Tainan, Taiwan: Center for Multicultural Studies, National Cheng Kung University. Pp. 289-335.)

(Related URL)

https://onlinemovie.cseas.kyoto-u.ac.jp/en/movie_tangseefa/(Instructor's URL)

Continue to Intercultural Communication II-E2(4)↓↓↓

Intercultural Communication II-E2(4)

[Study outside of class (preparation and review)]

Students will study each week's prepared PowerPoint slides as well as reading assignments before class time in order to effectively engage in class discussion.

[Other information (office hours, etc.)]

Consultations can be arranged as needed.

Lecture code: H727001

Course number	U-LAS04 10002 LE47				
Course title (and course title in English)	Pedagogy I-E2 Pedagogy I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Education Associate Professor,Jeremy Rappleye		
Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.1	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course introduces students to deeper thinking about education, teaching, and learning. It challenges students to contemplate seemingly easy questions: What makes a good school? What is the purpose of education? What is the role of a teacher? Who are the students? What is the future of education? Even though we have all attended school for most of our lives, rarely have we stopped to think seriously about how and what we are taught. This class gives students this chance. As such, it is suitable for all students, regardless of major, year, or future career path.

[Course objectives]

The goals of this course are three. First, students will acquire a systematic introduction to the major issues in education: organization of schools, goals, teaching, learning, curriculum, etc. Second, will improve their analytical abilities through a range of critical examinations of course materials (videos, academic articles, media sources, etc.). Third, students will begin to develop advanced skills in discussion and debate: each of the five unit of the course will require active, focused discussion.

[Course schedule and contents)]

Introduction (1 class)

Part I: What do good schools look like? (4-5 classes) - This section will examine various examples of innovative schools drawn from different cultural contexts, including Summerhill, monasteries, and preschools in Japan and America.

Part II: What is the role of the goal of education? (3-4 classes)- This section will introduce students to 3 broad aims for schooling found throughout the world: economic growth, social equality, and individual development.

Part III: What makes a good teacher? (3-4 classes) - We next turn to look at the different styles of teacher that match the different goals of education discussed in Part II.

Part IV: What should be taught? (2-3 classes) - This section focuses on what is taught, both the explicit and hidden cirriculum of schools.

Part V: What will schools look like in the future? (2-3 classes)- Drawing together all the previous sections of the course, we contemplate the future of education, in particular technology and globalization. (15 classes

Continue to Pedagogy I-E2(2)↓↓↓

Pedagogy I-E2(2)

total, 1 Final Exam, 1 Feedback Section)

[Course requirements]

There are no requirements for taking this course. However, students are strongly encouraged to also enrol in Advanced Lecture for Pedagogy I at the same time as this course (held directly after this class). These two courses will follow a similar schedule and content, but Pedagogy I focuses more on lecture and discussion, whereas Advanced Lecture for Pedagogy I focuses more on reading and reflection. All lectures will be in English, but the instructor can read and understand Japanese, so questions or comments may occasionally be made in Japanese.

[Evaluation methods and policy]

Classes will take the form of interactive lecture. Students will be asked to actively give their opinions, reflect on their own experiences as a student, and ask good questions. There will be a lot of time devoted to class discussions. Thus, grading will be heavily weighted towards attendance and participation (30 points for attendance; 20 points for participation in debates at the end of each Part of the course (5 x 4 times). Additional requirements include a 1-2 page reflection paper (10 points) and final evaluation - either final test or paper (40 points). Students absent more than four times will not pass this course.

[Textbooks]

Not used
There is no textbook for this course. All readings will be distributed by the instructor.

[References, etc.]

（**Reference book**）
All reading and reference material will be distributed in class.

[Study outside of class (preparation and review)]

Students will be expected to study 2-3 hours outside of class each week for this course.

[Other information (office hours, etc.)]

Office Hours will be held 1 hour each week (time and place to be announced)

Lecture code: H728001

Course number	U-LAS04 10004 LE47						
Course title (and course title in English)	Pedagogy II-E2 Pedagogy II-E2			Instructor's name, job title, and department of affiliation	Graduate School of Education Associate Professor,Jeremy Rappleye		
Group	Humanities and Social Sciences			Field(Classification)	Pedagogy, Psychology and Sociology(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester		
Days and periods	Thu.1	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors		

[Overview and purpose of the course]

This course challenges students to think deeply about education, specifically teaching and learning. To do so, it introduces the major approaches to pedagogy, discussing the historical origins, philosophical assumptions, concrete practices, and persistent problems found in each. Throughout this course, students will be challenged to think deeper about competing goals in education. They will also be asked to engage with difficult problems surrounding cross-cultural teaching and learning. Students are encouraged to also enroll in the Advanced Lecture for Pedagogy II at the same time.

[Course objectives]

This lecture has two major goals. First, students will learn about how to think critically about different types of pedagogy. Second, students will gain the skills and confidence necessary for discussion on educational issues in diverse academic and intercultural contexts. The importance of avoiding one-way conceptions of cross-cultural education or comparative educational research will emphasized, while possibilities of realizing a more intercultural practice are demonstrated.

[Course schedule and contents)]

1. Class Introduction, Overview and Student Questionnaire (1 class)
2. Classical Pedagogy: Plato's Cave and Socrates Soul (2-3 classes)
3. Traditional Pedagogy (Christian, Oakeshott) (2-3 classes)
4. Progressive Pedagogy (Rousseau, Kilpatrick) (2-3 classes)
5. Dewey's Pedagogy: Experience and Democracy (2-3 classes)
6. Non-Western Pedagogy? (2-3 classes)

(15 lectures total, including 1 Review Class, Final Examination (or Final Paper), Feedback session

(Note: Depending on students' background, and levels of English, the plan for this course may change. However, the course will generally progress according to the major topics outlined below. The instructor will be open to extending or reducing lectures, depending on what students are most interested in as the course develops. A more detailed syllabus will be distributed in second or third week of the course)

[Course requirements]

There are no requirements for taking this course. However, students are strongly encouraged to also enrol in Advanced Lecture for Pedagogy II at the same time as this course. These two courses will follow a similar schedule and content, but Pedagogy II will focus more on providing historical background and overviews of

Continue to Pedagogy II-E2(2)↓↓↓

Pedagogy II-E2(2)

individual thinkers and pedagogical approaches. All lectures will be in English, but the instructor can read and understand Japanese, so questions or comments may occasionally be made in Japanese.

[Evaluation methods and policy]

Classes will take the form of interactive lecture. Students will be asked to actively give their opinions, reflect on their own experiences as a student, and ask good questions. Grading will be heavily weighted towards attendance and participation (30 points), writing 4 1-2 page reflection papers (20 points), short final examination (25 points) and 4-5 page final paper (25 points). Students absent more than four times will not pass the course.

[Textbooks]

Not used
There is no textbook for this course. All readings will be distributed by the instructor in PDF format

[References, etc.]

（Reference book）
J. Palmer (Ed.) 『Fifty Major Thinkers on Education: From Confucius to Dewey』（Routledge）（* Available online）

[Study outside of class (preparation and review)]

Students will be expected to study 2-3 hours outside of class each week for this course. Four times during the semester, students will need to submit a Reflection Paper (1-2 pages).

[Other information (office hours, etc.)]

Office Hours will be held 1 hour each week (time and place to be announced)

Lecture code: H744001

Course number	U-LAS04 10015 LE46						
Course title (and course title in English)	Psychology I-E2 Psychology I-E2			**Instructor's name, job title, and department of affiliation**	Institute for the Future of Human Society Program-Specific Assistant Professor,DE ALMEIDA, Igor		
Group	Humanities and Social Sciences			**Field(Classification)**	Pedagogy, Psychology and Sociology(Foundations)		
Language of instruction	English	**Old group**	Group A	**Number of credits**	2		
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester		
Days and periods	Wed.3	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For all majors		

[Overview and purpose of the course]

What makes you who are you? The genes you've inherited or the experiences you have? Can we really influence the unconscious mind? Do dreams have deeper meanings? Can psychology improve your ability to study and remember information?

Psychology is the scientific study of the brain, the mind, and behavior. This course surveys classic and modern findings, methods, and real world applications in psychological science, to answer these philosophical questions about what it means to be human. Psychology I focuses on biological and cognitive approaches to the study of psychology.

[Course objectives]

By taking this course, students will be able to:

1. Explain the major themes in psychological science, such as the nature-nurture debate, and identify psychological concepts which illustrate these themes.
2. Interpret landmark research findings, schools of thought, and methodological approaches to apply psychology to human thoughts and behavior in daily life.
3. Explain the differences and similarities in topics and methods across several sub-fields of psychology.

This course also develops students' communication and critical thinking skills in English.

[Course schedule and contents)]

With advanced notice to students, the instructor may make minor adjustments to the schedule below as required.

1 Course welcome and topic introduction
2 The scientific method and critical thinking in psychology
3 Biopsychology I
4 Biopsychology II and psychotropic drugs
5 Sensation & perception
6 Consciousness & sleep
7 Stress and health
8 Midterm
9 Learning I: Classical conditioning

Continue to Psychology I-E2(2)↓↓↓

Psychology I-E2(2)

10 Learning II: Operant conditioning & social learning
11 Memory
12 Motivation
13 Emotions
14 Review
15 Final examination
16 Feedback week

The course format includes interactive lectures. The course also uses brief demonstrations (experiments, interactive activities, short film) to illustrate key concepts. Course time may also include small group discussion and time for questions & answers.

[Course requirements]

None

[Evaluation methods and policy]

Written mid-term examination consisting of multiple choice and open-ended questions= 45%

Written cumulative final examination consisting of multiple choice and open-ended questions= 55%

For both exams, raw score grading [0-100] system is used.

[Textbooks]

Diener Education Foundation 『Noba Project Introductory Psychology』 (Noba) (Online, open access / free materials, access information provided in class in week 1)

[References, etc.]

(**Reference book**)
Introduced during class

[Study outside of class (preparation and review)]

To make satisfactory progress in the course, students will be expected to spend approximately 90 minutes each week outside of class reviewing lecture materials, class notes, and the online textbook.

[Other information (office hours, etc.)]

Office hours will be available each week. Students may use office hours to discuss course material or for other general questions, such as interest in continued studies. Students are also welcome to make appointments for office hours by emailing the instructor in advance and arranging a mutually convenient time.

The time and location for walk-in hours will be announced in week 1 as well as how to contact the instructor by email.

Lecture code: H745001

Course number	U-LAS04 10016 LE46				
Course title (and course title in English)	Psychology II-E2 Psychology II-E2	**Instructor's name, job title, and department of affiliation**	Institute for the Future of Human Society Program-Specific Assistant Professor,DE ALMEIDA, Igor		
Group	Humanities and Social Sciences	**Field(Classification)**	Pedagogy, Psychology and Sociology(Foundations)		
Language of instruction	English	**Old group**	Group A	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・Second semester
Days and periods	Wed.3	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For all majors

[Overview and purpose of the course]

What makes you you? Is personality or the situation more powerful in shaping how people think and act? Why are some people capable of "evil" behavior? What does the world look like from the perspective of a newborn baby? Do movies accurately portray mental illness? How do we treat psychological disorders ?

Psychology is the scientific study of the brain, the mind, and behavior. This course surveys psychology's classic and modern research findings, methods, and real world applications, to answer these philosophical questions and more about what it means to be human. Psychology II will focus on main applications and subfields inside psychology.

[Course objectives]

By the end of this course, students will be able to:
1. Tell a story about the major themes in psychological science, such as the nature-nurture or person-situation debate, and use psychological concepts at the individual and social level to illustrate these themes.
2. Interpret and apply classic research findings, schools of thought, and methodological approaches from personality, developmental, social, and clinical psychology for real world issues.
3. Discuss how different sub-fields in psychology connect together to explain what it means to be human.

This course also develops students' communication and critical thinking skills in English.

[Course schedule and contents)]

With advanced notice to students, the instructor may make minor adjustments to the schedule below as required.

1 Course welcome and topic introduction
2 Developmental Psychology I: Focus on early life
3 Developmental Psychology II: Focus on later life
4 Personality
5 Social Psychology I
6 Social Psychology II
7 Social Psychology III
8 Midterm
9 Clinical Psychology I

Continue to Psychology II-E2(2)↓↓↓

Psychology II-E2(2)

10 Clinical Psychology II
11 Clinical Psychology III
12 Health Psychology
13 Cultural Psychology
14 Review week
15 Final examination
16 Feedback week

The course format includes interactive lectures. The course uses brief demonstrations (experiments, interactive activities, short film) to illustrate concepts. Course time may also include small group discussion and time for questions & answers.

[Course requirements]

None

[Evaluation methods and policy]

Written mid-term examination consisting of multiple choice and open-ended questions = 45%
Written cumulative final examination consisting of multiple choice and open-ended questions= 55%

This course will use a raw score grading system (0-100).

[Textbooks]

Diener Education Foundation 『Noba Project Introductory Psychology』 (Noba) (Online, open access / free materials, access information provided in class in week 1)

[References, etc.]

(**Reference book**)
Introduced during class

[Study outside of class (preparation and review)]

To make satisfactory progress in the course, students will be expected to spend approximately 90 minutes each week outside of class reviewing lecture materials, class notes, and the online textbook.

[Other information (office hours, etc.)]

Walk-in office hours will be available each week. Students may use office hours to discuss course material or for other general questions, such as studies. Students are also welcome to make appointments for office hours by emailing the instructor in advance and arranging a mutually convenient time.

The time and location for walk-in hours will be announced in week 1. Instructions for how to contact the instructor by email will also be announced in week 1.

Lecture code: H739001

Course number	U-LAS04 10014 LE46		
Course title (and course title in English)	Psychoanalysis-E2 Psychoanalysis-E2	Instructor's name, job title, and department of affiliation	Graduate School of Human and Environmental Studies Program-Specific Associate Professor,TAJAN, Nicolas Pierre

Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course introduces psychoanalysis through some of Sigmund Freud's most famous works (see references below) and case studies (Dora; Little Hans; Rat man). We will read, explain, criticize, and comment Sigmund Freud in order to better understand psychoanalytical key concepts such as unconscious, transference, sexuality, etc.

[Course objectives]

To provide you with a general introduction to and understanding of psychoanalytical theory and practice.
To increase your psychoanalytical knowledge through one of the most debated case studies in the history of mental medicine.
To help you develop your analytical and critical thinking regarding the founding principles, key concepts, and applications of psychoanalysis.

[Course schedule and contents)]

1) Introduction
2) Unconscious
3) Transference
4) Sexuality
5) Loss
6) Dora I
7) Dora II
8) Little Hans I
9) Little Hans II
10) Rat Man I
11) Rat Man II
12) Totem and Taboo
13) Civilization and its discontents
14) Conclusion
15) Final test
16) feedback

Continue to Psychoanalysis-E2(2)↓↓↓

Psychoanalysis-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Students are expected to actively participate to discussion and read Freud's five case studies. Evaluation is based on the following: Attendance and participation (30%), 2 written responses at beginning of class 5 and 9 (30%), final test (40%).

[Textbooks]

Relevant material is distributed in class.

[References, etc.]

（**Reference book**）
Sigmund Freud 『Fragments of an Analysis of a Case of Hysteria (1905)』 （The Complete Psychological Works of Sigmund Freud）
Sigmund Freud 『Analysis of a Phobia in a Five-year-old Boy (1909)』 （The Complete Psychological Works of Sigmund Freud）
Sigmund Freud 『Notes Upon A Case of Obsessional Neurosis (1909)』 （The Complete Psychological Works of Sigmund Freud）

[Study outside of class (preparation and review)]

Students do not have homework assignements. However, they are advised to take notes during class and to review the course material before written responses and final test.

[Other information (office hours, etc.)]

[Courses delivered by instructors with practical work experience]

(1) Category
A course with practical content delivered by instructors with practical work experience

(2) Details of instructors’ practical work experience related to the course
Clinical experiences in a variety of fields as a psychoanalyst, psychologist

(3) Details of practical classes delivered based on instructors’ practical work experience

Lecture code: H721001

Course number	U-LAS04 10012 LE45		
Course title (and course title in English)	Sociology I-E2 Sociology I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Letters Associate Professor,Stephane Heim

Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Sociology can be briefly defined as the science of social interactions, social behaviors, and society. These concepts cover various subthemes such as institutions, power, organizations, stratification, etc, which make sociology a very challenging social science. This lecture presents and discusses the main topics, theories, concepts, and authors in the field of sociology, and provides students with the knowledge and tools to understand the evolution of our contemporary societies and of our everyday behaviors.

[Course objectives]

The objective is to familiarize students with the main concepts in sociology, in order to be able to understand and analyze the evolutions of contemporary societies. The students will examine various dimensions of societies through the confrontation with real-life sociological problems and the discussion of many case studies, having then a broad introduction to the study of social behaviors. Students will acquire a knowledge and ability to enrich their understanding of social phenomena that both shape and are outgrowths of our behaviors, and for some of them the basis to pursue the learning of social sciences at university.

[Course schedule and contents)]

Week 1. Course Introduction: the Sociological Imagination
Week 2. Social Research
Week 3. Socialization and Social Interaction
Week 4. Social Structure and Family
Week 5. Culture and Media
Week 6. Capitalism, Economy, and Work
Week 7. Organizations and Institutions
Week 8. Social Stratifications, Class, Inequalities
Week 9. Deviance and Control
Week 10. Race and Ethnicity
Week 11. Power
Week 12. Gender and Sexuality
Week 13. Education and Science
Week 14. Course Conclusions
Week 15. Feedback

[Course requirements]

The lectures will be delivered in English. It is not required to have already studied Sociology, but students

Continue to Sociology I-E2(2)↓↓↓

Sociology I-E2(2)

should have an interest in the phenomena that shape and modify our contemporary societies.

[Evaluation methods and policy]

Final exam

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

During each class, the first ten-fifteen minutes are dedicated to the review of the previous class. Students are asked to prepare each lesson on a weekly basis.

[Other information (office hours, etc.)]

Students should email the teacher to make an appointment.

Lecture code: H743001

Course number	U-LAS04 20045 LE46		
Course title (and course title in English)	Social Psychology-E2 Social Psychology-E2	Instructor's name, job title, and department of affiliation	Institute for the Future of Human Society Program-Specific Assistant Professor,DE ALMEIDA, Igor

Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course introduces students to the field of social psychology by surveying a variety of topics on the psychology of everyday social interactions, relationships, groups, cultures, and society.

We will explore the social psychological answers to questions about our daily lives and real worlds. For example, how do we form impressions about people when we first meet? How do people end up with different worldviews? Why are some people so effective at persuading the people around them? When are we most likely to obey authority or conform to the group? Do groups make different decisions than individuals? Are humans capable of altruistic behavior? Do video games and tv make us more aggressive?

[Course objectives]

At the end of the course, students will be able to:
1. Compare and contrast foundational theories and research about social cognition, influence, and relationships.
2. Identify and explain the organizing themes and assumptions that drive these theories.
3. Demonstrate ethical, critical consumption of psychological research, such as evaluating claims made in the news.
4. Apply social psychological research and principles to current issues in society.

This course also develops students' communication and critical thinking skills in English.

[Course schedule and contents)]

With advanced notice to students, the instructor may make some minor adjustments to the schedule below as required.

1 Course welcome and topic introduction
2 Methods in social psychology
3 The self
4 Social cognition: How we think about ourselves, others, and the world we live in
5 Attitudes and behaviors
6 Persuasion and influence
7 Group processes
8 Aggression

Continue to Social Psychology-E2(2)↓↓↓

Social Psychology-E2(2)

9 Helping
10 Attraction and intimacy
11 Genes, culture, and gender
12 Liberation social psychology
13 Applied social psychology I
14 Applied social psychology II
15 Final examination (presentations)
16 Feedback week

The course format includes interactive lectures accompanied by powerpoint slides and demonstrations (experiments, interactive activities, short film) to illustrate concepts. Course time regularly includes small group / class discussions.

[Course requirements]

None

[Evaluation methods and policy]

Midterm essay - 30%
Final essay - 30%
Presentation - 40%

This course uses a raw score grading system (0-100).

[Textbooks]

Diener Education Foundation 『Together: Social Psychology Noba Textbook』 (Noba Project) (Online, open access / free materials, access information provided in class in week 1)

[References, etc.]

(**Reference book**)
Introduced during class

[Study outside of class (preparation and review)]

To make satisfactory progress in the course, students will be expected to spend approximately 90 minutes each week outside of class reviewing lecture materials, class notes, and the online textbook.

[Other information (office hours, etc.)]

Office hours will be available each week.
Students may use office hours to discuss course material or for other general questions, such as discussing continued studies / careers in psychology.

The time and location for walk-in hours will be announced in week 1. Students are also welcome to make appointments for office hours by emailing the instructor in advance and arranging a mutually convenient time.

Lecture code: H740001

Course number	U-LAS04 20041 LE46		
Course title (and course title in English)	Psychoanalysis II-E2 Psychoanalysis II-E2	Instructor's name, job title, and department of affiliation	Graduate School of Human and Environmental Studies Program-Specific Associate Professor,TAJAN, Nicolas Pierre

Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.3	Target year	All students	Eligible students	For all majors

(Students of Faculty of Integrated Human Studies cannot take this course as liberal arts and general education course. Please register the course with your department.)

[Overview and purpose of the course]

This course introduces psychoanalysis through one of Jacques Lacan's most famous works. We will read, explain, and comment Jacques Lacan's return to Freud. Some crucial aspects of Lacanian doctrine will be explained, including his approach to linguistics and subjectivity; the Schreber case; the three orders; the four discourses, etc.

[Course objectives]

To provide you with a general introduction to and understanding of Lacanian psychoanalytical theory and practice.
To increase your psychoanalytical knowledge through one of the most debated case studies in the history of psychopathology.
To help you develop your analytical and critical thinking regarding the founding principles, major notions, and applications of psychoanalysis.

[Course schedule and contents)]

1) Introduction
2) The mirror stage
3) Schema L
4) Primacy of the Signifier
5) Psychosis (1/4)
6) Psychosis (2/4)
7) Psychosis (3/4)
8) Psychosis (4/4)
9) Transference
10) Object a
11) Love and jouissance
12) The four discourses (1/2)
13) The four discourses (2/2)
14) Conclusions
15) Final test
16) Feedback

Continue to Psychoanalysis II-E2(2)↓↓↓

Psychoanalysis II-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Students are expected to actively participate to discussion and read texts during class. Evaluation is based on the following: Attendance and participation (30%), 2 short tests at beginning of class 5 and 10 (30%), final test (40%).

[Textbooks]

Relevant material is distributed in class.

[References, etc.]

（**Reference book**）
Alain Vanier 『Lacan』（New York, Other Press, 2001）
Sigmund Freud 『Psycho-Analytic Notes on an Autobiographical Account of a Case of Paranoia (Dementia Paranoides) (1911)』（The Complete Psychological Works of Sigmund Freud）
Jacques Lacan 『The Psychoses 1955-1956 (SEMINAR OF JACQUES LACAN)』（W. W. Norton & Company, 1997）

[Study outside of class (preparation and review)]

Students do not have homework assignements. However, they are advised to take notes during class and to review the course material before written responses and final test.

[Other information (office hours, etc.)]

[Courses delivered by instructors with practical work experience]

(1) Category
A course with practical content delivered by instructors with practical work experience

(2) Details of instructors’ practical work experience related to the course
Clinical experiences in a variety of fields as a psychoanalyst, psychologist

(3) Details of practical classes delivered based on instructors’ practical work experience

Lecture code: H715001

Course number	U-LAS04 20002 LE47				
Course title (and course title in English)	Advanced Lecture for Pedagogy I-E2 Advanced Lecture for Pedagogy I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Education Associate Professor,Jeremy Rappleye		
Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course complements Pedagogy I. It provides students an opportunity to deepen their understanding of ideas discussed in by reading academic articles and other related materials on these subjects. Through these readings, the major concepts and ideas in Pedagogy I can be grasped more easily and students will have more time to debate and develop their ideas.

[Course objectives]

One primary goal of this Advanced Lecture is to give students confidence to read academic materials in English. Another goal is to develop more rigorous analytical skills, including the ability to compare, contrast, critique, and construct perspectives related to education. A third goal is to gain a deeper knowledge of the various components of education: schools, goals, teachers, curriculum, etc. In contrast to Pedagogy I, the core of this class will focus on critical reading and analysis of original texts.

[Course schedule and contents)]

Introduction (1 class)

Part I: What do good schools look like? (4-5 classes) - This section will examine various examples of innovative schools drawn from different cultural contexts, including Summerhill, monasteries, and preschools in Japan and America.

Part II: What is the goal of education? (3-4 classes)- This section will introduce students to 3 broad aims for schooling found throughout the world: economic growth, social equality, and individual development.

Part III: What makes a good teacher? (3-4 classes)- We next turn to look at the different styles of teacher that match the different goals of education discussed in Part II.

Part IV: What should be taught? (2-3 classes) - This section focuses on what is taught, both the explicit and hidden curriculum of schools.

Part V: What will schools look like in the future? (2-3 classes)- Drawing together all the previous sections of the course, we contemplate the future of education, in particular technology and globalization.
(15 classes total, 1 Final Exam, 1 Feedback Section)

Continue to Advanced Lecture for Pedagogy I-E2(2)↓↓↓

Advanced Lecture for Pedagogy I-E2(2)

[Course requirements]

There are no special requirements for taking this course. However, students are strongly encouraged to also enrol in Pedagogy I at the same time as this course (Pedagogy I will be held just before this class). These two courses will be roughly the same content, but Advanced Lecture for Pedagogy I will focus more on reading skills, deepening analysis, and contemplation. All lectures will be in English, but the instructor can read and understand Japanese, so questions or comments may occasionally be made in Japanese.

[Evaluation methods and policy]

Classes will take the form of group analysis of key texts. Students will be expected to deliver a 10-15 minute presentation at least once during the course. Grading will based on attendance and active participation (20 points), evidence of advanced preparation (10 points), presentation and reflection paper (20 points), and a final evaluation, test or paper to be decided later (50 points). Students who are absent more than four times will not be given credit.

[Textbooks]

Not used
All readings will be distributed in class by the instructor (PDF and hardcopy formats)

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Students will be expected to read about 1-2 articles/chapters outside of class each week. This will be roughly 15-20 pages of academic English language text. Some readings will be quite challenging, others will not. This will require studying approximately 2-3 hours outside of class each week for this course.

[Other information (office hours, etc.)]

Office Hours will be held 1 hour each week (time and place to be announced)

Lecture code: H716001

Course number	U-LAS04 20003 LE47				
Course title (and course title in English)	Advanced Lecture for Pedagogy II-E2 Advanced Lecture for Pedagogy II-E2	Instructor's name, job title, and department of affiliation	Graduate School of Education Associate Professor,Jeremy Rappleye		
Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course complements and extends Pedagogy II. It focuses on deepening students understanding of major pedagogical approaches by critically engaging with original, high-level texts by leading philosophical and educational thinkers. Students are encouraged to read advanced level texts so that they can acquire both a higher command of academic English and a deeper understanding of diverse pedagogical approaches.

[Course objectives]

One primary goal of this course are to help students gain the skills and confidence to read challenging academic materials in English. Another goal is to develop high-level analytical skills in the field of pedagogy. A third is to gain a deeper knowledge of leading thinkers. In contrast to Pedagogy II, the core of this class will be critical reading and analysis of original texts. The modes of critical engagement acquired will be useful across all subjects in the social sciences and humanities.

[Course schedule and contents)]

This class will complement and thus closely follow Pedagogy II. Ideally, all students will enrol in both courses, first receiving lectures in Pedagogy II, then reading original texts to deepen their knowledge further in the Advanced Lecture for Pedagogy II.

As such, the class is organized in the same manner as Pedagogy II:

1. Class Overview and Student Questionarie (1 class)
2. Classic Conceptions: Plato's Cave, Socrates Soul (2-3 classes)
3. Traditional Pedagogy (Christianity, Oakeshott) (2-3 classes)
4. Progressive Pedagogy (Rousseau, Kilpatrick) (2-3 classes)
5. Dewey's Pedagogy: Experience and Democracy (2-3 classes)
6. Non-Western Pedagogy? Self, Tradition, Other (Japanese thinkers and others) (2-3 classes)

(15 lectures total, including Final Examination (or Final Paper), plus 1 Feedback Class

[Course requirements]

There are no special requirements for taking this course. However, students are strongly encouraged to also enroll in Pedagogy II at the same time as this course. These two courses will be roughly the same content, but Advanced Lecture for Pedagogy II will focus more on reading skills and deepening knowledge. All lectures will be in English, but the instructor can read and understand Japanese, so questions or comments may

Continue to Advanced Lecture for Pedagogy II-E2(2)↓↓↓

Advanced Lecture for Pedagogy II-E2(2)

occasionally be made in Japanese.

[Evaluation methods and policy]

Classes will take the form of group analysis of key texts. Students will be expected to deliver a 10-15 minute presentation at least once during the course. Grading will based on attendance and active participation (30 points), evidence of advanced preparation (15 points), presentation and reflection paper (15 points), and a final evaluation, test or paper to be decided later (40 points). Students who are absent more than four times will not be given credit.

[Textbooks]

Not used
There is no textbook for this course. All readings will be distributed by the instructor in PDF format and hard copy (if students wish to have hard copy). We will discuss in the first class.

[References, etc.]

（Reference book）
J. Palmer (Ed.) 『Fifty Major Thinkers on Education: From Confucius to Dewey』 （* Available online）

[Study outside of class (preparation and review)]

Students will be expected to read 1-2 major articles outside of class each week. This will be roughly 15-30 pages of challenging, academic English language text. This will require studying 2-3 hours outside of class each week for this course.

[Other information (office hours, etc.)]

Office Hours will be held 1 hour each week (time and place to be announced)

Lecture code: H709001

Course number	U-LAS04 20004 LE46				
Course title (and course title in English)	Introduction to Educational Psychology I -E2 Introduction to Educational Psychology I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Education Professor,Emmanuel MANALO		
Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

The main purpose of this course is to introduce students to the basic concepts, issues, and perspectives in educational psychology and provide them with the foundational knowledge necessary for future study in this subject area. The focus of the course is on introducing essential theories and research, and considering the real and possible applications of those to educational practices.

[Course objectives]

The goals of this course are:
- To facilitate students' acquisition of knowledge about basic concepts, issues, and perspectives in educational psychology
- To encourage students to think about the relevance and applications of that knowledge - especially with regard to themselves and their immediate environment
- To facilitate the development of students' thinking and communication skills in English

[Course schedule and contents)]

Course Schedule
The following is a guide to what will be covered during the 16 weeks of the semester. As required, some minor adjustments may be made to this schedule.
Week 1: Introduction to the course and to the foundations of learning
Week 2: The brain and learning: lecture and discussion
Week 3: The physiology of learning: reflections about opportunities, limitations, and challenges
Week 4: The nature of development: lecture and discussion
Week 5: The nature of development: reflections on the contributions of maturation and experience
Week 6: The nature of development: reflections on the importance of catering to individual differences in school education
Week 7: What "learning" is from the behavioural perspective: lecture and discussion
Week 8: What "learning" is from the gestalt and cognitive perspectives: lecture and discussion
Week 9: What "learning" is: reflections about the usefulness of knowing these perspectives for teachers and students
Week 10: The mechanisms of learning part 1: lecture and discussion
Week 11: The mechanisms of learning part 2: lecture and discussion
Week 12: The mechanisms of learning: reflections about applications of principles to classroom teaching and learning
Week 13: Language and learning: lecture and discussion

Continue to Introduction to Educational Psychology I-E2(2)↓↓↓

Week 14: Language and learning: reflections about the relationship between language and thought
Week 15: Final examination
Week 16: Feedback week

Course Conduct
Students taking this course will be expected to prepare for each class by reading the appropriate textbook pages and any other materials that the instructor assigns. Class sessions will comprise of lectures provided by the instructor to summarize key points, highlight important issues, and introduce students to other pertinent information that bear on the topic being covered: these will all be provided on the assumption that students have undertaken the preparatory readings. The class sessions will also involve pair, small group, and/or plenary discussions, and exercises for students to complete individually or in cooperation with other students. Active participation in these discussions and exercises is necessary to meet coursework/grading requirements (see below). 40% of the course grade is based on a portfolio of work that students complete relating to the topics dealt with in the course (i.e., exercises completed in class, notes on key points raised in discussions with other students, notes taken from and reflections on assigned and other readings undertaken, etc.).

[Course requirements]

None

[Evaluation methods and policy]

Portfolio of work = 40%, Short essay (750 words) = 20%, Class discussion participation and contribution = 20%, Final test = 20% (If the coronavirus problem persists, the final test will be replaced by another short essay.)

[Textbooks]

Stones, E. 『An introduction to educational psychology.』（London: Routledge）ISBN:415750555（The electronic version of this book is available from the Kyoto University Library.）

[Study outside of class (preparation and review)]

Students will be expected to spend about 90 minutes each week on out-of-class preparation, readings, and assignments.

[Other information (office hours, etc.)]

Students will be expected to read assigned chapters and other readings in preparation for each class. During the semester, students can email the instructor to make an appointment or to ask any questions about the course.

Lecture code: H710001

Course number	U-LAS04 20005 LE46				
Course title (and course title in English)	Introduction to Educational Psychology II-E2 Introduction to Educational Psychology II-E2	Instructor's name, job title, and department of affiliation	Graduate School of Education Professor,Emmanuel MANALO		
Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.4	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

The main purpose of this course is to introduce some key concepts, issues, and perspectives in educational psychology and provide students with the foundational knowledge necessary for future study in this subject area. The focus of the course is on introducing essential theories and research, and considering the real and possible applications of those to educational practices.

[Course objectives]

Following on from Introduction to Educational Psychology I, the goals of this course are:
- To facilitate students' acquisition of more knowledge about basic concepts, issues, and perspectives in educational psychology
- To encourage students to think about the relevance and applications of that knowledge - with regard to themselves, their immediate environment, and beyond
- To facilitate the development of students' thinking and communication skills in English

[Course schedule and contents)]

Course Schedule
The following is a guide to what will be covered during the 16 weeks of the semester. As required, some minor adjustments may be made to this schedule.
Week 1: Introduction to the course and to concept formation in children
Week 2: Schema in learning: lecture and discussion
Week 3: Concepts and schemas: reflections about what we know, how we know, what we think others may know ...
Week 4: Memory: an introduction to and discussion of basic concepts
Week 5: Remembering and forgetting: reflections about what we retain and what we lose in memory
Week 6: Mnemonic techniques: reflections about uses in educational settings
Week 7: Learning in school: lecture and discussion
Week 8: Learning in school: reflections about what is taught - and how
Week 9: Examinations and tests: lecture and discussion
Week 10: Formative and summative evaluation: reflections about effects on learning
Week 11: Test and question types: reflections about uses and usefulness
Week 12: Intelligence and intelligence testing: lecture and discussion
Week 13: Ability grouping: reflections about advantages and disadvantages for students and teachers
Week 14: Diversity in education: reflections about benefits and challenges
Week 15: Final examination

Continue to Introduction to Educational Psychology II-E2(2)↓↓↓

Introduction to Educational Psychology II-E2(2)

Week 16: Feedback week

Course Conduct
Students taking this course will be expected to prepare for each class by reading the appropriate textbook pages and any other materials that the instructor assigns. Class sessions will comprise of lectures provided by the instructor to summarize key points, highlight important issues, and introduce students to other pertinent information that bear on the topic being covered: these will all be provided on the assumption that students have undertaken the preparatory readings. The class sessions will also involve pair, small group, and/or plenary discussions, and exercises for students to complete individually or in cooperation with other students. Active participation in these discussions and exercises is necessary to meet coursework/grading requirements (see below). 40% of the course grade is based on a portfolio of work that students complete relating to the topics dealt with in the course (i.e., exercises completed in class, notes on key points raised in discussions with other students, notes taken from and reflections on assigned and other readings undertaken, etc.).

[Course requirements]

None

[Evaluation methods and policy]

Portfolio of work = 40%, Short essay (750 words) = 20%, Class discussion participation and contribution = 20%, Final examination = 20%

[Textbooks]

Stones, E. 『An introduction to educational psychology.』（London: Routledge）ISBN:415750555（The electronic version of this book is available from the Kyoto University Library.）

[Study outside of class (preparation and review)]

Students will be expected to spend about 90 minutes each week on out-of-class preparation, readings, and assignments.

[Other information (office hours, etc.)]

Students will be expected to read assigned chapters and other readings in preparation for each class. During the semester, students can email the instructor to make an appointment or to ask any questions about the course.

Lecture code: H708001

Course number	U-LAS04 20006 LE47		
Course title (and course title in English)	Introduction to Educational Studies I-E2 Introduction to Educational Studies I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Education Professor,Emmanuel MANALO

Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.1	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

The main purpose of this course is to provide students with an introduction to some of the key concepts, issues, and perspectives in the study of education. Through a series of lectures, exercises, and discussions in class, students will be encouraged to consider the meaning and functions of education; different theories of teaching and learning; differences in educational systems; strategies in catering for special educational needs and promoting inclusion; and some of the controversies and debates surrounding the issue of gender in education.

[Course objectives]

The goals of this course are:
- To facilitate students' acquisition of knowledge about some of the important concepts, issues, and ideas in educational studies
- To foster in students an understanding and appreciation of the multiple perspectives that exist in the study and practice of education
- To encourage students to think about the relevance and applications of the knowledge they are acquiring
- To facilitate the development of students' thinking and communication skills in English

[Course schedule and contents)]

Course Schedule
The following is a guide to what will be covered during the 16 weeks of the semester. As required, some minor adjustments may be made to this schedule.
Week 1: Introduction to the course and to the question of what education might mean
Week 2: What education means: lecture and discussion
Week 3: What education means: reflections about own and others' perspectives on the meaning of education
Week 4: Theories of teaching and learning: lecture and discussion
Week 5: Theories of teaching and learning: reflections about the usefulness of these theories to the learner
Week 6: Theories of teaching and learning: reflections about the usefulness of these theories to the teacher
Week 7: Differences in educational systems part 1: lecture and discussion
Week 8: Differences in educational systems part 2: lecture and discussion
Week 9: Differences in educational systems: reflections about culture and the realities of school settings
Week 10: Special educational needs and inclusion: lecture and discussion
Week 11: Educating students with learning disabilities: reflections on issues, controversies, and strategies
Week 12: Educating students who are gifted and talented: reflections on issues, controversies, and strategies
Week 13: Gender in education: lecture and discussion

Continue to Introduction to Educational Studies I-E2(2)↓↓↓

Week 14: Gender in education: reflections about fairness and ways to promote equal opportunities
Week 15: Final examination
Week 16: Feedback week

Course Conduct
Students taking this course will be expected to prepare for each class by reading the appropriate textbook pages and any other materials that the instructor assigns. Class sessions will comprise of lectures provided by the instructor to summarize key points, highlight important issues, and introduce students to other pertinent information that bear on the topic being covered: these will all be provided on the assumption that students have undertaken the preparatory readings. The class sessions will also involve pair, small group, and/or plenary discussions, and exercises for students to complete individually or in cooperation with other students. Active participation in these discussions and exercises is necessary to meet coursework/grading requirements. 40% of the course grade is based on a portfolio of work that students complete relating to the topics dealt with in the course (i.e., exercises completed in class, notes on key points raised in discussions with other students, notes taken from and reflections on assigned and other readings undertaken, etc.).

[Course requirements]

None

[Evaluation methods and policy]

Portfolio of work = 40%, Short essay (750 words) = 20%, Class discussion participation and contribution = 20%, Final test = 20% (If the coronavirus problem persists, the final test will be replaced by another short essay.)

[Textbooks]

Matheson, D. 『An introduction to the study of education (4th ed.)』 （London: Routledge）ISBN: 415623103（The electronic version of this book is available from the Kyoto University Library.）

[Study outside of class (preparation and review)]

Students will be expected to spend about 90 minutes each week on out-of-class preparation, readings, and assignments.

[Other information (office hours, etc.)]

Students will be expected to read assigned chapters and other readings in preparation for each class. During the semester, students can email the instructor to make an appointment or to ask any questions about the course.

Lecture code: H711001

Course number	U-LAS04 20007 LE47		
Course title (and course title in English)	Introduction to Educational Studies II-E2 Introduction to Educational Studies II-E2	Instructor's name, job title, and department of affiliation	Graduate School of Education Professor,Emmanuel MANALO
Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

The main purpose of this course is to introduce some key concepts, issues, and perspectives in the study of education. Through a series of lectures, exercises, and discussions in class, students will be encouraged to consider various important issues about student and teacher roles, and what happens in the classroom and beyond. Through a small group project, students will investigate and reflect on one aspect of educational provision in Japan in comparison to another country.

[Course objectives]

Following on from Introduction to Educational Studies I, the goals of this course are:
- To further facilitate students' acquisition of knowledge about some of the important concepts, issues, and ideas in educational studies
- To continue to foster in students an understanding and appreciation of the multiple perspectives that exist in the study and practice of education
- To encourage students to think about the relevance and applications of the knowledge they are acquiring
- To facilitate the development of students' thinking and communication skills in English

[Course schedule and contents)]

Course Schedule
The following is a guide to what will be covered during the 16 weeks of the semester. As required, some minor adjustments may be made to this schedule.
Week 1: Introduction to the course and to the role of technology in education
Week 2: The "flipped" classroom: reconsidering teacher and student roles
Week 3: Early childhood education: lecture and discussion
Week 4: Compulsory school education: lecture and discussion
Week 5: Further and higher education: lecture and discussion
Week 6: Discussion of student project on investigating and comparing educational provisions in Japan, part 1
Week 7: Discussion of student project on investigating and comparing educational provisions in Japan, part 2
Week 8: Motivation and school achievement: lecture and discussion
Week 9: Lifelong learning: lecture and discussion
Week 10: Lifelong learning: reflections on its value
Week 11: Race and social class inequalities in education: lecture and discussion
Week 12: Inequalities in education: reflections about the effectiveness of strategies for addressing inequalities
Week 13: Educational research: lecture and discussion
Week 14: Educational research: some considerations about what, why, and how

Continue to Introduction to Educational Studies II-E2(2)↓↓↓

Week 15: Final examination
Week 16: Feedback week

Course Conduct
Students taking this course will be expected to prepare for each class by reading the appropriate textbook pages and any other materials that the instructor assigns. Class sessions will comprise of lectures provided by the instructor to summarize key points, highlight important issues, and introduce students to other pertinent information that bear on the topic being covered: these will all be provided on the assumption that students have undertaken the preparatory readings. The class sessions will also involve pair, small group, and/or plenary discussions, and exercises for students to complete individually or in cooperation with other students. Active participation in these discussions and exercises is necessary to meet coursework/grading requirements. 40% of the course grade is based on a portfolio of work that students complete relating to the topics dealt with in the course (i.e., exercises completed in class, notes on key points raised in discussions with other students, notes taken from and reflections on assigned and other readings undertaken, etc.).

[Course requirements]

None

[Evaluation methods and policy]

Portfolio of work = 40%, Report (750 words) = 20%, Class discussion participation and contribution = 20%, Final examination = 20%

[Textbooks]

Matheson, D.『An introduction to the study of education (4th ed.)』（London: Routledge）ISBN: 415623103（The electronic version of this book is available from the Kyoto University Library.）

[Study outside of class (preparation and review)]

Students will be expected to spend about 90 minutes each week on out-of-class preparation, readings, and assignments.

[Other information (office hours, etc.)]

Students will be expected to read assigned chapters and other readings in preparation for each class. During the semester, students can email the instructor to make an appointment or to ask any questions about the course.

Lecture code: H724001

Course number	U-LAS04 20030 LE45		
Course title (and course title in English)	Introduction to Globalization Studies-E2 Introduction to Globalization Studies-E2	Instructor's name, job title, and department of affiliation	Graduate School of Letters Associate Professor,Stephane Heim

Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2

Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Globalization is presented as the main factor of evolution affecting the contemporary world, both in its political, economic, social, and cultural dimensions. Globalization has then to be examined as a process that entails several changes due to migration, political regional integration, unequal economic development, cultural convergence for example. This course focuses on these overall tendencies, and their various effects on developing and developed countries.

[Course objectives]

The first target of this course is to provide students with sound knowledge about the several ways globalization impact our societies. In that respect, students will study both the economic, political, social, and cultural dimensions of globalization. At the end of the course, they will have an interdisciplinary and problem-oriented approach of issues entailed by globalization.

[Course schedule and contents)]

Week 1. Course Introduction
Week 2. Theories of the Global System, Discourses on Globalization
Week 3. Sociology of Globalization
Week 4. Globalization in a Historical Perspective
Week 5. Economic Globalization: Global Capitalism
Week 6. Economic Globalization: Neoliberalism
Week 7. Political Globalization: Transnational State and Institutions
Week 8. Political Globalization: Global Democratization
Week 9. Cultural Globalization: Local/Global
Week 10. Globalization, Ethnicity, and Gender
Week 11. Globalization, Identity, Culture, and Communication
Week 12. Globalization, and Transnational Migrations
Week 13. Globalization and Environment
Week 14. Course Conclusions
Week 15. Feedback

Continue to Introduction to Globalization Studies-E2(2)↓↓↓

Introduction to Globalization Studies-E2(2)

[Course requirements]

The lectures will be delivered in English. There are no prerequisite to take this course.

[Evaluation methods and policy]

Final exam.

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

During each class, the first ten-fifteen minutes are dedicated to the review of the previous class. Students are asked to prepare each lesson on a weekly basis.

[Other information (office hours, etc.)]

Students should email the teacher to make an appointment.

Lecture code: H725001

Course number	U-LAS04 20031 LE45				
Course title (and course title in English)	Introduction to Social Research-E2 Introduction to Social Research-E2	Instructor's name, job title, and department of affiliation	Graduate School of Letters Associate Professor,Stephane Heim		
Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Social sciences, whose aim is an in-depth understanding of human behaviors, share with natural and engineering sciences a common "scientific frame", while having also specific and diverse research methodologies. Those methodologies are usually divided into quantitative and qualitative approaches. The qualitative approaches are presented in this lecture. We will see both how a research can be conduced from the building of a sound problematic to the final report writing, and how several well-known surveys produced knowledge about human behaviors.

[Course objectives]

This course aims to familiarize students with different qualitative research methods so as to develop their critical sense and ability in analyzing social, economic, and political issues presented and debated in the media, and in leading qualitative researches on their own. A great variety of researches will be exposed and discussed, as well as the construction of, and issues linked with each step of a qualitative research.

[Course schedule and contents)]

Week 1. Introduction to Field Research
Week 2. Literature Reviews
Week 3. Research Design: Hypothesis and Research Question
Week 4. Field Research and Questionnaire
Week 5. Interviews, Observation, and Participation
Week 6. Documents and Archives
Week 7. Interpretation, Qualitative Data Analysis, and Content Analysis
Week 8. Conceptualization, Operationalization
Week 9. Writing Research Reports
Week 10. Historical/Comparative Research
Week 11. Field Research and Social Surveys
Week 12. Social Research in Critical Perspective
Week 13. Research Ethics
Week 14. Course Conclusions

Total: 14 classes, 1 Feedback session

Continue to Introduction to Social Research-E2(2)↓↓↓

Introduction to Social Research-E2(2)

[Course requirements]

The lectures will be delivered in English. There are no prerequisite to take this course.

[Evaluation methods and policy]

Final report.

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

During each class, the first ten-fifteen minutes are dedicated to the review of the previous class. Students are asked to prepare each lesson on a weekly basis.

[Other information (office hours, etc.)]

Students should email the teacher to make an appointment.

Lecture code: H726001

Course number	U-LAS04 20032 LE45		
Course title (and course title in English)	Sociology of Work and Organizations-E2 Sociology of Work and Organizations-E2	Instructor's name, job title, and department of affiliation	Graduate School of Letters Associate Professor,Stephane Heim

Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Work and organizations are two central institutions of modern capitalist societies. They both shape the social order and stratification, and diffuse social norms and values. During this lecture, several core theories, case studies, and international comparisons of labor markets are presented, analyzed and discussed. Students learn about the development of industrial society and the impact of neoliberal policies since the 1980s, the specificity of the Japanese labor market, the sociopolitical construction of several markets, and the welfare regimes in different countries. In the end, the students acquire a sound knowledge about important theories of work and organizations, and in parallel they understand the development of industrial society since the 19th century.

[Course objectives]

The course aims at understanding the basics of sociology of work and organizations, so that students develop a critical sense about the functioning of these two institutions, and are prepared to solve problems they might encounter in their future carriers. Students will therefore acquire knowledge of several approaches and theories on the function of work and organizations in the society. Several case studies will also be introduced to illustrate these approaches.

[Course schedule and contents)]

Week 1. Introduction to Sociology of Work and Organizations
Week 2. Theories of Work and Organizations
Week 3. The Development of Industrial Society
Week 4. The Sociopolitical Construction of Markets
Week 5. The Development of Modern Corporations and Firms
Week 6. The Golden Age of Fordism and the Neoliberal Turn in the 1980s
Week 7. The Globalization of the Automotive Industry and Employment Relations
Week 8. The EU Single Market and the Labor Issue
Week 9. International Comparison of Unemployment and Non-Regular Jobs
Week 10. The Formation and Transformation of the Japanese Labor Market
Week 11. The Japanese Employment Relations and the J-Firm
Week 12. The Evolution of Social Stratification in Japan
Week 13. The Japanese Welfare Regime
Week 14. Conclusions

Total: 14 classes, 1 Feedback session

Continue to Sociology of Work and Organizations-E2(2)↓↓↓

Sociology of Work and Organizations-E2(2)

[Course requirements]

The lectures will be delivered in English. There are no prerequisite to take this course, though it would be better to have some basic sociological knowledge.

[Evaluation methods and policy]

Final report.

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

During each class, the first ten-fifteen minutes are dedicated to the review of the previous class. Students are asked to prepare each lesson on a weekly basis.

[Other information (office hours, etc.)]

Students should email the teacher to make an appointment.

Lecture code: H712001

Course number	U-LAS04 20033 LE45		
Course title (and course title in English)	Introduction to Sociological Observation -E2 :Understanding Environmental Challenges Introduction to Sociological Observation-E2 :Understanding Environmental Challenges	Instructor's name, job title, and department of affiliation	Graduate School of Global Environmental Studies Associate Professor,TRENCHER, Gregory

Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.1	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This lecture and discussion course will introduce students to various theories from social science fields that can enrich our understanding of why environmental and societal challenges occur and how we can better manage them. In doing so, we will use real world case studies and famous journal papers to gain interdisciplinary knowledge from different fields such as environmental sociology, environmental ethics, sociology, philosophy and sustainability transitions and learn how apply these theories to actual environmental and social situations.

The class has a strong theoretical focus and will suit students who already possess: 1) an advanced level in English, 2) basic understanding of environmental problems, 3) an interest in academic research.

[Course objectives]

Students will learn to understand and apply some classic and emerging sociological theories and conceptual frameworks with relevance to environmental challenges. These include the ‘tragedy of the commons’, sustainability transitions, the creation and destruction of technology, and socio-technological lock-in. Students will improve skills in discussion, oral presentations and research. Students will be expected to contribute their ideas and express themselves in small group discussions and classroom exercises.

[Course schedule and contents)]

1. Introduction to course
2. Tragedy of the commons: Climate change
3. Tragedy of the commons: Plastic waste
4. Socio-technical imaginaries: The case of hydrogen in Japan
5. Sustainability transitions and socio-technical systems Part 1: Introduction
6. Sustainability transitions and socio-technical systems Part 2: Strategies to accelerate transitions
7. Sustainability transitions and socio-technical systems Part 3: Lock-in
8. Technology for what social purpose? The case of smart cities
9. Scientific worldviews: Our evolving worldview and the influence of science
10. Research project introduction and preparation
11. Greenwashing: The case of global oil and gas companies
12. Research project preparation
13. Research presentations
14. Research presentations

Continue to Introduction to Sociological Observation-E2 :Understanding Environmental Challenges(2)↓↓↓

Introduction to Sociological Observation-E2 :Understanding Environmental Challenges(2)

15. Feedback

[Course requirements]

This class is designed for students who already possess: 1) an advanced level in English, 2) basic understanding of environmental problems, 3) a strong interest in academic research, including theory.

[Evaluation methods and policy]

Attendance and participation 20%
Research project proposal 20%
Research project presentation 30%
Research project paper 30%

[Textbooks]

No text is required as readings and lecture notes will be distributed in class.

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

All students will be expected to participate in classroom discussions and complete assignments. Revision of class presentations is expected.

[Other information (office hours, etc.)]

Please email the instructor to set up an office appointment. Email address will be provided in class.

Lecture code: H717001

Course number	U-LAS04 20034 LE45		
Course title (and course title in English)	Introduction to Risk Communication-E2 Introduction to Risk Communication-E2	Instructor's name, job title, and department of affiliation	Disaster Prevention Research Institute Associate Professor,SAMADDAR, Subhajyoti

Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

In modern society, the risk is prevalent and populations and communities are increasingly exposed to natural hazards and environmental risks. Increasing risk awareness and encouraging preparedness in the community requires effective risk communication. Nevertheless, risk managers, city authorities, and environmental risk regulators often find it difficult to communicate risks effectively to the public. Because risk is socially and culturally constructed. The purpose of this course is to explain how planners and practitioners can design and implement communication plans related to environmental risks and disasters.

[Course objectives]

This course has the following objectives:

1. To introduce basic knowledge of risk communication.

2. To introduce the theories and approaches of risk communication.

3. To gain practical knowledge of risk communication strategies from real-life case studies on disaster and environmental risks.

[Course schedule and contents)]

Week 1: Why to study risk communication? Principles of risk communication.
Week 2:   Risk: hazards, exposure and vulnerability.
Week 3: Factors affecting effective risk communication: organization, emotional and social.
Week 4: Cultural theory of risk.
Week 5: Cognitive and heuristic approach for risk communication.
Week 6. Mental model and social amplification of risk.
Week 7: Analyze the audience: minds, attitude and behavior of risk preparedness.
Week 8: The process of developing effective risk communication message.
Week 9: Emergency early warning and evacuation behavior.
Week 10: Risk communication channels and techniques
Week 11: Preparing risk communication plan.
Week 12: Response to risk communication: Household disaster preparedness.
Week 13: Implementing risk communication plan.
Week 14: Successful risk communication strategies and systems: Learning from best practices.
Week 15: Final presentations and examination.

Continue to Introduction to Risk Communication-E2(2)↓↓↓

Introduction to Risk Communication-E2(2)

Week 16 : Feedbacks.

[Course requirements]

None

[Evaluation methods and policy]

Group Assignment and presentation 2 (30 points X 2 = 60 points)
Open Book Examination 1 (40 points)

[Textbooks]

Handouts will be distributed by the instructor if necessary.

[References, etc.]

（**Reference book**）
Risk Communication: A Handbook for Communicating Environmental, Safety, and Health Risks 『Regina E. Lundgren, Andrea H. McMakin』

[Study outside of class (preparation and review)]

- prepare and review class contents, reading textbooks.
- complete short assignments on a regular basis.

[Other information (office hours, etc.)]

Students who want to talk to the instructor must make arrangements in advance by email.

Lecture code: H718001

Course number	U-LAS04 20035 LE45		
Course title (and course title in English)	Introduction to Society and Community Studies-E2 Introduction to Society and Community Studies-E2	Instructor's name, job title, and department of affiliation	Disaster Prevention Research Institute Associate Professor,SAMADDAR, Subhajyoti

Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

Our society is very diverse and heterogeneous. People have different perspectives and opinions on the same issue. People view society through the prism of their values and cultures. In order to achieve sustainable human development, collaboration is essential. In today's world, community participation and collaboration are buzzwords for all kinds of community development projects and initiatives. The importance of community involvement in implementing development programs and schemes is becoming increasingly apparent. Nevertheless, there is still no consensus on what constitutes effective participation, what are the methods, and what are the techniques for involving the community. Participants in this course will gain an understanding of the process and outcomes of community participation and collaboration.

[Course objectives]

The course has the following key objectives:

- To have a basic understanding of society, community, and culture and how they influence human behavior.

- To understand the process and outcomes of community participation.

- To learn the tools and techniques of community participation.

[Course schedule and contents)]

Week 1: An overall introduction of the course on community participation and collaboration
Week 2: Basic ideas: society and community.
Week 3 : Basic ideas on culture , social groups, social institutions.
Week 4: Community and sense of community
Week 5: Why Community participation? Concepts and background of community participation.
Week 6: Process of community participation.
Week 7 : Outcome of community participation.
Week 8 : Tools and techniques of community participation - part 1.
Week 9 : Tools and techniques of community participations -part 2.
Week 10 : Success stories and best practices of community participation
Week 11 : Practical challenges of community participation
Week 12 : How to evaluate community participation
Week 13 : Framework for community participation
Week 14 : Current global trends and practices of community participation and collaborative action.

Continue to Introduction to Society and Community Studies-E2(2)↓↓↓

Week 15: Final presentation and examination.
Week 16: Feedback

[Course requirements]

None

[Evaluation methods and policy]

Group Assignment and presentation 2: (30 X 2 = 60 Points).
Examination: 40 points.

[Textbooks]

Handouts will be distributed by the instructor if necessary.

[Study outside of class (preparation and review)]

- prepare and review class contents, reading textbooks.
- complete short assignments .

[Other information (office hours, etc.)]

Lecture code: H734001

Course number	U-LAS04 20039 LE45				
Course title (and course title in English)	Introduction to Ritual Studies-E2 Introduction to Ritual Studies-E2	Instructor's name, job title, and department of affiliation	Disaster Prevention Research Institute Senior Lecturer,LAHOURNAT, Florence		
Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course provides an introduction to the field of ritual studies.
Exploring the core questions of the nature and functions of rituals, we will examine some of the different types of rituals that humans create and participate in, as well as their meaning and significance, in both secular and sacred contexts.
This course will present a number of ritual genres, notably rites of passage, as well as the theories and methods used to study them.

[Course objectives]

There are 3 main objectives for this class.
First students will gain an understanding of the notion of rituals, their meanings and social functions, the scope of ritual studies, as well as an awareness of the wide array of rituals that humans participate in.
Second, they will acquire a working knowledge of ritual theory and of the main categories of rituals and their structure.
Third, the course will help students become more comfortable formulating thoughts and opinions on a specific topic.

[Course schedule and contents)]

This is a lecture-type class with an interactive component.
Each session will include a lecture part and followed or interspersed with discussions based on the lecture content and this week's readings.

1- Orientation and overview
2- Defining and delimiting the notion of ritual
3- Studying rituals
4- Elements of rituals
5- Classifications of rituals
6- Ritual theory: how they work, what they do
7- Group work session
8- Daily rituals
9- Rites of passage (P.1)
10- Rites of passage (P.2)
11- Purification and avoidance
12- Secular ritualizations

Continue to Introduction to Ritual Studies-E2(2)↓↓↓

Introduction to Ritual Studies-E2(2)

13- Group work session
14- Final presentations
15- Feedback session

Note: this schedule may be subject to change. The detailed definitive schedule will be handed out during the first class.

[Course requirements]

There are no specific requirements for taking this class.
However, students must be willing to prepare each session by completing the weekly readings and assigned tasks, and to participate actively during each session.

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation, group works and presentations and a final project.

Active participation means actively engaging with the class content, actively participating during discussions and group work, and contributing to the class by sharing opinions, experiences and reflections.
Students absent 4 times or more will fail this class.

Tardiness of 15 minutes or more will be treated as absence.
Systematic tardiness and leaving the class early will also result in a decrease of the final grade.

[Textbooks]

There is no textbook for this class.
Weekly readings will be available for download.
Printing and preparing the material is the responsibility of the student.

[References, etc.]

（Reference book）
Introduced during class

[Study outside of class (preparation and review)]

Students are required to prepare for each session by completing the weekly readings and assigned tasks and should expect to spend 2 to 3 hours weekly reviewing and preparing for class.

[Other information (office hours, etc.)]

- This is a lecture-type class with an interactive component. It will be conducted in English. All readings will also be in English.

- As stated in the evaluation section, students are expected to engage actively during class.

- Office hour is by appointment.

Lecture code: H733001

Course number	U-LAS04 20040 LE45		
Course title (and course title in English)	Disaster and Culture-E2 Disaster and Culture-E2	Instructor's name, job title, and department of affiliation	Disaster Prevention Research Institute Senior Lecturer,LAHOURNAT，Florence
Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course proposes to explore disaster through the filter of culture and how disasters and culture relate from an anthropological perspective. It explores how disasters emerge from the combination of natural and socio-cultural forces and how humans conceive and deal with disasters.
Posing disasters as multidimensional socio-cultural processes, we will focus on how humans perceive and conceive, interpret and represent disasters outside the realm of “hard science”, from a socio-cultural angle. We will address issues such as the perception and interpretation of disaster, vulnerability and resilience, cultural competence in disaster context, as well as the cultural expressions of disaster phenomena, how culture shapes our perceptions, interpretations, and on the reverse, how disaster can also shape culture.

[Course objectives]

There are 3 main objectives for this class.
First, students will gain an understanding of the notion of culture and how it plays out in disaster contexts, and opportunities to reflect on various cultural expressions and interpretations of disasters. Second, they will acquire a working command of concepts such as culture, risk, vulnerability, resilience, and social capital and a sense of what a socio-cultural anthropological approach is. Third, it will encourage students to think from a variety of perspectives and become more comfortable formulating thoughts and opinions on a specific topic.

[Course schedule and contents)]

This is a lecture-type class with an interactive component.
Each session will include a lecture part and followed or interspersed by discussion based on the lecture content and this week's readings.

1- Orientation and overview
2- Understanding culture
3- Disaster as a multi-dimensional process
4- The mutual relationship of nature and culture
5- Group discussion
6- Vulnerabilities and resilience
7- Cultural interpretations - the folklore of disaster
8- Cultural representations of disaster
9- Religion and disaster
10- Group discussion
11- Social networks in disaster contexts

Continue to Disaster and Culture-E2(2)↓↓↓

Disaster and Culture-E2(2)

12- Cultural competence in disaster
13- Cultural heritage and disaster
14- Final presentation or group work
15- Feedback session

Note: this schedule may be subject to change. The detailed definitive schedule will be handed out during the first class.

[Course requirements]

There are no specific requirements for taking this class.
However, students must be willing to prepare each session by completing the weekly readings and assigned tasks, and to participate actively during each session.

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation, group work and presentations and a final presentation.

Active participation means actively engaging with the class content, participating during discussions and group work, and contributing to the class by sharing opinions, experiences and reflections.
Further explanation about grading,including percentages for each item, will be provided during the first session.

Students absent 4 times or more will fail this class.
Tardiness (by 15 minutes or more) will be treated as absence.
Systematic tardiness and/or unexplained early departures will greatly reduce your attendance and participation grade.

[Textbooks]

There is no textbook for this class. Weekly readings and documents will be available for download.
Printing and preparing the material is the responsibility of the student.

[References, etc.]

（Reference book）
Introduced during class

[Study outside of class (preparation and review)]

Students are required to prepare for each session by completing the weekly readings and assigned tasks. They should expect 2 to 3 hours/week of work outside the classroom for review and preparation.

[Other information (office hours, etc.)]

- This is a lecture-type class with an interactive component. It will be conducted in English. All readings will also be in English.

- As stated in the evaluation section, students are expected to engage actively during class.

- Office hour is by appointment.

Lecture code: H722001

Course number	U-LAS04 20022 LE46				
Course title (and course title in English)	Introduction to Comparative Psychology-E2 Introduction to Comparative Psychology-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Letters Senior Lecturer,Duncan Wilson		
Group	Humanities and Social Sciences	**Field(Classification)**	Pedagogy, Psychology and Sociology(Issues)		
Language of instruction	English	**Old group**	Group A	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Wed.4	**Target year**	All students	**Eligible students**	For all majors

[Overview and purpose of the course]

Students will become acquainted with the principle reasons for psychologists' interest in the behaviour of other species as well as humans, and they will gain knowledge about the major approaches used (observational studies, fieldwork, experimental manipulations) in this field. They will become familiar with the most important researchers in this branch of psychology, the historical contexts of their work, and how their studies have influenced contemporary research. There will be opportunities to ask questions in each class, and to compose short-answer questions.

[Course objectives]

Students will learn about major psychological approaches to understanding learning and behaviour in humans and other species. Topics will include classical and operant conditioning, social and mating systems, and advanced cognition.

[Course schedule and contents)]

1. Introduction to Comparative Psychology
2. Habituation and Classical Conditioning
3. Classical and Operant Conditioning
4. Operant Conditioning: Principles and Practice
5. Applications of Learning Theory and the Ethological Approach
6. Attachment and Early Experience
7. Mid-term Test
8. Living in Groups: Costs and Benefits
9. Social Relationships and Dominance
10. Theory of Mind
11. Tool Use in Non-humans: Psychological Mechanisms
12. Cooperation, Social Evaluation and Fairness
13. Self Control in Humans and Non-humans
14. Animal Communication and Language
15. Course Feedback

Note: The contents of specific classes may change.

Continue to Introduction to Comparative Psychology-E2(2)↓↓↓

Introduction to Comparative Psychology-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Assessment will be by means of two components as follows:

1) There will be a mid-term test consisting of five short-answer questions (each worth 5%)and 25 multiple-choice questions (each worth 1%)(Total: 50%).

2) There will be an end-of-course exam consisting of five short-answer questions (each worth 5%)and 25 multiple-choice questions (each worth 1%)(Total: 50%).

[Textbooks]

Lecture notes/slides will be distributed and posted on KULASIS.

[References, etc.]

（**Reference book**）

Introduced during class

[Study outside of class (preparation and review)]

No special preparations are required before or after classes, other than revising the material covered.

[Other information (office hours, etc.)]

Lecture code: H723001

Course number	U-LAS04 20021 LE46		
Course title (and course title in English)	Introduction to Primate Behavior and Cognition-E2 Introduction to Primate Behavior and Cognition-E2	Instructor's name, job title, and department of affiliation	Graduate School of Letters Senior Lecturer,Duncan Wilson
Group	Humanities and Social Sciences	Field(Classification)	Pedagogy, Psychology and Sociology(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This class will focus on non-human primates (prosimians, monkeys, apes) and why they are of particular interest to biologists, anthropologists, and psychologists. Students will learn about the distribution of primates, their socio-ecological strategies, social systems, cognitive abilities and welfare. Observational and experimental investigations of these and related phenomena will be reviewed and analyzed. The aim is to investigate the ecological and psychological status of primates in today's world. The course also aims to provide students with the opportunity to communicate about primates in English.

[Course objectives]

The class aims to help students acquire knowledge about the evolution of primates - their structure, social and nonsocial behaviour, and how they adapt to changing environmental circumstances, and to use written and spoken English to express their knowledge.

[Course schedule and contents)]

1. Introduction to Primate Behaviour and Cognition
2. Primate Diversity
3. Primate Habitats
4. Primate Diet and Feeding Adaptations
5. Early Influential Primate Studies I
6. Early Influential Primate Studies II
7. Early Influential Primate Studies III
8. Mid-term Test
9. Primate Home Ranges and Social Organization
10. The Dominance Hierarchy
11. Primate Communication: Visual and Tactile
12. Primate Communication: Olfactory and Auditory
13. Primate Cognition
14. Primate Welfare
15. Course Feedback

Please note that the order and content of specific classes may change.

Continue to Introduction to Primate Behavior and Cognition-E2(2)↓↓↓

[Course requirements]

None

[Evaluation methods and policy]

Assessment will be based on two components as follows:

1) A mid-term test consisting of 25 multiple-choice questions (each worth 1%) and five short-answer questions written in the students' own words (each worth 5%) (Total: 50%)

2) A final exam consisting of 25 multiple-choice questions (each worth 1%) and five short-answer questions written in the students' own words (each worth 5%) (Total: 50%)

[Textbooks]

Lecture notes/slides will be distributed.

[References, etc.]

（Reference book）

Introduced during class

[Study outside of class (preparation and review)]

Students are expected to review the lecture handouts after each class, and to consult other sources (books, journals, appropriate websites).

[Other information (office hours, etc.)]

Lecture code: H598003

Course number	U-LAS05 10002 LE40		
Course title (and course title in English)	Cultural Anthropology I-E2 Cultural Anthropology I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Human and Environmental Studies Program-Specific Associate Professor,De Antoni, Andrea

Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course will introduce students to the central topics, concepts and methods of socio-cultural anthropology, which can be broadly defined as the study of human cultures and societies. It will survey the key areas of inquiry in contemporary socio-cultural anthropology and offer insights into how the seemingly most commonsensical aspects of any person' s life can be informed by the cultural and social contexts of which they consider themselves a part.

The course will draw on ethnographic examples and case studies from a variety of cultures, but contemporary Japan will play a major role, in order to provide students with an interpretational framework for a better understanding of the context where we are living.

[Course objectives]

The course aims to introduce the key debates and understandings within socio-cultural anthropology. It will allow students to:
- understand key concepts and terminology of socio-cultural anthropology
- develop a cultural perspective, to realize that anthropology involves a way of seeing, a frame of reference for interpreting people's behaviour in all societies
- develop an acceptance and appreciation of people informed by different cultures, and maintain a non-judgmental attitude
- understand social relationships, for a comprehension not only of man, society and culture in general, but also of ourselves, our experiences, our own societies and cultures, as well as of the particular context where we are living at present, i.e. contemporary Japan.

[Course schedule and contents)]

The following list of topics is indicative. Depending on the class and discussions, the topics taken into consideration might end up being be fewer. Nevertheless, they will include:

Week 1: Course Introduction/What is Anthropology?
Week 2: Race, Cultural Evolutionism and Racism
Week 3: The Characteristics of Culture
Week 4: Symbolic Classifications, Taboo, Pollution and Disgust
Week 5: Gifts, Exchange and Reciprocity
Week 6: The Anthropology of Ritual Practice
Week 7: Cosmologies, Magic, Religion and Spirituality

Continue to Cultural Anthropology I-E2(2)↓↓↓

Cultural Anthropology I-E2(2)

Week 8: Witchcraft
Week 9: Shamanism and Spirit Possession
Week 10: Law, Order and Social Control
Week 11: Myths, Social Memory and Invented Traditions
Week 12: Imagined Communities, Political Organization and the State
Week 13: Economics and the Environment
Week 14: Course Summary and Round-up Discussion
Week 15: Final Test
Week 16. Feedback

[Course requirements]

None

[Evaluation methods and policy]

Class Attendance and Contribution to Discussions (40%)
Final Test (60%)

[Textbooks]

Hendry, Joy 『Sharing Our Worlds: An Introduction to Social Anthropology』（Red Globe Press, 2016）

[References, etc.]

（Reference book）
Introduced during class

[Study outside of class (preparation and review)]

Students are required to complete the assigned readings and to come to class prepared to discuss them. Your class participation will be a part of the evaluation process (see above).

Ideally speaking, students would be expected to conduct their own small ethnographic projects outside of class time. Yet, given the present conditions, the possibilities and modalities to carry out such projects will be discussed during the first class.

[Other information (office hours, etc.)]

Lecture code: H598001

Course number	U-LAS05 10002 LE40				
Course title (and course title in English)	Cultural Anthropology I-E2 Cultural Anthropology I-E2	Instructor's name, job title, and department of affiliation	Center for Southeast Asian Studies Associate Professor,LOPEZ, Mario Ivan		
Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

Anthropology is the comparative study of culture and human societies and examines the general principles of social and cultural life. This course offers an introduction to the discipline of anthropology and its practical relevance to understanding societies. It introduces the different ways we can examine human societies and understand exchange processes, kinship and family, marriage, culture, nature, gender, nation building, and religion and ritual. Each week will consist of a brief lecture of 30~40 minutes based on class notes and readings followed by a class discussion and group exercises.

[Course objectives]

The main purpose of the course is to give students a critical introduction and understanding to cultural diversity and processes of change within and between societies. The course provides students with some basic tools that can help students to recognize the preconceptions and assumptions of their own social and cultural environments. This course is open to anyone who is interested in societies and cultures, and willing to proactively participate in discussions over the duration of the course.

[Course schedule and contents)]

Week 1. Overview
Week 2. Social Theory, Culture and Cultural Relativity
Week 3. Kinship and Family
Week 4. Marriage
Week 5. The Sharing Economy
Week 6. Human Societies and Nature (1)
Week 7. Human Societies and Nature (2)
Week 8. Gender (1)
Week 9. Gender (2)
Week 10 Identifying "Others"
Week 11. Community Building
Week 12. Nation Building and Nationalism
Week 13. Religion and Ritual
Week 14. The Secular and Anthropology
Week 15. Recap

[Course requirements]

Students should be able to participate in discussions, do readings (required for participation), and submit

Continue to Cultural Anthropology I-E2(2)↓↓↓

Cultural Anthropology I-E2(2)

short reflection pieces. This course accepts students who have good command of English (TOEFL ITP score ≧550).

[Evaluation methods and policy]

The final semester grade will be decided upon by participation in class lectures (short assignments and attendance) (65%) and a written essay (35%) to be submitted at the end of the course.

[Textbooks]

Not used
Materials will be prepared for use in the class. Most weeks have pre-prepared class notes and a main text to read.

[References, etc.]

(**Reference book**)
Introduced during class

[Study outside of class (preparation and review)]

Students will have readings prepared for each week along with class notes.

[Other information (office hours, etc.)]

Office hours are Mondays 4th period.
This course restricts student enrollment by 25.

Lecture code: H598004

Course number	U-LAS05 10002 LE40				
Course title (and course title in English)	Cultural Anthropology I-E2 Cultural Anthropology I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Human and Environmental Studies Program-Specific Associate Professor,De Antoni, Andrea		
Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course will introduce students to the central topics, concepts and methods of socio-cultural anthropology, which can be broadly defined as the study of human cultures and societies. It will survey the key areas of inquiry in contemporary socio-cultural anthropology and offer insights into how the seemingly most commonsensical aspects of any person's life can be informed by the cultural and social contexts of which they consider themselves a part.

The course will draw on ethnographic examples and case studies from a variety of cultures, but contemporary Japan will play a major role, in order to provide students with an interpretational framework for a better understanding of the context where we are living.

[Course objectives]

The course aims to introduce the key debates and understandings within socio-cultural anthropology. It will allow students to:
- understand key concepts and terminology of socio-cultural anthropology
- develop a cultural perspective, to realize that anthropology involves a way of seeing, a frame of reference for interpreting people's behaviour in all societies
- develop an acceptance and appreciation of people informed by different cultures, and maintain a non-judgmental attitude
- understand social relationships, for a comprehension not only of man, society and culture in general, but also of ourselves, our experiences, our own societies and cultures, as well as of the particular context where we are living at present, i.e. contemporary Japan.

[Course schedule and contents)]

The following list of topics is indicative. Depending on the class and discussions, the topics taken into consideration might end up being be fewer. Nevertheless, they will include:

Week 1: Course Introduction/What is Anthropology?
Week 2: Race, Cultural Evolutionism and Racism
Week 3: The Characteristics of Culture
Week 4: Symbolic Classifications, Taboo, Pollution and Disgust
Week 5: Gifts, Exchange and Reciprocity
Week 6: The Anthropology of Ritual Practice
Week 7: Cosmologies, Magic, Religion and Spirituality

Continue to Cultural Anthropology I-E2(2)↓↓↓

Cultural Anthropology I-E2(2)

Week 8: Witchcraft
Week 9: Shamanism and Spirit Possession
Week 10: Law, Order and Social Control
Week 11: Myths, Social Memory and Invented Traditions
Week 12: Imagined Communities, Political Organization and the State
Week 13: Economics and the Environment
Week 14: Course Summary and Round-up Discussion
Week 15: Final Test
Week 16. Feedback

[Course requirements]

None

[Evaluation methods and policy]

Class Attendance and Contribution to Discussions (40%)
Final Test (60%)

[Textbooks]

Hendry, Joy 『Sharing Our Worlds: An Introduction to Social Anthropology』（Red Globe Press, 2016）

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Students are required to complete the assigned readings and to come to class prepared to discuss them. Your class participation will be a part of the evaluation process (see above).

Ideally speaking, students would be expected to conduct their own small ethnographic projects outside of class time. Yet, given the present conditions, the possibilities and modalities to carry out such projects will be discussed during the first class.

[Other information (office hours, etc.)]

Lecture code: H598002

Course number	U-LAS05 10002 LE40				
Course title (and course title in English)	Cultural Anthropology I-E2 Cultural Anthropology I-E2	Instructor's name, job title, and department of affiliation	Center for Southeast Asian Studies Associate Professor,LOPEZ,　Mario Ivan		
Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course provides a critical introduction to what it means to be a person as experienced through their gender. This course will explore the various social and cultural contexts of gender through examples from the 20th/21st century Asia-Pacific region. We will draw on comparative material from other places around the globe as well.

[Course objectives]

The broad goal of this course is to introduce to students to the broad diversity of gender experiences available in today's highly globalized societies. In particular, the course will give students an analytical framework to contextualize this gender diversity and its continual transformation over the past couple of centuries to situate their own experiences. At the end of the course, students will have increased ability to give balanced consideration to the expression of individual gendered points of view and sexual orientation in different cultural contexts.

[Course schedule and contents)]

Week 1. Introduction and Overview of the Course
Week 2. Mapping Gender
Week 3. Developing Inquiries: Gender and Ethnography
Week 4. Plural Co-existence in Southeast Asia (1)
Week 5. Plural Co-existence in Southeast Asia (2)
Week 6. Production and Reproduction within the Household: Japan
Week 7. The Role of National Discourses in the Construction of Gender: Japan
Week 8: Discussion and Reflection on Gender Roles
Week 9. The emotional commons: Labor migration and the globalization of care work (1)
Week 10. The emotional commons: Labor migration and the globalization of care work (1)
Week 11. The Gender See-saw: Inequality/Equality (1)
Week 12. The Gender See-saw Inequality/Equality (2)
Week 13. Body Imaging: Constructing Masculinity
Week 14. Final Group Discussions
Week 15. Re-cap

[Course requirements]

Students should be able to participate in discussions, do readings (required for participation), and submit short reflection pieces.

Continue to Cultural Anthropology I-E2(2)↓↓↓

Cultural Anthropology I-E2(2)

This course accepts students who have good command of English (TOEFL ITP score ≧550)
(For more information on how to convert the score, among others, see:
https://capman.es/sites/default/files/toefl_itp_official_score_report_soloinformativo.pdf)

[Evaluation methods and policy]

The final semester grade will be decided upon by participation in class lectures (short assignments and attendance) (65%) and a written essay (35%) to be submitted at the end of the course.

[Textbooks]

Not used
Articles and Audiovisual materials will be provided for this course and available to access from the first week in a shared folder.

[References, etc.]

(**Reference book**)
Introduced during class

[Study outside of class (preparation and review)]

Each week will consist of materials to be prepared in advance for class discussion. Students are responsible for printing materials.

[Other information (office hours, etc.)]

Office hours are on Mondays and Tuesday, 4th period.
This course restricts student enrollment by 25.

Lecture code: H802002

Course number	U-LAS05 10008 LE39		
Course title (and course title in English)	Human Geography-E2 Human Geography-E2	Instructor's name, job title, and department of affiliation	Graduate School of Global Environmental Studies Senior Lecturer,BAARS, ROGER CLOUD

Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course surveys health geography, a sub-discipline of human geography which encompasses a broad range of topics regarding human and environmental health. At its core, health geography is the study of human-environment interactions and the influence of these interactions on population health (i.e., how people interact with their physical and social environment to promote health and well-being or to increase their vulnerability to disease and/or illness). Major health issues and health care systems from around the world will be evaluated and discussed. The course covers three major integrated approaches to health geographic research: ecological (relationships between people and their environment), social (human behavior), and spatial (mapping and spatial analysis).

[Course objectives]

1. Facilitate a critical understanding of the inter-relationships between health, environment and society;
2. Introduce major contemporary issues in global health;
3. Promote an understanding of how human geography as a discipline contributes to understanding health and well-being;
4. Understand the impact of ecological and population change on health;
5. Explain how social, cultural and economic context impacts health;
6. Utilize maps to examine the spatial patterns of disease and risk factors that may contribute to disease.

[Course schedule and contents)]

1: Introduction to Health Geography - A Brief Course Overview
2: Core Concepts and Approaches in Health Geography
3: Expanding Disease Ecology: Politics, Economics, and Gender
4: Systems of Healthcare around the World
5: Health Care Provision and Access
6: Health Inequalities: Global Patterns and Regional Contrasts
7: Therapeutic Landscapes: Impact of Nature on (Mental) Health
8: Field Trip: Kamogawa
9: People on the Move: Migration and Health
10: Population Change and Health: Aging and Place
11: Environmental Exposure and Health Risks
12: Climate Change Impacts on Public Health
13: Group Project Presentations I
14: Group Project Presentations II

Continue to Human Geography-E2(2)↓↓↓

Human Geography-E2(2)

15: Feedback

Total: 14 classes and 1 feedback session
The course schedule might change

[Course requirements]

This course is for you if you have an interest in issues related to health and well-being from a human geographical perspective.

In week 8, we have a field trip: Participation is mandatory

[Evaluation methods and policy]

40% Photo Essay (1000 words), 50% Group Project (15-20 min), 10% Attendance and Participation in Class

[Textbooks]

Required readings and materials will be distributed via PandA.

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Students are expected to actively participate in each class. This includes the discussion of contemporary topics in small groups and writing up brief summaries of findings (worksheet). Preparatory materials include academic readings, news pieces and online media materials.

[Other information (office hours, etc.)]

If you have any questions, please email the instructor:
baars.rogercloud.6a@kyoto-u.ac.jp

Lecture code: H802003

Course number	U-LAS05 10008 LE39				
Course title (and course title in English)	Human Geography-E2 Human Geography-E2	Instructor's name, job title, and department of affiliation	Graduate School of Global Environmental Studies Senior Lecturer,BAARS, ROGER CLOUD		
Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course surveys health geography, a sub-discipline of human geography which encompasses a broad range of topics regarding human and environmental health. At its core, health geography is the study of human-environment interactions and the influence of these interactions on population health (i.e., how people interact with their physical and social environment to promote health and well-being or to increase their vulnerability to disease and/or illness). Major health issues and health care systems from around the world will be evaluated and discussed. The course covers three major integrated approaches to health geographic research: ecological (relationships between people and their environment), social (human behavior), and spatial (mapping and spatial analysis).

[Course objectives]

1. Facilitate a critical understanding of the inter-relationships between health, environment and society;
2. Introduce major contemporary issues in global health;
3. Promote an understanding of how human geography as a discipline contributes to understanding health and well-being;
4. Understand the impact of ecological and population change on health;
5. Explain how social, cultural and economic context impacts health;
6. Utilize maps to examine the spatial patterns of disease and risk factors that may contribute to disease.

[Course schedule and contents)]

1: Introduction to Health Geography - A Brief Course Overview
2: Core Concepts and Approaches in Health Geography
3: Expanding Disease Ecology: Politics, Economics, and Gender
4: Systems of Healthcare around the World
5: Health Care Provision and Access
6: Health Inequalities: Global Patterns and Regional Contrasts
7: Therapeutic Landscapes: Impact of Nature on (Mental) Health
8: Field Trip: Kamogawa
9: People on the Move: Migration and Health
10: Population Change and Health: Aging and Place
11: Environmental Exposure and Health Risks
12: Climate Change Impacts on Public Health
13: Group Project Presentations I
14: Group Project Presentations II

Continue to Human Geography-E2(2)↓↓↓

Human Geography-E2(2)

15: Feedback

Total: 14 classes and 1 feedback session
The course schedule might change

[Course requirements]

This course is for you if you have an interest in issues related to health and well-being from a human geographical perspective.

In week 8, we have a field trip: Participation is mandatory

[Evaluation methods and policy]

40% Photo Essay (1000 words), 50% Group Project (15-20 min), 10% Attendance and Participation in Class

[Textbooks]

Required readings and materials will be distributed via PandA.

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Students are expected to actively participate in each class. This includes the discussion of contemporary topics in small groups and writing up brief summaries of findings (worksheet). Preparatory materials include academic readings, news pieces and online media materials.

[Other information (office hours, etc.)]

If you have any questions, please email the instructor:
baars.rogercloud.6a@kyoto-u.ac.jp

Lecture code: H815002

Course number	U-LAS05 20046 LE40				
Course title (and course title in English)	Topics in Cultural Anthropology I-E2 Topics in Cultural Anthropology I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Human and Environmental Studies Program-Specific Associate Professor,De Antoni, Andrea		
Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Issues)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course focuses on the anthropology of religion, magic and witchcraft. It will take into consideration and analyze human religious experiences from an anthropological perspective, by focusing on topics such as debates about definitions and the origin of “religion”, cosmology, myth and social memory, ritual, magic, witchcraft, ghosts, spirit possession, shamanism, religious healing, spirituality and secularization.

In doing so, it will also provide a historical overview of anthropological theories on these topics, thus informing students on the history of the anthropology of religion as a discipline.

Ethnographic examples from a variety of societies will be analyzed and discussed, in order to illustrate the wealth of religious experiences that exists around the world. Especially examples about East Asian and Japanese religions (including ascetic and shamanic practices) will be central, although also World Religions, contemporary New Age in the West, as well as classical examples about African or Native American religious practices will be taken into consideration.

[Course objectives]

- Students will learn the historical development of anthropological theories and debates regarding religion and ritual, thus familiarizing with terminology and concepts.
- Students will learn to understand religious and spiritual phenomena in their social context.
- Students will gain an understanding of religion as an institution through which gender, class, identity, morality, health and personhood are expressed and performed.
- Students will examine the ways in which religions and their adherents respond to social, political and economic changes.
- Students will use appropriate methodological tools to formulate scholarly arguments.

[Course schedule and contents)]

The following list of topics is indicative. Depending on the class and discussions, the topics taken into consideration might end up being be fewer. Nevertheless, they will include:

WEEK 1: Course Introduction
WEEK 2: What is "Religion"?
WEEK 3: Debating the Origins of "Religion"
WEEK 4: Cosmology, Animism, Magic, Religion and Spirituality
WEEK 5: Witchcraft, Accusations and an Anthropology of Rumours

Continue to Topics in Cultural Anthropology I-E2(2)↓↓↓

Topics in Cultural Anthropology I-E2(2)

WEEK 6: Symbolic Classifications, Pollution, Taboos and the "Sacred"
WEEK 7: The Ritual Turn, Rites of Passage and Communitas
WEEK 8: (Ritual) violence, Social Liminality and Symbols
WEEK 8: The Ways of the Shamans
WEEK 9: Charismatic Leadership
WEEK 10: Embodiment and Spirit Possession
WEEK 11: Myths, History and Social Memory
WEEK 12: Religion and Material Culture
WEEK 13: The Environment and the Ecological Approach
WEEK 14: Pilgrimage and Tourism
WEEK 15: Final Test
Week 16: Feedback

[Course requirements]

None

[Evaluation methods and policy]

Contribution to Discussions (40%)
Final Examination (60%)

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Students are expected to have read the assignments before class and be ready to discuss them.

[Other information (office hours, etc.)]

Lecture code: H815001

Course number	U-LAS05 20046 LE40		
Course title (and course title in English)	Topics in Cultural Anthropology I-E2 Topics in Cultural Anthropology I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Human and Environmental Studies Program-Specific Associate Professor,De Antoni, Andrea
Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course focuses on the anthropology of religion, magic and witchcraft. It will take into consideration and analyze human religious experiences from an anthropological perspective, by focusing on topics such as debates about definitions and the origin of “religion”, cosmology, myth and social memory, ritual, magic, witchcraft, ghosts, spirit possession, shamanism, religious healing, spirituality and secularization.

In doing so, it will also provide a historical overview of anthropological theories on these topics, thus informing students on the history of the anthropology of religion as a discipline.

Ethnographic examples from a variety of societies will be analyzed and discussed, in order to illustrate the wealth of religious experiences that exists around the world. Especially examples about East Asian and Japanese religions (including ascetic and shamanic practices) will be central, although also World Religions, contemporary New Age in the West, as well as classical examples about African or Native American religious practices will be taken into consideration.

[Course objectives]

- Students will learn the historical development of anthropological theories and debates regarding religion and ritual, thus familiarizing with terminology and concepts.
- Students will learn to understand religious and spiritual phenomena in their social context.
- Students will gain an understanding of religion as an institution through which gender, class, identity, morality, health and personhood are expressed and performed.
- Students will examine the ways in which religions and their adherents respond to social, political and economic changes.
- Students will use appropriate methodological tools to formulate scholarly arguments

[Course schedule and contents)]

The following list of topics is indicative. Depending on the class and discussions, the topics taken into consideration might end up being be fewer. Nevertheless, they will include:

WEEK 1: Course Introduction
WEEK 2: What is "Religion"?
WEEK 3: Debating the Origins of "Religion"
WEEK 4: Cosmology, Animism, Magic, Religion and Spirituality
WEEK 5: Witchcraft, Accusations and an Anthropology of Rumours

Continue to Topics in Cultural Anthropology I-E2(2)↓↓↓

Topics in Cultural Anthropology I-E2(2)

WEEK 6: Symbolic Classifications, Pollution, Taboos and the "Sacred"
WEEK 7: The Ritual Turn, Rites of Passage and Communitas
WEEK 8: (Ritual) violence, Social Liminality and Symbols
WEEK 8: The Ways of the Shamans
WEEK 9: Charismatic Leadership
WEEK 10: Embodiment and Spirit Possession
WEEK 11: Myths, History and Social Memory
WEEK 12: Religion and Material Culture
WEEK 13: The Environment and the Ecological Approach
WEEK 14: Pilgrimage and Tourism
WEEK 15: Final Test
Week 16: Feedback

[Course requirements]

None

[Evaluation methods and policy]

Contribution to Discussions (40%)
Final Examination (60%)

[Textbooks]

Instructed during class

[References, etc.]

(**Reference book**)
Introduced during class

[Study outside of class (preparation and review)]

Students are expected to have read the assignments before class and be ready to discuss them.

[Other information (office hours, etc.)]

Lecture code: H817001

Course number	U-LAS05 20051 LE39				
Course title (and course title in English)	Topics in Human Geography VIII-E2 (Governing urban sustainability challenges) Topics in Human Geography VIII-E2 (Governing urban sustainability challenges)	**Instructor's name, job title, and department of affiliation**	Graduate School of Global Environmental Studies Associate Professor,TRENCHER, Gregory		
Group	Humanities and Social Sciences	**Field(Classification)**	Regions and Cultures(Issues)		
Language of instruction	English	**Old group**	Group A	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・Second semester
Days and periods	Thu.1	**Target year**	Mainly 2nd year students	**Eligible students**	For all majors

[Overview and purpose of the course]

This lecture and discussion course will examine different types of strategies that governments, industry and society can use to accelerate the transition of societal and technological systems towards greater sustainability, particularly in urban areas. We will focus on three sets of challenges and technologies: (1) smart cities, (2) urban transport and (3) energy and water usage in buildings. In addition to applying theoretical frameworks from social science fields such as human geography and sustainability transitions, we will explore these three themes through detailed case studies.

[Course objectives]

Students will learn about how different kinds of public policy instruments can be used to tackle different types of sustainability challenges as well as the advantages and disadvantages of each. Students will also improve skills in discussion, oral presentations and problem-solving through a policy-making project. Students will be expected to contribute their ideas and express themselves in small group discussions and classroom exercises.

[Course schedule and contents)]

1. Introduction
2. Energy use in cities and buildings 1: Introduction
3. Energy use in cities and buildings 2: The case of Tokyo
4. Socio-technical lock-in: Barriers to urban transformation
5. Sustainable mobility 1: Fuel-cell electric vehicle (FCEV) diffusion in Japan
6. Sustainable mobility 2: Battery Electric Vehicle (BEV) diffusion in China
7. Sustainable mobility 3: Autonomous vehicles and Japan's aging society
8. Phase-out: The other side of innovation
9. Smart cities: Case study 1
10. Guest lecture
11. Smart cities: Case study 2
12. Student research task preparation
13. Student presentations
14. Student presentations
15. Feedback (by appointment)

Continue to Topics in Human Geography VIII-E2 (Governing urban sustainability challenges)(2)↓↓↓

[Course requirements]

A willingness to participate in class discussions and group work.

[Evaluation methods and policy]

Attendance and participation 20%
Written assignment on building energy efficiency 20%
Research project: Group presentation 30%
Research project: Individual report 30%

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
No text required. Readings and lecture notes will be distributed in class.

[Study outside of class (preparation and review)]

Revision of class presentations is expected as well as preparation for assignments.

[Other information (office hours, etc.)]

Please email the instructor to set up an office appointment. Email address will be provided in class.

Lecture code: H813001

Course number	U-LAS05 20047 LE74		
Course title (and course title in English)	Contemporary Japanese Architecture-E2 Contemporary Japanese Architecture-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Professor,DANIELL, Thomas Charles

Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.3	Target year	Mainly 1st year students	Eligible students	For all majors

[Overview and purpose of the course]

This course comprises a broad survey of contemporary Japanese architecture from the 1960s until the early twenty-first century. The content will be organized around detailed analyses of the work and career of significant architects.

[Course objectives]

By the end of this course, students will: Recognize the various styles, specific architects, dates, and locations of important buildings; Understand the climatic, technological, socioeconomic, and cultural factors that have shaped the architecture; Learn to employ basic methods of data collection in research; Assemble this research into a cogent structure.

[Course schedule and contents)]

The course comprises an approximately chronological sequence of lectures. The topics and sequence may be altered during the semester.

01 Kenzo Tange / Metabolism
02 Arata Isozaki / Kisho Kurokawa
03 Kazuo Shinohara / Hiroshi Hara
04 Toyo Ito / Itsuko Hasegawa
05 Hiromi Fujii / Takefumi Aida
06 Terunobu Fujimori / ROJO
07 Osamu Ishiyama / Monta Mozuna
08 Tadao Ando / Shin Takamatsu
09 Kengo Kuma / Shigeru Ban
10 Kazuyo Sejima / Ryue Nishizawa
11 Hitoshi Abe / Shuhei Endo
12 Atelier Bow-Wow / Tezuka Architects
13 Junya Ishigami / Sou Fujimoto
14 Review
15 Feedback

Continue to Contemporary Japanese Architecture-E2(2)↓↓↓

Contemporary Japanese Architecture-E2(2)

[Course requirements]

No prior knowledge is required. Students should be able to participate in discussions with their classmates in English.

[Evaluation methods and policy]

Students must write short reports on the content of each of the 12 lectures, following the templates provided. The reports must be submitted within one week of each lecture (12 x 5 = 60 points). Students must visit one of the buildings from the list provided by the instructor, and write a 2000-word illustrated essay about it, following the template provided. (40 points).

[Textbooks]

Thomas Daniell 『An Anatomy of Influence』 （AA Publications） ISBN:978-1907896965
Thomas Daniell 『After the Crash: Architecture in Post-Bubble Japan』 （Princeton Architectural Press） ISBN:978-1568987767
A PDF containing relevant readings for the weekly assignments will be provided.

[References, etc.]

（**Reference book**）
James Steele 『Contemporary Japanese Architecture: Tracing the Next Generation』 （Routledge） ISBN: 978-1138941250
David B. Stewart 『The Making of a Modern Japanese Architecture: From the Founders to Shinohara and Isozaki』 （Kodansha International） ISBN:978-4770029331
Taro Igarashi 『Contemporary Japanese Architects: Profiles in Design』 （JPIC） ISBN:978-4866580210

[Study outside of class (preparation and review)]

Students are expected to have read the relevant readings in the PDF before each class.

[Other information (office hours, etc.)]

By appointment.

Lecture code: H812001

Course number	U-LAS05 20048 LE74		
Course title (and course title in English)	Theory of Landscape Design-E2 :House and Gardens of Kyoto Theory of Landscape Design-E2 :House and Gardens of Kyoto	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Professor,DANIELL,　Thomas Charles

Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.3	Target year	Mainly 1st year students	Eligible students	For all majors

[Overview and purpose of the course]

This course introduces a broad range of Kyoto's traditional houses and gardens from every period of the city's premodern history. These range from summer villas to townhouses, from temple residences to tea pavilions, from private homes to traditional inns. All have their associated outdoor spaces, whether courtyard gardens, stroll gardens, or stone gardens. In addition to lectures, we will visit a number of the places discussed.

[Course objectives]

By the end of this course, students will: Know the various styles, dates, and locations of important buildings and gardens; Understand the climatic and cultural factors that have shaped the buildings and gardens; Learn to employ basic methods of data collection in research; Assemble this research into a cogent structure.

[Course schedule and contents)]

Lectures will alternate with site visits (held during regular class hours). Students are required to pay their own transport and entry costs for the site visits. Students must have Personal Accident Insurance for Student Pursuing Education and Research (Gakkensai) coverage. The topics and sequence may be altered during the semester.

01 Introduction: climate and culture
02 The establishment and evolution of Heian-kyo
03 Historical overview of traditional building styles
04 Historical overview of traditional garden styles
05 Imperial and aristocratic villas
06 Site visit: Ginkaku-ji (500 yen)
07 Townhouses
08 Site visit: Kawai Kanjiro house (500 yen)
09 Temple residences
10 Site visit: Hakusasonso (500 yen)
11 Private retreats
12 Site visit: Site visit: Murin-an (100 yen)
13 Teahouses
14 Site visit: Shisen-do (500 yen)
15 Feedback

Continue to Theory of Landscape Design-E2 :House and Gardens of Kyoto(2)↓↓↓

[Course requirements]

No prior knowledge is required. Essential information will be provided in class. Students should be able to participate in discussions with their classmates in English.

[Evaluation methods and policy]

Student must write reports on each of the five site visits, following the templates provided (5 x 20 = 100 points). Site visits are mandatory. Assignments may not be accepted if site visits are not attended.

[Textbooks]

Thomas Daniell 『Houses and Gardens of Kyoto』 （Tuttle）ISBN:978-4805314715
Marc Treib 『A Guide to the Gardens of Kyoto』 （Kodansha International）ISBN:978-1940743677
Kiyosi Hirai 『The Japanese House Then and Now』 （Ichigaya Publications）ISBN:4870711915

[References, etc.]

（Reference book）
Kazuo Nishi 『What is Japanese Architecture?』 （Kodansha）ISBN:978-1568364124
Terunobu Fujimori 『The Contemporary Tea House』 （Kodansha International）ISBN:978-4770030467
John Dougill 『Kyoto: A Cultural History』 （Oxford University Press）ISBN:978-0195301373

[Study outside of class (preparation and review)]

Students are expected to use the library and visit relevant historical sites.

[Other information (office hours, etc.)]

By appointment.

Lecture code: H589001

Course number	U-LAS05 20006 LE40				
Course title (and course title in English)	Environmental Anthropology-E2 Environmental Anthropology-E2	Instructor's name, job title, and department of affiliation	Graduate School of Asian and African Area Studies Professor,D'SOUZA, Rohan Ignatious		
Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Issues)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course will introduce students to four defining anthropologically inspired frameworks that have been critical in exploring the many fraught relationships between Nature and Culture. These frameworks or ideological perspectives have in actual fact driven the field of ecological and environmental anthropology by sparking innumerable debates, discussions and sharp disagreements. The true weight of this scholarship, however, as this course will empathize and outline, lies not only in the empirically informed insights that have been generated over the years but the riveting theories that have helped us reflect on the Nature-Culture divide and overlap.

[Course objectives]

The Nature-Culture divide has been foundational in defining a range of philosophical and political attitudes. This course is intended to help navigate the complex theory laden understanding of how humans have interacted with and shaped their environments.

[Course schedule and contents)]

Each class will comprise a 90 minute session; involving a lecture of 60 minutes and followed by a 30 minute interactive discussion in which student participation will be elicited through either group or individual presentations.

Four themes will be covered:

a) Cultural Ecology
b) Socio-Biology
c) Conservation Ecology
d) Political Ecology

[Course requirements]

None

Continue to Environmental Anthropology-E2(2)↓↓↓

Environmental Anthropology-E2(2)

[Evaluation methods and policy]

There will be a regular cycle of written submissions and feedback through class discussions and teacher evaluations. The idea is to develop a credible capacity for reading and writing amongst those who take up the course. Evaluations will be based on class presentations, writing assignments and tutorials.

[Textbooks]

Darrell P. Arnold (ed.) 『Traditions of Systems Theory: Major Figures and Contemporary Developments』（Routledge , 2013）ISBN:978-0415843898

[References, etc.]

（**Reference book**）
R.Edward Grumbine 『Environmental Policy and Biodiversity 』（Island Press, 1994）ISBN:978-1559632836
Tim Forsyth 『Critical Political Ecology』（Routledge, 2003）ISBN:978-0415185639
Libby Robin, Sverker Sorlin, Paul Warde (ed.) 『The Future of Nature 』（Yale University Press, 2013）ISBN:978-0300184617
Noel Castree and Bruce Braun (ed), 『Social Nature: Theory, Practice and Politics』（Blackwell Publsihing 2001）ISBN:978-0631215684
Relevant sections and chapters from the above books will be assigned as readings for the course. Other reading materials such as articles or short-write-ups may be included based on class discussions and interest.

[Study outside of class (preparation and review)]

Students will be expected to have read at least five pages of pre-assigned reading, at the very minimum, before attending each class.

[Other information (office hours, etc.)]

Students can contact me during office hours with prior appointment.

Lecture code: H591001

Course number	U-LAS05 20038 LE31				
Course title (and course title in English)	Introduction to Globalization I-E2 Introduction to Globalization I-E2	**Instructor's name, job title, and department of affiliation**	Center for Southeast Asian Studies Associate Professor,LOPEZ,　Mario Ivan		
Group	Humanities and Social Sciences	**Field(Classification)**	Regions and Cultures(Issues)		
Language of instruction	English	**Old group**	Group A	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Tue.3	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For all majors

[Overview and purpose of the course]

This course introduces students to some core processes that underlie present day globalization. This is a seminar based course and will act as a stepping stone for students to learn and explore it what ways different aspects on globalization play out in Asia-pacific, Southeast Asia and other regions in the world.

[Course objectives]

Each week will consist of a brief lecture based on readings (and some class notes) followed by a class discussion and group exercises. The main goal of the course is to give students a critical introduction to the way global processes play out in the domains of the economy, ecology, politics, and society. Students will receive a grounding on the various ways in which global issues affect everyday life in the present and future and ask them to think about the different ways we measure them.

[Course schedule and contents)]

Week 1. Overview
Week 2. The Politics of Enough
Week 3. The Limits of Growth
Week 4. The De-growth argument
Week 5. Viewing Growth through GDP
Week 6. The Rise of Neoliberal Economies
Week 7. Financial Crises
Week 8. Prosperity as an Obtainable Goal?
Week 9. Sustainable Humanosphere: Assessing the Potentiality of Global Regions (1)
Week. 10 Sustainable Humanosphere: Assessing the Potentiality of Global Regions (2)
Week 11. Measuring Global Conditions: Global Indicators
Week 12. Measuring Potentiality for the 21st Century
Week 13. Producing Indexes to Monitor Global Change (1)
Week 14. Group Presentations
Week 15. Recap

[Course requirements]

Students should be able to participate in discussions, do readings (required for participation), and submit short reflection pieces.
This course accepts students who have good command of English (TOEFL ITP score ≧550).
 (For more information on how to convert the score, among others, see:

Continue to Introduction to Globalization I-E2(2)↓↓↓

Introduction to Globalization I-E2(2)

https://capman.es/sites/default/files/toefl_itp_official_score_report_soloinformativo.pdf)

[Evaluation methods and policy]

The final semester grade will be decided upon by participation in class lectures (short assignments and attendance) (65%) and a written essay (35%) to be submitted at the end of the course.

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Readings are prepared for each week along with class notes for some lectures.

[Other information (office hours, etc.)]

This course restricts student enrollment by 25.

Lecture code: H592001

Course number	U-LAS05 20039 LE31				
Course title (and course title in English)	Introduction to Globalization II-E2 Introduction to Globalization II-E2	Instructor's name, job title, and department of affiliation	Center for Southeast Asian Studies Associate Professor,LOPEZ, Mario Ivan		
Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Issues)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

Human Societies are often characterized by their dynamic populations. These often include people who are born in one country but live and reside in another. This course introduces students to present day global movement and the different conditions of people who move and settle in other countries. This is a seminar based course and aims to help students learn and explore the ways human movement plays out Asia-pacific, Southeast Asia, and other regions in the world.

[Course objectives]

Each week will consist of a brief lecture based on readings (and some class notes) followed by a class discussion and group exercises. The main purpose is to give students a critical introduction to the way present day globalization processes affect the lives of migrants, immigrants and refugees and stimulate discussion on the human dimensions of movement.

[Course schedule and contents)]

Week 1. Overview
Week 2. Who is a Migrant?
Week 3. Global Migration in the 21st Century
Week 4. Statelessness: Causes and Consequences (1)
Week 5. Statelessness: Causes and Consequences (2)
Week 6. The International Refugee Regime
Week 7. Environmental Migration
Week 8. Documentary screening & Discussion
Week 9. Managing Migration (1): Singaporean Case Study
Week 10. Managing Migration (1): Japanese Case Study
Week 11. Caring for the Future: Highly Skilled Migrants
Week 12. Integrating Global Care: Germany, Japan, Philippines, and Vietnam
Week 13. Migrants: Winners or Losers from Migration?
Week 14. Does Migration Adversely affect Host Societies?
Week 15. Re-cap

[Course requirements]

Students should be able to participate in discussions, do readings and submit short homework pieces each week.
This course accepts students who have good command of English (TOEFL ITP score ≧550).

Continue to Introduction to Globalization II-E2(2)↓↓↓

Introduction to Globalization II-E2(2)

(For more information on how to convert the score, among others, see:
https://capman.es/sites/default/files/toefl_itp_official_score_report_soloinformativo.pdf)

[Evaluation methods and policy]

The final semester grade will be decided upon by participation in class lectures (short assignments and attendance) (65%) and a written essay (35%) to be submitted at the end of the course.

[Textbooks]

Not used

[References, etc.]

(Reference book)

Introduced during class

[Study outside of class (preparation and review)]

Each week will consist of materials to be prepared in advance for class discussion.

[Other information (office hours, etc.)]

This course restricts student enrollment by 25. Students should have a high speaking level in English to participate in class discussions.

Lecture code: H814001

Course number	U-LAS05 20049 LE74		
Course title (and course title in English)	Introduction to Urban Geography-E2 Introduction to Urban Geography-E2	Instructor's name, job title, and department of affiliation	Graduate School of Global Environmental Studies Senior Lecturer,BAARS, ROGER CLOUD

Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

The majority of the world' s population live in cities. The course explores the dynamics and transformations of urban places and spaces, which include the origin and evolution of cities, the development of networks of cities bound together by culture, trade, communication and competition, as well as the dynamics of economic restructuring in urban regions.

[Course objectives]

The course allows students to develop a critical perspective on dominant neoliberal representations of the city and to explore the great diversity of urban worlds. Students will understand the complexity of human-city relationships and learn how cities are shaped by culture, society, economics, politics, and the environment.

[Course schedule and contents)]

INTRODUCTION
1) Approaches to the City - What is Urban Geography?

CITIES AND URBAN GROWTH
2) Key Concepts and Theories in Urban Geography
3) The Urban World: Global Context of Urbanization
4) Mega-cities and Rapid Urban Population Growth

URBAN FORM AND STRUCTURE
5) The Historical Growth of Cities: Early Urban Forms
6) The Contemporary City: Urban Structure and Land Use Dynamics
7) Urban Architecture: Aspects of Gender, Religion and Conformity

POLITICS, ECONOMY AND SOCIETY IN THE CITY
8) Field Trip: Sanjo/Gion and Kawaramachi
9) Social Inequalities (e.g., Housing)
10) Mobility and Transport
11) Environmental Problems
12) Is there a Sustainable Future for Cities?

FINAL PRESENTATIONS
13) Group Presentations I

Continue to Introduction to Urban Geography-E2(2)↓↓↓

Introduction to Urban Geography-E2(2)

14) Group Presentations II

Total: 14 classes and 1 feedback session
The course schedule might change

[Course requirements]

You are interested in cities, excited about living in one, and want to learn more about them.

In week 8, we have a field trip to Sanjo/Gion: Participation is mandatory

[Evaluation methods and policy]

40% Photo Essay (1000 words), 50% Group Presentation (15-20 min), 10% Attendance and Participation in Class

[Textbooks]

Required readings and materials will be distributed via PandA.

[References, etc.]

(Reference book)
Introduced during class

[Study outside of class (preparation and review)]

Students are expected to actively participate in each class. This includes the discussion of contemporary topics in small groups and writing up brief summaries of findings (worksheet). Preparatory materials include academic readings, news pieces and online media materials.

[Other information (office hours, etc.)]

Field Trip: Sanjo Station (Keihan) can be reached in about 15min by bicycle from Kyoto University. The destination can also be reached by bus or Keihan Line (transportation costs to be covered by students).

Students should have Personal Accident Insurance for Student Pursuing Education and Research (Gakkensai).

If you have any questions, please email the instructor:
baars.rogercloud.6a@kyoto-u.ac.jp

Lecture code: H814002

Course number	U-LAS05 20049 LE74		
Course title (and course title in English)	Introduction to Urban Geography-E2 Introduction to Urban Geography-E2	Instructor's name, job title, and department of affiliation	Graduate School of Global Environmental Studies Senior Lecturer,BAARS, ROGER CLOUD

Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

The majority of the world's population live in cities. The course explores the dynamics and transformations of urban places and spaces, which include the origin and evolution of cities, the development of networks of cities bound together by culture, trade, communication and competition, as well as the dynamics of economic restructuring in urban regions.

[Course objectives]

The course allows students to develop a critical perspective on dominant neoliberal representations of the city and to explore the great diversity of urban worlds. Students will understand the complexity of human-city relationships and learn how cities are shaped by culture, society, economics, politics, and the environment.

[Course schedule and contents)]

INTRODUCTION
1) Approaches to the City - What is Urban Geography?

CITIES AND URBAN GROWTH
2) Key Concepts and Theories in Urban Geography
3) The Urban World: Global Context of Urbanization
4) Mega-cities and Rapid Urban Population Growth

URBAN FORM AND STRUCTURE
5) The Historical Growth of Cities: Early Urban Forms
6) The Contemporary City: Urban Structure and Land Use Dynamics
7) Urban Architecture: Aspects of Gender, Religion and Conformity

POLITICS, ECONOMY AND SOCIETY IN THE CITY
8) Field Trip: Sanjo/Gion and Kawaramachi
9) Social Inequalities (e.g., Housing)
10) Mobility and Transport
11) Environmental Problems
12) Is there a Sustainable Future for Cities?

FINAL PRESENTATIONS
13) Group Presentations I

Continue to Introduction to Urban Geography-E2(2)↓↓↓

Introduction to Urban Geography-E2(2)

14) Group Presentations II

Total: 14 classes and 1 feedback session
The course schedule might change

[Course requirements]

You are interested in cities, excited about living in one, and want to learn more about them.

In week 8, we have a field trip to Sanjo/Gion: Participation is mandatory

[Evaluation methods and policy]

40% Photo Essay (1500 words), 50% Group Presentation (15-20 min), 10% Attendance and Participation in Class

[Textbooks]

Required readings and materials will be distributed via PandA.

[References, etc.]

(Reference book)
Introduced during class

[Study outside of class (preparation and review)]

Students are expected to actively participate in each class. This includes the discussion of contemporary topics in small groups and writing up brief summaries of findings (worksheet). Preparatory materials include academic readings, news pieces and online media materials.

[Other information (office hours, etc.)]

Field Trip: Sanjo Station (Keihan) can be reached in about 15min by bicycle from Kyoto University. The destination can also be reached by bus or Keihan Line (transportation costs to be covered by students).

Students should have Personal Accident Insurance for Student Pursuing Education and Research (Gakkensai).

If you have any questions, please email the instructor:
baars.rogercloud.6a@kyoto-u.ac.jp

Lecture code: H806001

Course number	U-LAS05 20041 LE74		
Course title (and course title in English)	Introduction to Urban Planning-E2 Introduction to Urban Planning-E2	Instructor's name, job title, and department of affiliation	Disaster Prevention Research Institute Associate Professor,SAMADDAR, Subhajyoti
Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course provides an overview of the conceptual ideas, theories, and popular practices in urban and city planning. In this course, you will learn about the origins and evolution of the urban world. Additionally, it would cover major movements, ideas, and practices that have influenced urban and regional planning. It will provide an overview of both the theoretical debates and practical challenges faced by urban planners, with a discussion of problem-solving techniques and strategies commonly employed in the planning profession.

[Course objectives]

The purpose of this course is to introduce major urban planning theories and concepts. The following are the objectives of the course:

- Understanding how socio-economic, political, and environmental factors influence planning.
- A variety of planning tools and techniques will be taught.
- To understand the practical challenges of urban planning.

[Course schedule and contents)]

Week 1. Introduction to urban planning.
Week 2. What is city? Formal and information definition of city.
Week 3. History and evolution of city.
Week 4. Urbanization, suburbanization and re-urbanization.
Week 5. Urban planning: process and outcome; types of plan; elements and characteristics of plan.
Week 6. Major contemporary urban planning approaches.
Week 7. Popular methods and tools in urban planning.
Week 8. Planning support system: technologies and functions.
Week 9. Elements of planning process.
Week 10. Comprehensive plan: elements, process and examples.
Week 11. Neighborhood plan.
Week 12. Planning for public facilities such as parks, roads and utilities.
Week 13. Urban governance and public participation.
Week 14. Current challenges of urban planning.
Week 15. Final presentations and exams.
Week 16. Feedback class.

Continue to Introduction to Urban Planning-E2(2)↓↓↓

Introduction to Urban Planning-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Assignment and presentations = 50 Points
Examination = 50 Points.

[Textbooks]

Instructed during class
The City in History: It' s Origins, Its Transformations, and Its Prospects : By Lewis Mumford (1972)
Local Planning: Contemporary Principles and Practice - Edited by Gary Hack, et al. (2009).
Good City Form - by Kevin Lynch (1995).
Cities of Tomorrow: An Intellectual History of Urban Planning and Design in the Twentieth Century - by Peter Geoffrey Hall (1996).
Kaiser, Edward J., David R. Godschalk, and F. Stuart Chapin. Urban land use planning. Vol. 4. Urbana, IL: University of Illinois Press, 1995.

[References, etc.]

(Reference book)

Introduced during class

[Study outside of class (preparation and review)]

- Prepare and review class contents, reading textbooks.
- Complete assignments.
- Participate in group discussion.
- Give presentations.
- Examination.

[Other information (office hours, etc.)]

Lecture code: H801001

Course number	U-LAS05 20040 LE31				
Course title (and course title in English)	Environmental Histories of South Asia-E2 Environmental Histories of South Asia-E2	Instructor's name, job title, and department of affiliation	Graduate School of Asian and African Area Studies Professor,D'SOUZA, Rohan Ignatious		
Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Issues)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Fri.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This is designed as an introductory course that will familiarise students with several of the critical debates that have shaped environmental history writings on South Asia. The emphasis will be on rehearsing not only the distinct conceptual and theoretical claims but, significantly as well, survey the rich and complex socio-ecological worlds that have been revealed such writing on South Asia.

[Course objectives]

Given that the environmental question has become central to discussions about sustainability and climate change, this course will help students understand the unique histories of ecological change in South Asia. It will not only enable students to grasp the ruptural and often times dramatic environmental transformations that continue to shape contemporary South Asia but brings into relief the complicated pathways of modernity.

[Course schedule and contents)]

Each class will comprise a 90 minute session; involving a lecture of 60 minutes and followed by a 30 minute interactive discussion in which student participation will also be elicited through either group or individual presentations.
Four themes will be covered:
a) The Colonial Watershed Thesis
b) Continuity and Change
c) Forest Protection, Hunting and Colonial Hydrology
d) Conservation, environmental change and the Colonial State

[Course requirements]

None

[Evaluation methods and policy]

There will be a regular cycle of written submissions and feedback through class discussions and teacher evaluations. The idea is to develop a credible capacity for reading and writing amongst those who take up the course.
Evaluations will be based on class presentations, writing assignments and a tutorial.

Continue to Environmental Histories of South Asia-E2(2)↓↓↓

Environmental Histories of South Asia-E2(2)

[Textbooks]

Not used

[References, etc.]

（Reference book）

Ramachandra Guha 『The Unquiet Woods: ecological change and peasant resistance in the Himalaya』（Permanent Black: Ranikhet 2010 [1989]）ISBN:978-0520222359
Ramachandra Guha & Madhav Gadgil 『This Fissured Land: an ecological history of India』（Oxford University Press: New Delhi 1992）ISBN:978-0520082960
Mahesh Rangarajan 『Fencing the Forest: conservation and ecological change in India's Central provinces 1860-1914』（Oxford University press: New Delhi 1996）ISBN:978-0195649840
Richard Grove 『Green Imperialism; colonial expansion, tropical island Edens and the origins of Environmentalism 1600-1860』（Cambridge University Press: Cambridge, UK 1995）ISBN:978-0521565134
Vasant Saberwal 『Pastoral Politics: shepherds, bureaucrats, and conservation in the Western Himalaya』（Oxford University Press: New Delhi 1998）ISBN:978-0195643084
K. Sivaramakrishnan 『Modern Forests: Statemaking and environmental change in colonial Eastern India』（Oxford University Press: New Delhi 1999）ISBN:978-0804745567
S. Ravi Rajan 『Modernizing Nature: Forestry and Imperial Eco-Development 1800-1950』（Orient Longman: Hyderabad 2006）ISBN:978-0199277964
Rohan D’Souza 『Drowned and Dammed: colonial capitalism and flood control in Eastern India』（Oxford University Press: New Delhi 2006）ISBN:978-0195682175
Julie E. Hughes 『Animal Kingdoms: Hunting, the Environment, and Power in the Indian Princely States』（Harvard University Press: Cambridge, Mass. 2013）ISBN:978-0674072800

（Related URL）

(Relevant sections and chapters from the above books will be assigned as readings for the course. Other reading materials such as articles or short write-ups may be included based on class discussions and interest.)

[Study outside of class (preparation and review)]

Students will be expected to have read at least five pages of pre-assigned reading, at the very minimum, before attending each class.

[Other information (office hours, etc.)]

Students can meet me during office hours with prior appointment

Lecture code: H808001

Course number	U-LAS05 20042 LE31		
Course title (and course title in English)	Food and Globalization I-E2 Food and Globalization I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Agriculture Associate Professor,Hart Nadav FEUER

Group	Humanities and Social Sciences	Field(Classification)	Regions and Cultures(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course is about the major changes to food systems worldwide under globalization. The story begins with early trade and the movement of different crops from their origins, including potatoes, coffee, wheat, rice and bananas. Through cultural integration, certain foods became staples and others became traded commodities. We will explore the transformation of food from a local phenomenon to a global industry.

[Course objectives]

Students will learn about the basic trends that have impacted food systems around the world. Students will apply the approach of understanding historical food systems using the 'One Food Method'.

[Course schedule and contents)]

1. Introduction. First case study of 'One Food Method'

Module 1: The mobility of food
2. The origins of food and their first travels
3. Early trade: diversity and survival
4. Food travels activity: Recipe Origins
5. Latter trade: luxuries, cultural exchange
6. Food value activity: Spice Trade

Module 2: The mobility of farming
7. Farming overseas and colonies
8. Food self-sufficiency and autonomy
9. National food self-sufficiency activity

Module 3: The mobility of food ideas
10. Globalization of food ideas
11. One-Food Case Study
12. Final review and presentation preparation

Module 4: Student Presentations
13. Grains, Livestock
14. Global fruits

Continue to Food and Globalization I-E2(2)↓↓↓

Food and Globalization I-E2(2)

15. Exam
16. Feedback class

[Course requirements]

English proficiency suitable for understanding lectures, reading basic texts, and participating in class discussion.

[Evaluation methods and policy]

10% Attendance and active participation (*Lost in case of more than 3 absences without official excuse)
20% Group presentation
30% Quizzes and class activities
40% Final exam

[Textbooks]

Not used
No textbook, but consultation of in-class materials and outside readings available on PandA

[References, etc.]

（Reference book）
Kiple, Kenneth F. 『A Movable Feast: Ten Millennia of Food Globalization.』（Cambridge University Press）ISBN:978-1-107-65745-8
Flandrin, Jean-Louis and others. 『Food: A Culinary History.』（Columbia University Press）ISBN: 9780231544092（2013, eBook）

[Study outside of class (preparation and review)]

Students will be expected to do short readings or watch videos overnight and take online quizzes.

[Other information (office hours, etc.)]

Email: feuer.hartnadav.4e@kyoto-u.ac.jp
Please email or use PandA message to organize in-person or Zoom-based consultation

Lecture code: H809001

Course number	U-LAS05 20043 LE31				
Course title (and course title in English)	Food and Globalization II-E2 Food and Globalization II-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Agriculture Associate Professor,Hart Nadav FEUER		
Group	Humanities and Social Sciences	**Field(Classification)**	Regions and Cultures(Issues)		
Language of instruction	English	**Old group**	Group A	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・Second semester
Days and periods	Wed.2	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For all majors

[Overview and purpose of the course]

This course surveys modern transformations of food systems worldwide under globalization. The main message of the course is that food ideas (diets, cuisines, innovations, lifestyles) are the main drivers of food globalization. In more detail, we explore what happened after food became a globalized industry and how new food trends began to change the way farming is done and how people eat worldwide. The topics include the issue that are understood as not only global or local, but also glocal.

[Course objectives]

In this course, students will gain a basic understanding about the contemporary trends in food systems around the world, particularly the impact of globalization, dietary transition, and food movements. Students will apply the approach of class to analyze one contemporary trend in agriculture and food.

[Course schedule and contents)]

1. Modern food globalization: from the movement of food to the movement of food ideas
2. Overproduction and alternative uses: sweeteners, fodder, energy
3. Activity Day for Overproduction and Food Product Innovation
4. The rise of convenience food
5. New global diets and food waste
6. Understanding Food Prices and Government Intervention
7. New farmer-consumer relationships: fairtrade, farmer markets, farm-to-fork
8. Youth and small farm romanticism
9. Sharing local products with the world: geographic indications
10. Model Presentation: Okinawan cuisine
11. Key Concepts and Presentation Preparation Day

Student Presentations (after New Years)
12. Mega agriculture
13. Small-scale food systems
14. New diets: innovation or marketing?

15. Final exam
16. Feedback class (instructions provided in class)

Continue to Food and Globalization II-E2(2)↓↓↓

Food and Globalization II-E2(2)

[Course requirements]

English proficiency suitable for understanding lectures, reading basic texts, and participating in class discussion. [Please note,the course "Food and Globalization I" (Spring Semester) is NOT required for participation in this course]

[Evaluation methods and policy]

10% Attendance and active participation (Reduced after more than 3 absences without official excuse)
20% Group presentation
30% Quizzes and class activities
40% Final exam

[Textbooks]

Not used
No textbook, but consultation of in-class materials and eBooks available at Kyoto University Library (see Reference book).

[References, etc.]

（**Reference book**）
Kipple, Kenneth 『A Movable Feast: Ten Millennia of Food Globalization』（Cambridge University Press） ISBN:978-1-107-65745-8（Relevant portions provided online）
Crowther, Gillian 『Eating Culture: An Anthropological Guide to Food (2nd Edition)』（Toronto University Press）ISBN:9781487593292（Provided in pieces）

[Study outside of class (preparation and review)]

Students will be expected to do readings or practical exercises, or watch movies in preparation for class and take short quizzes.

[Other information (office hours, etc.)]

Email: feuer.hartnadav.4e@kyoto-u.ac.jp
Please email or use PandA message to organize in-person or Zoom-based consultation

Lecture code: H926002

Course number	U-LAS06 10003 LE41		
Course title (and course title in English)	Jurisprudence-E2 Jurisprudence-E2	Instructor's name, job title, and department of affiliation	Graduate School of Law Program-Specific Associate Professor,ALVAREZ ORTEGA, Miguel

Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.5	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

The aim of this course is to reflect upon the defining nature and characteristics of Law, as well as its sociological and ethical dimensions, by analyzing the main theoretical approaches developed throughout history. What is this thing that we call Law? Is Law a universal element present in all societies or is it a historical product of certain cultures? How does Law relate to other normative systems like morality or politics? How does Law regulate the behavior of human beings? How does law relate to justice and stability? Such questions will be addressed in this lecture, drawing from both classical and contemporary sources.

[Course objectives]

- to enable students to develop a critical approach to Law, legal practice, and Justice.
- to grant access to the main legal philosophical schools.

[Course schedule and contents)]

1. Introduction: methodology and content
2. Jurisprudence: the name and the discipline
3. The Concept of Law I: from experience to definitions
4. The Concept of Law II: tri-dimensionalism and unilateralism
5. Natural Law I: cosmological conceptions
6. Natural Law II: theological conceptions
7. Natural Law III: rationalist conceptions
8. Legal Positivism I: John Austin
9. Legal Positivism II: H. Hart & H. Kelsen
10. Legal Positivism III: contemporary approaches
11. Legal Realism I: Jurisprudence of Interests & Free Law Movement
12. Legal Realism II: Marxist criticism of bourgeois law
13. Legal Realism III: the American School and the Scandinavian school
14. Legal Realism IV: Alternative Law & Legal Pluralism
15. Appraisal and feedback

The order of the lessons and the implementation of the syllabus may change according to the actual development of the classes
.

[Course requirements]

Proficiency in the English language is required.

Continue to Jurisprudence-E2(2)↓↓↓

Jurisprudence-E2(2)

Some philosophical background is desirable.

[Evaluation methods and policy]

Students are expected to read and prepare materials for discussions every week.

They will submit reports on the texts covered, which will constitute 70% of the final grade.

Active participation and engagement in the online sessions will constitute 30% of the final grade.

[Textbooks]

No single specific textbook will be followed. Specific papers and materials will be distributed each week.

[References, etc.]

（Reference book）

Michael Freeman 『Lloyd's Introduction to Jurisprudence 9th edition』ISBN:9780414026728
Students in need of a reference book may resort to the one here included.

[Study outside of class (preparation and review)]

Students are required to prepare texts for discussion on a weekly basis and be ready to present and discuss such material in class. They are also expected to critically reflect upon the addressed and discussed issues after class.

[Other information (office hours, etc.)]

Students may ask for an appointment and/or address their questions via e-mail.

Lecture code: H938001

Course number	U-LAS06 10016 LE42		
Course title (and course title in English)	Political Science I-E2 Political Science I-E2	Instructor's name, job title, and department of affiliation	Center for Southeast Asian Studies Associate Professor,TANGSEEFA, Decha

Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Introduction
For this academic year, both Political Science I and II will be focusing on the political philosophy subfield. This subfield deals with perennial questions and basic problems in politics, which must continuously be examined and inquired, even though most members of political societies often consider them settled and no further arguments needed. Such questions, for example, are: What is a good life? What is a good political society? What is justice? What is power?

Toward the end of Political Science I and II, hopefully, students will: a) possess basic understanding of political philosophy, and will employ such knowledge as a guide to probe more deeply and sophisticatedly on the intertwining relations of three notions: youth, education and utopia; b) realize that the two introductory courses are very crucial not only for their quotidian lives, but also for each as a member of a political society as well as an earthling on this delicate yet fragile earth.

Issue and Approach
In general, the introduction to political philosophy taught in many countries has been dominated by the body of knowledge that only follows various traditions of the so-called "western worlds." Hence, any attempts to discern basic political problems have predominantly been influenced by such traditions from such worlds. I myself have, to a large degree, been influenced by those traditions, too. Nonetheless, in order for our journey throughout this year to be broader, I have also chosen a few philosophical texts from some traditions of the "eastern worlds." With limited time, however, we will be focusing only on two of the most important strands of the so-called "Chinese civilization": classical Confucianism and classical Daoism. Altogether for this academic year, there will be three sets of issues:

Part 1: Love of Wisdom: An Answer for "What is Philosophy?"
Part 2: A Perspective on "Utopia": Plato's Republic
Part 3: Human Togetherness (?): Be(com)ing Humans, How should humans be?, and "The Political"

3.1 A Confucian View
3.2 Two Daoist Views
3.3 Social Contract Philosophies

While the first two parts are the contents of Political Science I, the third part is the focus of Political Science

Continue to Political Science I-E2(2)↓↓↓

Political Science I-E2(2)

II. Students who intend to take only one of these two courses must be clear which tradition they would like to prioritize. If it is the "western", they should take Political Science I. If it is the "eastern", Political Science II is their choice.

[Course objectives]

The two courses aim to enable students:

- To understand some traditions of political philosophy at the introductory level;
- To understand certain views of political philosophy regarding youth, education, and utopia;
- To pay attention, to think and to question our quotidian lives' surroundings by employing perspectives from political philosophy.

[Course schedule and contents)]

In this course, close reading of the texts is the key method of learning. Students will be trained - at the introductory level -- how to read philosophical texts. We will, therefore, be reading parts of each text, keeping in mind that we will be probing more deeply and sophisticatedly on:

First, the intertwining relations of the three notions: youth, education and utopia.

Second, a perspective on "Utopia": Plato's Republic

Week 1:
- Introduction and Course Queries

Part 1: Love of Wisdom: An Answer for "What is Philosophy?"

Week 2:
- Life, Love and Wisdom:

Jostein Gaarder. 1996. Sophie's World: A Novel about the History of Philosophy. Pp. 2-60.

Part 2: A Perspective on "Utopia": Plato's Republic

Week 3:
- Republic. 327a-336a
Week 4:
- Republic. 336b-354c
Week 5:
- Republic. 357a-367e
Week 6:
- Republic. 368a-383c
Week 7:
- Republic. 386a-403c
Week 8:

Continue to Political Science I-E2(3)↓↓↓

Political Science I-E2(3)

- Republic. 403c-417b
Week 9:
- 1 Quiz (50%)
Week 10:
- Republic. 419a-445e
Week 11:
- Republic. 449a-474c6
Week 12:
- Republic. 474c7-497a7
Week 13:
- Republic. 497a8-511e5
Week 14:
- - Republic. 514a-541b.
Week 15:
- 2nd Quiz (50%)
- Course Summary
Week 16:
- Feedback Session

[Course requirements]

1) Good level of English language (TOEFL ITP score ≧525) is required (the full score is 677).
(For more information on how to convert the score, among others, see:
https://capman.es/sites/default/files/toefl_itp_official_score_report_soloinformativo.pdf)

2) Comparatively speaking, this course is both reading-intensive and writing-intensive. Thus, any students who plan to take too many courses in this semester will have a hard time fulfilling this course' s requirements.

[Evaluation methods and policy]

2 Quizzes

Week 9 50%
Week 15 50%

Notes: Since this is a philosophical course, students will, thus, be expected to evince their philosophical understanding. The quizzes' questions will ask students to demonstrate their "coming to terms" with this course' s philosophical texts. Throughout the semester, therefore, each student must ensure that s/he will have a sound and solid philosophical grasp.

[Textbooks]

C.D.C.Reeve 『Plato Republic』（Hackett Publishing Company, Inc.）ISBN:978-0872201361
Allan Bloom 『The Republic of Plato』（Basic Books）ISBN:0-465-06934-7（(file:///Users/decha/Zotero/storage/FWC7RPLI/platos-republic-allan-blooms-translation-d6832249.html) (Accessed June 21, 2020)）
Thomas L. Pangle and Timothy W. Burns. 『The Key Texts of Political Philosophy: An Introduction.』（Cambridge University Press.）ISBN:978-0521185004
Jostein Gaarder 『Sophie's World: A Novel about the History of Philosophy.』（Farrar, Straus and Giroux.）ISBN:978-0374530716

Continue to Political Science I-E2(4)↓↓↓

Political Science I-E2(4)

（Related URL）
https://onlinemovie.cseas.kyoto-u.ac.jp/en/movie_tangseefa/(Instructor' s URL)

[Study outside of class (preparation and review)]

Students will study each week's prepared PowerPoint slides as well as reading assignments before class time in order to effectively engage in class discussion.

[Other information (office hours, etc.)]

Consultations can be arranged as needed.

Lecture code: H939001

Course number	U-LAS06 10017 LE42				
Course title (and course title in English)	Political Science II-E2 Political Science II-E2	Instructor's name, job title, and department of affiliation	Center for Southeast Asian Studies Associate Professor,TANGSEEFA，Decha		
Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Introduction
For this academic year, both Political Science I and II will be focusing on the political philosophy subfield. This subfield deals with perennial questions and basic problems in politics, which must continuously be examined and inquired, even though most members of political societies often consider them settled and no further arguments needed. Such questions, for example, are: What is a good life? What is a good political society? What is justice? What is power?

Toward the end of Political Science I and II, hopefully, students will: a) possess basic understanding of political philosophy, and will employ such knowledge as a guide to probe more deeply and sophisticatedly on the intertwining relations of three notions: youth, education and utopia; b) realize that the two introductory courses are very crucial not only for their quotidian lives, but also for each as a member of a political society as well as an earthling on this delicate yet fragile earth.

Issue and Approach
In general, the introduction to political philosophy taught in many countries has been dominated by the body of knowledge that only follows various traditions of the so-called “western worlds.” Hence, any attempts to discern basic political problems have predominantly been influenced by such traditions from such worlds. I myself have, to a large degree, been influenced by those traditions, too. Nonetheless, in order for our journey throughout this year to be broader, I have also chosen a few philosophical texts from some traditions of the “eastern worlds.” With limited time, however, we will be focusing only on two of the most important strands of the so-called “Chinese civilization”: classical Confucianism and classical Daoism. Altogether for this academic year, there will be three sets of issues:

Part 1: Love of Wisdom: An Answer for “What is Philosophy?”
Part 2: A Perspective on “Utopia”: Plato’s Republic
Part 3: Human Togetherness (?): Be(com)ing Humans, How should humans be?, and “The Political”

3.1 A Confucian View
3.2 Two Daoist Views
3.3 Social Contract Philosophies

While the first two parts are the contents of Political Science I, the third part is the focus of Political Science

Continue to Political Science II-E2(2)↓↓↓

Political Science II-E2(2)

II. Students who intend to take only one of these two courses must be clear which tradition they would like to prioritize. If it is the “western”, they should take Political Science I. If it is the “eastern”, Political Science II is their choice.

[Course objectives]

The two courses aim to enable students:

- To understand some traditions of political philosophy at the introductory level;
- To understand certain views of political philosophy regarding youth, education, and utopia;
- To pay attention, to think and to question our quotidian lives’ surroundings by employing perspectives from political philosophy.

[Course schedule and contents)]

In this course, close reading of the texts is the key method of learning. Students will be trained - at the introductory level -- how to read philosophical texts. We will, therefore, be reading parts of each text, keeping in mind that we will be probing more deeply and sophisticatedly on:

First, the intertwining relations of the three notions: youth, education and utopia.

Second, whether or not humans have to be together?; the difference between being humans and becoming humans; how should humans be?; and different perspectives on “the political”.

Week 1: Introduction and Course Queries

Part 3: Human Togetherness (?):
Be(com)ing Humans, How should humans be?, and “the Political”

Part 3.1: A Confucian View

3.1.1 Classical Chinese Philosophy: An Introduction

Week 2:

- History, Philosophy and Knowledge: An Introduction
- Philosophic and Linguistic Background

Week. 3:

- The Analects (Lunyu)

Week 4:

- Confucius. The Analects of Confucius, Books 1-4

Continue to Political Science II-E2(3)↓↓↓

Political Science II-E2(3)

Week 5:

- Confucius. The Analects of Confucius, Books 5-8

Week 6:

- Confucius. The Analects of Confucius, Books 9-12

Week 7: 1st Quiz (50%)

Part 3.2: A Daoist View -- Daodejing

3.2.1 Philosophical Treatment et al.

Week 8:

- Wind & the World
- A Prelude
- Historical Introduction

Week 9:

- Philosophical Introduction: Correlative Cosmology (1st Session)

Week 10:

- Philosophical Introduction: Correlative Cosmology (2nd Session)

Week 11:

- Philosophical Introduction: Correlative Cosmology (3rd Session)

Week 12:

- Ames & Hall. Dao De Jing, Chapters 1-10

Week 13:

- Ames & Hall. Dao De Jing, Chapters 11-20

Week 14:

- 2nd Quiz (50%)

Week 15:

Continue to Political Science II-E2(4)↓↓↓

Political Science II-E2(4)

- Course Summary

Week 16:

-Feedback Session

[Course requirements]

1) Good level of English language (TOEFL ITP score ≧525) is required (the full score is 677). (For more information on how to convert the score, among others, see:
https://capman.es/sites/default/files/toefl_itp_official_score_report_soloinformativo.pdf)

2) Comparatively speaking, this course is both reading-intensive and writing-intensive. Thus, any students who plan to take too many courses in this semester will have a hard time fulfilling this course’s requirements.

[Evaluation methods and policy]

2 Quizzes

Week 7 50%
Week 14 50%

Notes: Since this is a philosophical course, students will, thus, be expected to evince their philosophical understanding. The quizzes’ questions will ask students to demonstrate their “coming to terms” with this course’s philosophical texts. Throughout the semester, therefore, each student must ensure that s/he will have a sound and solid philosophical grasp.

[Textbooks]

Roger T. Ames & Henry Rosemont Jr. 『The Analects of Confucius: A Philosophical Translation』（Ballantine Books）ISBN:978-0345434074
Roger T. Ames & David L. Hall 『A Philosophical Translation Dao De Jing "Making This Life Significant"』（Ballantine Books）ISBN:0-345-44415-9
Henry Rosemont, Jr. 『A Reader’s Companion to the Confucian Analects. 』（Palgrave Macmillan, 2013）

[References, etc.]

（**Reference book**）

1) Hobbes, Thomas. 1990. “In Defense of Dictatorship [from Leviathan].” In Philosophy: Paradox and Discovery. Minton, A.J. & Shipka, T.A. (eds.). New York: McGraw-Hill, Inc., 3rd edition. Pp. 484-493.

2) Locke, John. 1995. “The Second Treatise of Civil Government.” In The Portable Enlightenment Reader. Isaac Kramnick (ed. w/ and Intro.). New York: Penguin Books. Pp. 395-404.

3) Rousseau, Jean-Jacques. 1995. “The Social Contract.” In The Portable Enlightenment Reader. Pp. 430-441.

（**Related URL**）

https://onlinemovie.cseas.kyoto-u.ac.jp/en/movie_tangseefa/(Instructor’s URL)

Continue to Political Science II-E2(5)↓↓↓

Political Science II-E2(5)

[Study outside of class (preparation and review)]

Students will study each week's prepared PowerPoint slides as well as reading assignments before class time in order to effectively engage in class discussion.

[Other information (office hours, etc.)]

Consultations can be arranged as needed.

Lecture code: H934001

Course number	U-LAS06 10018 LE43				
Course title (and course title in English)	Introduction to Economics-E2 Introduction to Economics-E2	Instructor's name, job title, and department of affiliation	Institute of Economic Research Senior Lecturer,TOU SHUNHAN		
Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.1	Target year	Mainly 1st year students	Eligible students	For all majors

[Overview and purpose of the course]

This course is an introduction to economics, covering essential economic concepts (gains from trade, marginal costs, solutions to basic economic models) in both a qualitative and a quantitative manner.

The purpose of the course is to give students an understanding of economic concepts and methods which they can then take to further, more detailed, study of the subject.

[Course objectives]

~ To introduce important economic concepts and illustrate these with examples.
~ To give some ability to consider real world phenomena through economic thinking.
~ To prepare students for further study of economics.

[Course schedule and contents)]

Each week part of the textbook or other relevant readings will be covered in class. It is essential that before attending class you read the relevant chapters and articles and watch the online lectures provided. The course consists of the following 7 topics, each of which will be (approximately) covered in 2 time blocks (3 hours of class time):

1. Gains from trade.
2. Demand and supply.
3. Production, equilibrium and welfare.
4. Perfect competition and monopoly.
5. Monopolistic competition and oligopoly.
6. Market failure, taxes and subsidies.
7. Public goods and common resources.

Total： Approximately 14 classes, 1 Feedback session (i.e. 15 lectures per semester, excluding examinations). The course yields two credits.

[Course requirements]

None

[Evaluation methods and policy]

Grading (100%) will be based on final examination results, the performance of homework quizzes, and attendance.

Continue to Introduction to Economics-E2(2)↓↓↓

Introduction to Economics-E2(2)

[Textbooks]

Bonnie Nguyen and Andrew Wait 『Essentials of Microeconomics』 （Routledge）ISBN:978-1138891364 （The e-book is available on kuline.）

[Study outside of class (preparation and review)]

The assigned chapters of the textbook, as well as any other readings assigned in class, should be read each week.

[Other information (office hours, etc.)]

Office hour by appointment.

Lecture code: H935001

Course number	U-LAS06 10013 LE43		
Course title (and course title in English)	Principles of Economics-E2 Principles of Economics-E2	Instructor's name, job title, and department of affiliation	Institute of Economic Research Senior Lecturer,TOU SHUNHAN
Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.1	Target year	Mainly 1st year students	Eligible students	For all majors

[Overview and purpose of the course]

This course is an exploration of key economic principles, illustrated and discussed via examples, both quantitative and qualitative. The purpose of the course is to give students a deep and thoughtful understanding of economic concepts.

IMPORTANT: This course is best suited to students who enjoy mathematics and the kind of logical arguments associated with mathematics. A reasonable understanding of basic concepts (calculus, continuity, convexity, concavity, vectors, limits) will be assumed. Students who are less confident with such concepts will probably be more comfortable with the course "Introduction to Economics".

[Course objectives]

~ To further understanding of important economic concepts.
~ To understand how such concepts can be rigorously modeled.
~ To be able to consider and apply these concepts in a modern context.

[Course schedule and contents)]

Each week we will consider an interesting economic concept. The course will cover some or all of the following topics, each of which will be covered in 3-6 time blocks (an estimated 4.5 - 9 hours of class time):

1. General equilibrium in competitive markets. (6-time blocks)
2. Markets. (3-4-time blocks)
3. From the jungle to design economics. (3-4-time blocks)

Total： Approximately 14 classes, 1 Feedback session (i.e., 15 lectures per semester, excluding examinations). The course yields two credits.

[Course requirements]

Students are required to have sufficient competency in English and logical thinking to read the textbook, attend class and complete assigned questions.

This course is best suited to students who enjoy mathematics and the kind of logical arguments associated with mathematics. A reasonable understanding of basic concepts (calculus, continuity, convexity, concavity, vectors, limits) will be assumed. Students who are less confident with such concepts will probably be more comfortable with the course "Introduction to Economics".

Continue to Principles of Economics-E2(2)↓↓↓

Principles of Economics-E2(2)

[Evaluation methods and policy]

Grading (100%) will be based on assignments to be completed either in class or outside of class.

[Textbooks]

Romans Pancs 『Lectures on Microeconomics: The Big Questions Approach』（MIT Press）ISBN: 978-0262038188（Essential textbook for the course.）

[Study outside of class (preparation and review)]

Readings assigned in class should be read each week. Assignments should be completed.

[Other information (office hours, etc.)]

Office hours by appointment.

Lecture code: H936001

Course number	U-LAS06 10014 SE43				
Course title (and course title in English)	Economy and Society I-E2 Economy and Society I-E2		Instructor's name, job title, and department of affiliation	Institute of Economic Research Senior Lecturer,TOU SHUNHAN	
Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・First semester
Days and periods	Wed.2	Target year	Mainly 2nd year students	Eligible students	For liberal arts students

[Overview and purpose of the course]

This course is a seminar that discusses the book "Quantitative social science: An introduction" by Kosuke Imai.　The book introduces the three elements of data analysis required for quantitative social science research: research contexts, programming techniques, and statistical methods.

The object of the course is to provide a hands-on introduction to the tools and techniques of quantitative social science. The course covers both basic statistical concepts and basic programming skills.

In this course, students will learn elementary concepts and methods with the aim of gaining a sense of how data analysis is used in quantitative social science research.

[Course objectives]

After completing the course, the students are expected to:

~ Read, understand, and practice "Quantitative social science: An introduction" by Kosuke Imai.
~ Have a good knowledge of how data analysis is used in quantitative social science research
~ Acquire the basic methodology and programming necessary for data analysis, and be able to interpret the output.
~ Be able to adapt these methods to the problems of interest in your own research.
~ Prepare students for further study of quantitative methodology in economics, sociology, and other fields.

[Course schedule and contents)]

Each week a chapter or part of a chapter will be discussed in class. It is essential that before attending class you read the relevant chapters. The course consists of the following topics, each of which will be covered in 2 to 4 lectures (3 to 6 hours of class time):

1. Introduction
2. Causality
3. Measurement
4. Prediction
5. Discovery

Total： Approximately 14 classes, 1 Feedback session (i.e. 15 lectures per semester, excluding examinations).

Continue to Economy and Society I-E2(2)↓↓↓

Economy and Society I-E2(2)

The course yields two credits.

[Course requirements]

Students are required to have the English skills required to read the assigned texts, attend class and participate in discussions.

Students MUST have a copy of the book (either a hard copy or an electronic copy) as it will be used from the very beginning of the course.

Students should bring their computer as programming will be practiced during the course.

[Evaluation methods and policy]

Grading will predominantly (70-100%) be based on class presentations and discussion of ideas. Up to 30% may be based on tests taken in class throughout the semester.

[Textbooks]

Imai, Kosuke 『Quantitative social science: an introduction』（Princeton University Press, 2017）ISBN: 9780691167039

[References, etc.]

（**Reference book**）
John, Verzani. 『Using R for Introductory Statistics』（Chapman & Hall/CRC The R Series）ISBN: 9781466590731（Online book: https://www.math.csi.cuny.edu/Statistics/R/simpleR/）

[Study outside of class (preparation and review)]

Before classes, the assigned chapters of the book, as well as any other readings assigned in class, should be read each week.

After classes, as stated on page 7, Section 1.2, "How to use this book"
One can learn data analysis only by doing, not by reading. It is best accomplished by trying out the code in the book on one's own, playing with it, and working on various exercises that appear at the end of each chapter.

[Other information (office hours, etc.)]

Office hour by appointment.

Lecture code: H937001

Course number	U-LAS06 10015 SE43				
Course title (and course title in English)	Economy and Society II-E2 Economy and Society II-E2	Instructor's name, job title, and department of affiliation	Institute of Economic Research Senior Lecturer,TOU SHUNHAN		
Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・Second semester
Days and periods	Wed.2	Target year	Mainly 2nd year students	Eligible students	For liberal arts students

[Overview and purpose of the course]

This course is a seminar that discusses the book "Quantitative social science: An introduction" by Kosuke Imai. The book introduces the three elements of data analysis required for quantitative social science research: research contexts, programming techniques, and statistical methods.

The object of the course is to provide a hands-on introduction to the tools and techniques of quantitative social science. The course covers both basic statistical concepts and basic programming skills.

In this course, students will learn elementary concepts and methods with the aim of gaining a sense of how data analysis is used in quantitative social science research.

[Course objectives]

After completing the course, the students are expected to:

~ Read, understand, and practice "Quantitative social science: An introduction" by Kosuke Imai.
~ Have a good knowledge of how data analysis is used in quantitative social science research
~ Acquire the basic methodology and programming necessary for data analysis, and be able to interpret the output.
~ Be able to adapt these methods to the problems of interest in your own research.
~ Prepare students for further study of quantitative methodology in economics, sociology, and other fields.

[Course schedule and contents)]

Each week a chapter or part of a chapter will be discussed in class. It is essential that before attending class you read the relevant chapters. The course consists of the following topics, each of which will be covered in 2 to 4 lectures (3 to 6 hours of class time):

4. Prediction
5. Discovery
6. Probability
7. Uncertainty

Total： Approximately 14 classes, 1 Feedback session (i.e. 15 lectures per semester, excluding examinations).
The course yields two credits.

Continue to Economy and Society II-E2(2)↓↓↓

Economy and Society II-E2(2)

[Course requirements]

Students are required to have the English and logical skills required to read the assigned texts, attend class and participate in discussion.

Students MUST have a copy of the book (either a hard copy or an electronic copy) as it will be used from the very beginning of the course.

Students should bring their computer as programming will be practiced during the course.

[Evaluation methods and policy]

Grading will predominantly (70-100%) be based on class presentations and discussion of ideas. Up to 30% may be based on tests taken in class throughout the semester.

[Textbooks]

Imai, Kosuke 『Quantitative social science: an introduction』 （Princeton University Press, 2017）ISBN: 9780691167039

[References, etc.]

（**Reference book**）
Peter, Dalgaard. 『Introductory Statistics with R (2nd ed)』 （Springer, 2008.）ISBN:9780387790534（The e-book is available on kuline.）
John, Verzani. 『Using R for Introductory Statistics』 （Chapman & Hall/CRC The R Series）ISBN: 9781466590731（Online book: https://www.math.csi.cuny.edu/Statistics/R/simpleR/）

[Study outside of class (preparation and review)]

Before classes, the assigned chapters of the book, as well as any other readings assigned in class, should be read each week.

After classes, as stated on page 7, Section 1.2, "How to use this book"
One can learn data analysis only by doing, not by reading. It is best accomplished by trying out the code in the book on one's own, playing with it, and working on various exercises that appear at the end of each chapter.

[Other information (office hours, etc.)]

Office hour by appointment.

Lecture code: H917001

Course number	U-LAS06 10009 LE43		
Course title (and course title in English)	Contemporary Economics I-E2 Contemporary Economics I-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Economics Program-Specific Senior Lecturer,Ma Teng
Group	Humanities and Social Sciences	**Field(Classification)**	Jurisprudence, Politics and Economics(Foundations)

Language of instruction	English	**Old group**	Group A	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Wed.3	**Target year**	All students	**Eligible students**	For all majors

[Overview and purpose of the course]

This course is an introductory undergraduate course that teaches the fundamentals of microeconomics. For some students, it provides a solid foundation for economic analysis and thinking that can last throughout their education and subsequent professional careers. For other students, it may provide a foundation for many years of study in economics, business, or related fields.

[Course objectives]

- Understand consumer and firm behavior
- Analyze different types of market structures
- Solve a consumer's utility maximization problem mathematically and graphically; analyze the impact of changes in price and income on a consumer's decision via shifting income and substitution effects.
- Analyze the behavior of firms in a monopoly or oligopoly, and calculate the resulting changes in producer or consumer surplus
- Use economic tools to analyze economic policies

[Course schedule and contents)]

This course begins with an introduction to supply and demand and the basic forces that determine an equilibrium in a market economy. Next, it introduces a framework for learning about consumer behavior and analyzing consumer decisions. We then turn our attention to firms and their decisions about optimal production, and the impact of different market structures on firms' behavior. The final section of the course provides an introduction to some of the more advanced topics that can be analyzed using microeconomic theory. These include antitrust policy and negative and positive externalities.

1. Introduction to Microeconomics
2. Applying Supply and Demand
3. Elasticity
4. Consumer Choices
5. Applying Consumer Theory
6. Firm and Production
7. Costs
8. Competitive Firms and Markets
9. Applying the Competitive Model
10. General Equilibrium and Economic Welfare
11. Monopoly

Continue to Contemporary Economics I-E2(2)↓↓↓

Contemporary Economics I-E2(2)

12. Pricing and Advertising
13. Students’　Conference on Selected Microeconomic Topics (I)
14. Students’　Conference on Selected Microeconomic Topics (II)
15. Feedback

By the end of the course, you will be able to understand introductory microeconomic theory, solve basic microeconomic problems, and use these techniques to think about a number of policy questions relevant to the operation of the real economy.

[Course requirements]

None

[Evaluation methods and policy]

Quizzes (6/10); Presentations (4/10).

[Textbooks]

Jeffrey M. Perloff 『Microeconomics, 8e』 （Pearson）ISBN:0134519531
STEVEN A. GREENLAW, DAVID SHAPIRO, TIMOTHY TAYLOR. 『Principles of Microeconomics, 2e』 （Openstax）ISBN:9781947172340

[References, etc.]

（**Reference book**）
N. GREGORY MANKIW 『PRINCIPLES OF MICROECONOMICS, Eighth Edition』 （Cengage Learning）

[Study outside of class (preparation and review)]

- Prepare and review class contents (textbook).
- Complete and submit all assignments, and take quizzes by the assigned due dates.

[Other information (office hours, etc.)]

to be announced

Lecture code: H917002

Course number	U-LAS06 10009 LE43		
Course title (and course title in English)	Contemporary Economics I-E2 Contemporary Economics I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Economics Program-Specific Senior Lecturer,Ma Teng

Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course is an introductory undergraduate course that teaches the fundamentals of microeconomics. For some students, it provides a solid foundation for economic analysis and thinking that can last throughout their education and subsequent professional careers. For other students, it may provide a foundation for many years of study in economics, business, or related fields.

[Course objectives]

- Understand consumer and firm behavior
- Analyze different types of market structures
- Solve a consumer's utility maximization problem mathematically and graphically; analyze the impact of changes in price and income on a consumer's decision via shifting income and substitution effects.
- Analyze the behavior of firms in a monopoly or oligopoly, and calculate the resulting changes in producer or consumer surplus
- Use economic tools to analyze economic policies

[Course schedule and contents)]

This course begins with an introduction to supply and demand and the basic forces that determine an equilibrium in a market economy. Next, it introduces a framework for learning about consumer behavior and analyzing consumer decisions. We then turn our attention to firms and their decisions about optimal production, and the impact of different market structures on firms' behavior. The final section of the course provides an introduction to some of the more advanced topics that can be analyzed using microeconomic theory. These include antitrust policy and negative and positive externalities.

1. Introduction to Microeconomics
2. Applying Supply and Demand
3. Elasticity
4. Consumer Choices
5. Applying Consumer Theory
6. Firm and Production
7. Costs
8. Competitive Fires and Markets
9. Applying the Competitive Model
10. General Equilibrium and Economic Welfare
11. Monopoly

Continue to Contemporary Economics I-E2(2)↓↓↓

Contemporary Economics I-E2(2)

12. Pricing and Advertising
13. Students’ Conference on Selected Microeconomic Topics (I)
14. Students’ Conference on Selected Microeconomic Topics (II)
15. Feedback

By the end of the course, you will be able to understand introductory microeconomic theory, solve basic microeconomic problems, and use these techniques to think about a number of policy questions relevant to the operation of the real economy.

[Course requirements]

None

[Evaluation methods and policy]

Quizzes (6/10); Presentations (4/10).

[Textbooks]

Jeffrey M. Perloff 『Microeconomics, 8e』 （Pearson）ISBN:0134519531
STEVEN A. GREENLAW, DAVID SHAPIRO, TIMOTHY TAYLOR. 『Principles of Microeconomics, 2e』（Openstax）ISBN:9781947172340

[References, etc.]

（**Reference book**）
N. GREGORY MANKIW 『PRINCIPLES OF MICROECONOMICS, Eighth Edition』 （Cengage Learning）

[Study outside of class (preparation and review)]

- Prepare and review class contents (textbook).
- Complete and submit all assignments, and take quizzes by the assigned due dates.

[Other information (office hours, etc.)]

to be announced

Lecture code: H918001

Course number	U-LAS06 10010 LE43		
Course title (and course title in English)	Contemporary Economics II-E2 Contemporary Economics II-E2	Instructor's name, job title, and department of affiliation	Graduate School of Economics Program-Specific Senior Lecturer,Ma Teng

Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course is an introductory undergraduate course that teaches the fundamentals of macroeconomics and application of economics concepts. It provides a solid foundation for macroeconomic analysis and thinking that can last throughout their education and subsequent professional careers.

[Course objectives]

After completing this course, students should have developed a range of skills enabling them to understand economic concepts and use those concepts to analyze specific questions.
By the end of this course, students should be able to understand economic growth, recession/booms, un-/employment, de-/inflation, and the financial system.

[Course schedule and contents)]

Course Description:
This course begins with an introduction to supply and demand and the basic forces that determine an equilibrium in a market economy. Next, it introduces a framework for learning about macroeconomics indicator, such as the Gross Domestic Product (GDP) and the Consumer Price Index (CPI). We then turn our attention to specific economic problems such as recessions, unemployment, inflation, international trade etc. The final section of the course provides an opportunity of independent learning. It helps students to deeply understand basic tools of macroeconomics and the way to apply them to real world economic policy.

Content Outline:
1. What is Economics
2. Economic Methods and Questions
3. Optimization, Choice in the World of Scarcity
4. Equilibrium, Demand and Supply
5. Pricing Elasticity
6. The Macroeconomic Perspective
7. Inflation and The cost of Living
8. Economic Growth
9. Employment and Unemployment
10. Money and Banking
11. Monetary Policy and Bank Regulation
12. The International Trade and Capital Flows
13. Students’ Conference on Selected Macroeconomic Topics (I)

Continue to Contemporary Economics II-E2(2)↓↓↓

Contemporary Economics II-E2(2)

14. Students’ Conference on Selected Macroeconomic Topics (II)
15. Feedback

Course Methodology:
The course will use primarily interactive lectures and case studies to help students develop knowledge of “real world” economics. Quizzes will be spread out over the term of the course. The last three lectures will be accompanied by group presentation, all students are required to participate. Group will be required to select a research topic a list of topics presented by the instructor.

[Course requirements]

None

[Evaluation methods and policy]

Quizzes (6/10); Presentations (4/10);

[Textbooks]

Steven A. Greenlaw, David Shapiro, Timothy Taylor. 『Principles of Macroeconomics. 2e (2017)』（Openstax）ISBN:9781947172388

[References, etc.]

（**Reference book**）
Mankiw, NG 『Principles of Macroeconomics. 8e (2018)』（Cengage Learning）
Williamson, SD 『Macroeconomics. 5e (2014)』

[Study outside of class (preparation and review)]

- Prepare and review class contents (textbook).
- Complete and submit all assignments, and take quizzes by the assigned due dates.

[Other information (office hours, etc.)]

to be announced

Lecture code: H918002

Course number	U-LAS06 10010 LE43				
Course title (and course title in English)	Contemporary Economics II-E2 Contemporary Economics II-E2		Instructor's name, job title, and department of affiliation	Graduate School of Economics Program-Specific Senior Lecturer,Ma Teng	
Group	Humanities and Social Sciences		Field(Classification)	Jurisprudence, Politics and Economics(Foundations)	
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course is an introductory undergraduate course that teaches the fundamentals of macroeconomics and application of economics concepts. It provides a solid foundation for macroeconomic analysis and thinking that can last throughout their education and subsequent professional careers.

[Course objectives]

After completing this course, students should have developed a range of skills enabling them to understand economic concepts and use those concepts to analyze specific questions.
By the end of this course, students should be able to understand economic growth, recession/booms, un-/employment, de-/inflation, and the financial system.

[Course schedule and contents)]

Course Description:
This course begins with an introduction to supply and demand and the basic forces that determine an equilibrium in a market economy. Next, it introduces a framework for learning about macroeconomics indicator, such as the Gross Domestic Product (GDP) and the Consumer Price Index (CPI). We then turn our attention to specific economic problems such as recessions, unemployment, inflation, international trade etc. The final section of the course provides an opportunity of independent learning. It helps students to deeply understand basic tools of macroeconomics and the way to apply them to real world economic policy.

Content Outline:
1. What is Economics
2. Economic Methods and Questions
3. Optimization, Choice in the World of Scarcity
4. Equilibrium, Demand and Supply
5. Pricing Elasticity
6. The Macroeconomic Perspective
7. Inflation and The cost of Living
8. Economic Growth
9. Employment and Unemployment
10. Money and Banking
11. Monetary Policy and Bank Regulation
12. The International Trade and Capital Flows
13. Students' Conference on Selected Macroeconomic Topics (I)

Continue to Contemporary Economics II-E2(2)↓↓↓

Contemporary Economics II-E2(2)

14. Students' Conference on Selected Macroeconomic Topics (II)
15. Feedback

Course Methodology:
The course will use primarily interactive lectures and case studies to help students develop knowledge of "real world" economics. Quizzes will be spread out over the term of the course. The last three lectures will be accompanied by group presentation, all students are required to participate. Group will be required to select a research topic a list of topics presented by the instructor.

[Course requirements]

None

[Evaluation methods and policy]

Quizzes (6/10); Presentations (4/10).

[Textbooks]

Steven A. Greenlaw, David Shapiro, Timothy Taylor. 『Principles of Macroeconomics. 2e (2017)』（Openstax）ISBN:9781947172388

[References, etc.]

（**Reference book**）
Mankiw, NG 『Principles of Macroeconomics. 8e (2018)』（Cengage Learning）
Williamson, SD 『Macroeconomics. 5e (2014)』

[Study outside of class (preparation and review)]

- Prepare and review class contents (textbook).
- Complete and submit all assignments, and take quizzes by the assigned due dates.

[Other information (office hours, etc.)]

to be announced

Lecture code: H919001

Course number	U-LAS06 10011 LE44		
Course title (and course title in English)	Introduction to Management-E2 Introduction to Management-E2	Instructor's name, job title, and department of affiliation	Graduate School of Economics Associate Professor,WANG, Tao

Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course is designed to provide an introduction to the fundamental principles of managing business organizations. Students will be exposed to management concepts, models, contexts, and practices. They will learn to apply management theory and research evidence in analyzing critically and solving creatively real-life management problems. They will also learn to make and evaluate managerial decisions while considering cultural and ethical issues in a diverse and internationalized world.

[Course objectives]

After the course, students should be able to
- Understand and explain the main concepts, theories and approaches of management
- Evaluate and analyze concrete management phenomena, dilemmas and decisions
- Reason and apply the knowledge gained to a range of examples and situations

[Course schedule and contents)]

The course is taught via a 90-minute-lecture session per week, over a period of fifteen weeks. The following overview of the weekly content is subject to adjustments when needed.

Week 1 - Introduction
Week 2 - History, trend, globalization, and ethics
Week 3 - Personality, attitudes, and work behaviors
Week 4 - Developing mission, vision, and values & Goals and objectives
Week 5 - Strategic management
Week 6 - Organizational structure and change
Week 7 - Organizational culture
Week 8 - Leading people and organizations
Week 9 - Decision making
Week 10 - Communications in organizations
Week 11 - Managing groups and teams
Week 12 - Motivating employees
Week 13 - The essentials of control
Week 14 - Strategic HR system
Week 15 - Feedback session

Total：14 classes, 1 Feedback session

Continue to Introduction to Management-E2(2)↓↓↓

Introduction to Management-E2(2)

[Course requirements]

The lectures will be delivered in English. Students should have adequate language proficiency to actively participate in the class. Knowledge of management is not a requirement to enroll in this course.

[Evaluation methods and policy]

- 20% Class attendance and participation
Speak up and share your experience and thoughts

- 40% Short essay (1000 words)
Due: Week 8 An essay about your personal experience of management phenomena; defining questions and providing solutions

- 40% Long essay (2500 words)
Due: Week 15 An essay connecting concepts in our class with news reports of management phenomena (e.g. a company, an industry, an issue/problem, a scandal etc.); defining questions and providing solutions

Essay instructions:
You should describe the phenomenon, and define questions/puzzles from it and provide some thoughts, analysis and solutions. You need to use some concepts, tools, and frameworks we discussed so far in class to investigate such phenomenon. You should upload your essay into the "Drop box" folder on the left panel of the PandA course page.

[Textbooks]

Talya Bauer, Berrin Erdogan, and Jeremy Short. (2018). 『Principles of Management.』（Boston, MA: FlatWorld.）ISBN:978-1-4533-9210-2

（Related URL）

https://catalog.flatworldknowledge.com/catalog/editions/principles-of-management-4-0(Principles of Management (Version 4.0) By: Talya Bauer, Berrin Erdogan, and Jeremy Short)
https://open.umn.edu/opentextbooks/textbooks/34(Open Textbook Version (qualitatively the same as the above, but FREE!))

[Study outside of class (preparation and review)]

Students are expected to spend at least 90 minutes outside of class each week on class preparation, readings, and review.

[Other information (office hours, etc.)]

By appointment via email

Lecture code: H919002

Course number	U-LAS06 10011 LE44		
Course title (and course title in English)	Introduction to Management-E2 Introduction to Management-E2	Instructor's name, job title, and department of affiliation	Graduate School of Economics Associate Professor,WANG, Tao

Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course is designed to provide an introduction to the fundamental principles of managing business organizations. Students will be exposed to management concepts, models, contexts, and practices. They will learn to apply management theory and research evidence in analyzing critically and solving creatively real-life management problems. They will also learn to make and evaluate managerial decisions while considering cultural and ethical issues in a diverse and internationalized world.

[Course objectives]

After the course, students should be able to
- Understand and explain the main concepts, theories and approaches of management
- Evaluate and analyze concrete management phenomena, dilemmas and decisions
- Reason and apply the knowledge gained to a range of examples and situations

[Course schedule and contents)]

The course is taught via a 90-minute-lecture session per week, over a period of fifteen weeks. The following overview of the weekly content is subject to adjustments when needed.

Week 1 - Introduction
Week 2 - History, trend, globalization, and ethics
Week 3 - Personality, attitudes, and work behaviors
Week 4 - Developing mission, vision, and values & Goals and objectives
Week 5 - Strategic management
Week 6 - Organizational structure and change
Week 7 - Organizational culture
Week 8 - Leading people and organizations
Week 9 - Decision making
Week 10 - Communications in organizations
Week 11 - Managing groups and teams
Week 12 - Motivating employees
Week 13 - The essentials of control
Week 14 - Strategic HR system
Week 15 - Feedback session

Total：14 classes, 1 Feedback session

Continue to Introduction to Management-E2(2)↓↓↓

Introduction to Management-E2(2)

[Course requirements]

The lectures will be delivered in English. Students should have adequate language proficiency to actively participate in the class. Knowledge of management is not a requirement to enroll in this course.

[Evaluation methods and policy]

- 20% Class attendance and participation
Speak up and share your experience and thoughts

- 40% Short essay (1000 words)
Due: Week 8 An essay about your personal experience of management phenomena; defining questions and providing solutions

- 40% Long essay (2500 words)
Due: Week 15 An essay connecting concepts in our class with news reports of management phenomena (e.g. a company, an industry, an issue/problem, a scandal etc.); defining questions and providing solutions

Essay instructions:
You should describe the phenomenon, and define questions/puzzles from it and provide some thoughts, analysis and solutions. You need to use some concepts, tools, and frameworks we discussed so far in class to investigate such phenomenon. You should upload your essay into the "Drop box" folder on the left panel of the PandA course page.

[Textbooks]

Talya Bauer, Berrin Erdogan, and Jeremy Short. (2018). 『Principles of Management.』（Boston, MA: FlatWorld.）ISBN:978-1-4533-9210-2

（Related URL）

https://catalog.flatworldknowledge.com/catalog/editions/principles-of-management-4-0(Principles of Management (Version 4.0) By: Talya Bauer, Berrin Erdogan, and Jeremy Short)
https://open.umn.edu/opentextbooks/textbooks/34(Open Textbook Version (qualitatively the same as the above, but FREE!))

[Study outside of class (preparation and review)]

Students are expected to spend at least 90 minutes outside of class each week on class preparation, readings, and review.

[Other information (office hours, etc.)]

By appointment via email

Lecture code: H920001

Course number	U-LAS06 10012 LE44		
Course title (and course title in English)	Contemporary Management-E2 Contemporary Management-E2	Instructor's name, job title, and department of affiliation	Graduate School of Economics Associate Professor,WANG, Tao

Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Organizations are the basic building blocks of modern society. Market transactions and management activities are played out in and across organizations. To understand management phenomena, we must appreciate the power and scope of organizations. This course is a seminar-format introduction to the main theoretical orientations (assumptions, arguments and conclusions) of macro-organization studies. It will get students to think analytically and critically about organizations. The course centers on three questions: first, what are organizations, where do they come from and how are they organized? Second, what are environments of organizations and how do organizations interact with them? Third, what accounts for organizational success and failure, and what are the implications for management?

[Course objectives]

By the end of this course, students will be able to
- Understand different and competing perspectives of organizations
- Diagnose analytically and critically problems of organizations
- Provide constructive recommendations for improving organizational performance

[Course schedule and contents)]

The course is taught via a 90-minute-lecture/seminar session per week, over a period of fifteen weeks. The following overview is subject to adjustments when needed.

Week 01 - What is an organization & why study OT?
Week 02 - A brief history of organization theory
Week 03-04 - Organization-environment relations
Week 05-06 - Organizational social structure
Week 07-08 - Technology
Week 09-10 - Organizational culture
Week 11-12 - The physical structure of organizations
Week 13-14 - Organizational power, control and conflict
Week 15 - Feedback session

Total：14 classes, 1 Feedback session

[Course requirements]

The seminars will be delivered in English. Students should have adequate language proficiency to actively

Continue to Contemporary Management-E2(2)↓↓↓

participate in the class. Knowledge of management is not a requirement to enroll in this course.

[Evaluation methods and policy]

- 20% Class attendance and participation
Speak up and share your experience and thoughts

- 40% Group Case presentation
Session 4, 6, 8, 10, 12, and 14 Your choice of ”What is in the news” Connect with theoretical arguments of corresponding sessions

- 40% Individual Final essay (2500 words)
Due: Week 15 An essay connecting concepts in our class with an organization of your own choice

[Textbooks]

Hatch, M. J. (2018). 『Organization theory: Modern, symbolic, and postmodern perspectives.』（Oxford university press.）ISBN:9780198723981

[References, etc.]

（Reference book）

Aldrich, H. (1999). 『Organizations evolving.』（Sage.）ISBN:9781412910477
Baum, J. A. (Ed.). (2002). 『The Blackwell companion to organizations.』（Oxford: Blackwell.）ISBN: 9780631216940
Clegg, S. R., Hardy, C., Lawrence, T., & Nord, W. R. (Ed.). (2006). 『The Sage Handbook of Organization Studies (2nd edition).』（Sage.）ISBN:9781446270462
Davis, G. F., & Scott, W. R. (2007). 『Organizations and organizing: Rational, natural, and open system perspectives.』（Prentice Hall.）ISBN:9780131958937
Hatch, M. J. (2011). 『Organizations: a very short introduction. 』（Oxford University Press.）ISBN: 9780199584536
Lune, H. (2010). 『Understanding organizations.』（Polity.）ISBN:9780745644271

[Study outside of class (preparation and review)]

Students are expected to spend at least 120 minutes outside of class each week on class preparation, readings, and review.

[Other information (office hours, etc.)]

By appointment via email

Lecture code: H920002

Course number	U-LAS06 10012 LE44				
Course title (and course title in English)	Contemporary Management-E2 Contemporary Management-E2	Instructor's name, job title, and department of affiliation	Graduate School of Economics Associate Professor,WANG, Tao		
Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Organizations are the basic building blocks of modern society. Market transactions and management activities are played out in and across organizations. To understand management phenomena, we must appreciate the power and scope of organizations. This course is a seminar-format introduction to the main theoretical orientations (assumptions, arguments and conclusions) of macro-organization studies. It will get students to think analytically and critically about organizations. The course centers on three questions: first, what are organizations, where do they come from and how are they organized? Second, what are environments of organizations and how do organizations interact with them? Third, what accounts for organizational success and failure, and what are the implications for management?

[Course objectives]

By the end of this course, students will be able to
- Understand different and competing perspectives of organizations
- Diagnose analytically and critically problems of organizations
- Provide constructive recommendations for improving organizational performance

[Course schedule and contents)]

The course is taught via a 90-minute-lecture/seminar session per week, over a period of fifteen weeks. The following overview is subject to adjustments when needed.

Week 01 - What is an organization & why study OT?
Week 02 - A brief history of organization theory
Week 03-04 - Organization-environment relations
Week 05-06 - Organizational social structure
Week 07-08 - Technology
Week 09-10 - Organizational culture
Week 11-12 - The physical structure of organizations
Week 13-14 - Organizational power, control and conflict
Week 15 - Feedback session

Total：14 classes, 1 Feedback session

[Course requirements]

The seminars will be delivered in English. Students should have adequate language proficiency to actively

Continue to Contemporary Management-E2(2)↓↓↓

Contemporary Management-E2(2)

participate in the class. Knowledge of management is not a requirement to enroll in this course.

[Evaluation methods and policy]

- 20% Class attendance and participation
Speak up and share your experience and thoughts

- 40% Group Case presentation
Session 4, 6, 8, 10, 12, and 14 Your choice of ”What is in the news” Connect with theoretical arguments of corresponding sessions

- 40% Individual Final essay (2500 words)
Due: Week 15 An essay connecting concepts in our class with an organization of your own choice

[Textbooks]

Hatch, M. J. (2018).『Organization theory: Modern, symbolic, and postmodern perspectives.』（Oxford university press.）ISBN:9780198723981

[References, etc.]

（**Reference book**）

Aldrich, H. (1999).『Organizations evolving.』（Sage.）ISBN:9781412910477
Baum, J. A. (Ed.). (2002).『The Blackwell companion to organizations.』（Oxford: Blackwell.）ISBN: 9780631216940
Clegg, S. R., Hardy, C., Lawrence, T., & Nord, W. R. (Ed.). (2006).『The Sage Handbook of Organization Studies (2nd edition).』（Sage.）ISBN:9781446270462
Davis, G. F., & Scott, W. R. (2007).『Organizations and organizing: Rational, natural, and open system perspectives.』（Prentice Hall.）ISBN:9780131958937
Hatch, M. J. (2011).『Organizations: a very short introduction.』（Oxford University Press.）ISBN: 9780199584536
Lune, H. (2010).『Understanding organizations.』（Polity.）ISBN:9780745644271

[Study outside of class (preparation and review)]

Students are expected to spend at least 120 minutes outside of class each week on class preparation, readings, and review.

[Other information (office hours, etc.)]

By appointment via email

Lecture code: H946001

Course number	U-LAS06 10019 LE43		
Course title (and course title in English)	Introduction to Game Theory-E2 Introduction to Game Theory-E2	Instructor's name, job title, and department of affiliation	Graduate School of Economics Program-Specific Senior Lecturer,ZHOU YU

Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.3	Target year	Mainly 1st year students	Eligible students	For all majors

[Overview and purpose of the course]

Game theory studies the strategic interactions among players. It provides new tools and insights in understanding and explaining socioeconomic phenomenon. Game theory has also been widely applied to other subjects such as law, political economy, sociology, life science, and engineering. This course introduces basic concepts, analytical tools, and modelling techniques in the applied game theory. In particular, it covers the socioeconomic applications such as pricing behaviors of firms, voting procedures, public resource management, evolution of species, and school choice.

[Course objectives]

・Learning the underlying principles of applied game theory
・Acquiring the skills to analyze problems of students' own interests

[Course schedule and contents)]

The lectures will be organized as follows.

1. Introduction to strategic reasoning
2. Introduction to strategic modelling
3. Nash equilibrium in the discrete game
4. Student presentation
5. Nash equilibrium in the continuous game
6. Student presentation
7. Sequential game with perfect information
8. Student presentation
9. Sequential game with imperfect information
10. Student presentation
11. Games with private information
12. Student presentation
12. Evolutionary game and biology
13. Student presentation
14. Review lecture

Total: 14 classes and 1 feedback

Continue to Introduction to Game Theory-E2(2)↓↓↓

Introduction to Game Theory-E2(2)

[Course requirements]

Basic calculus

[Evaluation methods and policy]

Class participation (30%)
Final report (70%)

[Textbooks]

Harrington, Joseph 『Games, strategies and decision making (Second Edition)』 (Worth Publishers, 2014) (ISBN-10:1429239964)

[References, etc.]

(**Reference book**)
Maschler, Michael, Eilon Solan, Shmuel Zamir 『Game theory』 (Cambridge University Press, 2013) (ISBN-10:1107005485)

[Study outside of class (preparation and review)]

Students need to review the slides carefully

[Other information (office hours, etc.)]

Office hour by appointment

Lecture code: H946002

Course number	U-LAS06 10019 LE43				
Course title (and course title in English)	Introduction to Game Theory-E2 Introduction to Game Theory-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Economics Program-Specific Senior Lecturer,ZHOU YU		
Group	Humanities and Social Sciences	**Field(Classification)**	Jurisprudence, Politics and Economics(Foundations)		
Language of instruction	English	**Old group**	Group A	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Fri.4	**Target year**	Mainly 1st year students	**Eligible students**	For all majors

[Overview and purpose of the course]

Game theory studies the strategic interactions among players. It provides new tools and insights in understanding and explaining socioeconomic phenomenon. Game theory has also been widely applied to other subjects such as law, political economy, sociology, life science, and engineering. This course introduces basic concepts, analytical tools, and modelling techniques in the applied game theory. In particular, it covers the socioeconomic applications such as pricing behaviors of firms, voting procedures, public resource management, evolution of species, and school choice.

[Course objectives]

・Learning the underlying principles of applied game theory
・Acquiring the skills to analyze problems of students' own interests

[Course schedule and contents)]

The lectures will be organized as follows.

1. Introduction to strategic reasoning
2. Introduction to strategic modelling
3. Nash equilibrium in the discrete game
4. Student presentation
5. Nash equilibrium in the continuous game
6. Student presentation
7. Sequential game with perfect information
8. Student presentation
9. Sequential game with imperfect information
10. Student presentation
11. Games with private information
12. Student presentation
12. Evolutionary game and biology
13. Student presentation
14. Review lecture

Total: 14 classes and 1 feedback

Continue to Introduction to Game Theory-E2(2)↓↓↓

Introduction to Game Theory-E2(2)

[Course requirements]

Basic calculus

[Evaluation methods and policy]

Class participation (30%)
Final report (70%)

[Textbooks]

Harrington, Joseph 『Games, strategies and decision making (Second Edition)』 (Worth Publishers, 2014) (ISBN-10:1429239964)

[References, etc.]

(**Reference book**)
Maschler, Michael, Eilon Solan, Shmuel Zamir 『Game theory. Cambridge University Press, 2013』 (Cambridge University Press, 2013) (ISBN-10:1107005485)

[Study outside of class (preparation and review)]

Students need to review the slides carefully

[Other information (office hours, etc.)]

Office hour by appointment

Lecture code: H947001

Course number	U-LAS06 10020 LE43						
Course title (and course title in English)	Applied Game Theory-E2 Applied Game Theory-E2			Instructor's name, job title, and department of affiliation	Graduate School of Economics Program-Specific Senior Lecturer,ZHOU YU		
Group	Humanities and Social Sciences			Field(Classification)	Jurisprudence, Politics and Economics(Foundations)		
Language of instruction	English	Old group	Group A	Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester		
Days and periods	Fri.4	Target year	Mainly 1st year students	Eligible students	For all majors		

[Overview and purpose of the course]

This course is to help students understand basic solution concepts, acquire the basic analytical tools in the applied game theory, and understand stylized applications of applied game theory. It may also get across with some knowledge of mechanism design and market design. This course covers a number of important applications in both game theory and market design such as signaling game, cheaper talk game, repeated game, marriage market matching, and auction.

[Course objectives]

・Understand the key concepts and models in the applied game theory
・Mastering the ability to use game theoretical models to analyze practical issues

[Course schedule and contents)]

The lectures will be organized as follows.

1. Introduction to game theory I: strategic reasoning
2. Introduction to game theory II: building a strategic model
3. Nash equilibrium I
4. Nash equilibrium II and student presentation
5. Nash equilibrium III and student presentation
6. Sequential game with perfect information I
7. Sequential game with perfect information II and student presentation
8. Sequential game with perfect information III and student presentation
9. Sequential game with imperfect information I
10. Sequential game with imperfect information II and student presentation
11. Sequential game with imperfect information III and student presentation
12. Game with private information I
13. Game with private information II and student presentation
14. Game with private information III and student presentation

Total: 14 classes and 1 feedback

Continue to Applied Game Theory-E2(2)↓↓↓

Applied Game Theory-E2(2)

[Course requirements]

Basic calculus

[Evaluation methods and policy]

Class participation (30%)
Final report (70%)

[Textbooks]

Harrington, Joseph 『Games, strategies and decision making (Second Edition)』 （Worth Publishers, 2014）（ISBN-10:1429239964）

[References, etc.]

（**Reference book**）
Peters, Hans 『Game theory: A Multi-leveled approach』 （Springer, 2015）ISBN:978-3-662-51877-9

[Study outside of class (preparation and review)]

Students will be assigned three problem sets as the homework

[Other information (office hours, etc.)]

Office hour by appointment

Lecture code: H947002

Course number	U-LAS06 10020 LE43		
Course title (and course title in English)	Applied Game Theory-E2 Applied Game Theory-E2	Instructor's name, job title, and department of affiliation	Graduate School of Economics Program-Specific Senior Lecturer,ZHOU YU

Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Foundations)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Fri.3	Target year	Mainly 1st year students	Eligible students	For all majors

[Overview and purpose of the course]

This course is to help students understand basic solution concepts, acquire the basic analytical tools in the applied game theory, and understand stylized applications of applied game theory. It may also get across with some knowledge of mechanism design and market design. This course covers a number of important applications in both game theory and market design such as signaling game, cheaper talk game, repeated game, marriage market matching, and auction.

[Course objectives]

・Understand the key concepts and models in the applied game theory
・Mastering the ability to use game theoretical models to analyze practical issues

[Course schedule and contents)]

The lectures will be organized as follows.

1. Introduction to game theory I: strategic reasoning
2. Introduction to game theory II: building a strategic model
3. Nash equilibrium I
4. Nash equilibrium II and student presentation
5. Nash equilibrium III and student presentation
6. Sequential game with perfect information I
7. Sequential game with perfect information II and student presentation
8. Sequential game with perfect information III and student presentation
9. Sequential game with imperfect information I
10. Sequential game with imperfect information II and student presentation
11. Sequential game with imperfect information III and student presentation
12. Game with private information I
13. Game with private information II and student presentation
14. Game with private information III and student presentation

Total: 14 classes and 1 feedback

Continue to Applied Game Theory-E2(2)↓↓↓

Applied Game Theory-E2(2)

[Course requirements]

Basic calculus

[Evaluation methods and policy]

Class participation (30%)
Final report (70%)

[Textbooks]

Harrington, Joseph 『Games, strategies and decision making (Second Edition)』 （Worth Publishers, 2014）（ISBN-10:1429239964）

[References, etc.]

（**Reference book**）
Peters, Hans 『Game theory: A Multi-leveled approach』 （Springer, 2015）ISBN:978-3-662-51877-9

[Study outside of class (preparation and review)]

Students will be assigned three problem sets as the homework

[Other information (office hours, etc.)]

Office hour by appointment

Lecture code: H928001

Course number	U-LAS06 20022 LE42				
Course title (and course title in English)	Japan’ s Political Economy-E2 Japan’ s Political Economy-E2	Instructor's name, job title, and department of affiliation	Graduate School of Law Professor,HIJINO KEN		
Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Issues)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This class presents an overview of Japan's post-war modern history and investigates select issues in its political economy. The class is organized into two parts: 1) an analysis of the politics, economics, and society in Japan's post-war history (1945-2020) and 2) an exploration of Japan's industrial relations, gender equality, demographic changes and inter-generational conflicts, centre-local relations, environmental issues et al. as analyzed through the interactions of political forces/institutions and market forces/economic institutions

[Course objectives]

The goal of this course is for students to begin to contemplate the interactions between politics, economics, society, and global contexts of a nation over time, i.e. historically. Another goal is for students to improve their English reading and writing skills through studying in English a subject that they may be familiar with in the Japanese language.

[Course schedule and contents)]

1. Introduction: What is modern history? What is political economy? Why study Japan?

Part one: Japan's post-war history 1990 to 2020

2. Occupation-era Japan: democratization and demilitarization, the "reverse course" and the Yoshida doctrine (1947-51)
3. Post-war economic miracle: economic and social transformations (1952-73)
4. Political struggles and accommodation in the High-growth era (1952-73)
5. End of the High-growth era: Nixon shocks and Oil shocks (1971-1980)
6. Japan in the 1980s: conservative heyday and Bubble economy (1980-1990)
7. Japan's lost decades: economic stagnation and social insecurity (1990-2020)
8. Japan's lost decades: institutional reform and political transition (1990-2020)

Part two: Special topics in Japan's post-war political economy (1945-2020)

9. Industrial relations, employment structures, inequalities, and precarity
10. Gender equality issues
11. Inter-generational conflict and "silver democracy"
12. Centre-local relations and rural deopulation
13. Sustainability and environmental issues

Continue to Japan’ s Political Economy-E2(2)↓↓↓

Japan’ s Political Economy-E2(2)

14. Exam preparation

Total:14 classes and 1 feedback

[Course requirements]

This course does not require any prior knowledge on Japan's post-war history or political economy. Students will be expected to read about 20-30 pages of rigorous and academic, though not technical, English. Students will also be expected to write their assignments in English (although this may change according to the class level).

[Evaluation methods and policy]

Students will be evaluated on short quizzes = 30 % and a final exam OR term paper (depending on student numbers) = 70 % for their grade.

[Textbooks]

Andrew Gordon 『A Modern History of Japan: from Tokugawa Times to the Present (Third Edition)』（Oxford University Press）ISBN:978-0199930159（other readings will be assigned accordingly）

[Study outside of class (preparation and review)]

Students will be expected to spend at least 2-3 hours reading and preparing for each class.

[Other information (office hours, etc.)]

I will not have fixed office hours, but students may contact me by email for appointments or questions about the course.

Lecture code: H948001

Course number	U-LAS06 20040 LE42		
Course title (and course title in English)	Democracy in Crisis-E2 :Government of, by, and for whom? Democracy in Crisis-E2 :Government of, by, and for whom?	Instructor's name, job title, and department of affiliation	Graduate School of Law Professor,HIJINO KEN
Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

Course goal: To learn to read critically and learn about democracy from quality articles/book reviews/ journalism (Foreign Affairs, Economist, London Review of Books, New York Review of Books, etc.)

We consider the following questions about democracy

1. What is democracy? How is it under threat?
2. How does free-market capitalism/ globalization/ class, race, and territorial divisions affect the health and viability of democratic processes? Is there an alternative to democracy?
3. How might democracy end? Can it stop/survive climate change and other planetary catastrophes?

[Course objectives]

1. Critical reading: understanding what is said, how it is said, but also judging if arguments are logical and/or supported by adequate evidence, and comparing author's claims with others
2. Identifying arguments and evidence
3. Summarizing and presenting what you have learned to others
4. Connecting and comparing ideas (from other readings)
5. Improving English reading, writing and speaking abilities

[Course schedule and contents)]

Week 1: Is Democracy Dying?
Our House is on Fire (Thunberg)
Democracy is the Answer to Climate Change (Looney)

Week 2: Defining Democracy
Democratic Political Regimes (textbook)

Week 3: Measuring Democracy
Democracy Index 2017 (Economist)
What's Gone Wrong with Democracy (Economist)

Week 4: Global attitudes to Democracy
Globally, Broad Support for Representative and Direct Democracy

Continue to Democracy in Crisis-E2 :Government of, by, and for whom?(2)↓↓↓

Week 5: Modernization and Democracy
How Development Leads to Democracy (Inglehart and Wetzel)
Inequality and Modernization (Inglehart)

Week 6: Globalization, Capitalism, and Democracy
Capitalism and Inequality (Muller)
Why Nations Fail: Democracy and Inequality (Acemoglu and Robinson)

Week 7: Populists
Europe's Populist Surge (Mudde)
Trump and American Populism (Kazin)
Populists in Japan? (Hijino)

Week 8: Economic Divides
Why we are living in a New Gilded Age (Krugman)
Inside the Sacrifice Zone (Rich)

Week 9: Ethnic/Racial Divides
The New Language of European Populism (Brubaker)
Against Identity Politics (Fukuyama)

Week 10: Territorial Divides
Low Visibilty (McAuley)
Among the Gillet Jaunes (Harding)

Week 11: Generational Divides
Europe's Generational Gap (Mudde)
Japan's Silver Democracy (Harney)
Various articles from Guardian on Generational Inequality

Week 12: Climate change
Exceptional Circumstances (Stehr)
It's absolutely time to panic about Climate Change (Vox)

Week 13: Autocracies as alternatives
Are the Authoritarians Winning? (Ignatief)
Democracy is Not Dying (Carothers and Youngs)
Autocracy with Chinese Characteristics

Week 14: How Democracy Ends
The Future of Tomorrow (Fukuyama)
Runciman speech

Total:14 classes and 1 feedback

Continue to Democracy in Crisis-E2 :Government of, by, and for whom?(3)↓↓↓

Democracy in Crisis-E2 :Government of, by, and for whom?(3)

[Course requirements]

None

[Evaluation methods and policy]

- Students will be evaluated on their participation in class discussion (20 per cent), reading summaries and class presentations (40 per cent), and a final term paper (40 per cent) = minimum 2,500 words in English

[Textbooks]

Not used

[Study outside of class (preparation and review)]

1. Read various articles on democracy and its challenges: 20 pages per week
2. Each student prepares a one-page synopsis (5 main arguments and 3 questions from the reading); submit in class in printed form; use for class discussion
3. Reading report must include summary of the main arguments and supporting evidence; how this section connects to earlier sections of the book; evaluation of the author's evidence, logic, and language; questions or challenges to the author
4. Reading time = 2-3 hours, preparing summary 30 minutes; expect total of 3 hours of extra-class preparation every week; 2000 word essay for the whole term should result in another ten hours of work for the whole term

[Other information (office hours, etc.)]

I will not have fixed office hours, but students may contact me by email for appointments or questions about the course.

Lecture code: H929001

Course number	U-LAS06 20023 LE42		
Course title (and course title in English)	Japanese Politics-E2 Japanese Politics-E2	Instructor's name, job title, and department of affiliation	Graduate School of Law Professor,HIJINO KEN

Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.2	Target year	2nd year students or above	Eligible students	For all majors

（Students of Faculty of Law cannot take this course as liberal arts and general education course. Please register the course with your department.）

[Overview and purpose of the course]

This is an introductory course on Japanese politics which considers the nature of Japan's political institutions from a comparative perspective. The course will analyze how variation in key political institutions (such as the electoral system) affects political outcomes in Japan and other democracies. The course is organized into three parts: 1) a brief survey of Japanese political history from the Meiji era to the present 2) a description and comparison of Japan's key political institutions 3) investigation into a number of political themes in post-war Japan.

Along the way, students are introduced to basic social science methodologies of comparison to generate causal inferences as well as some basic analytical models used in comparative politics (such as the principal-agent and veto player model).

[Course objectives]

The goal of this course is for students to begin to contemplate how the preferences of voters, politicians, parties and interest groups are constrained and channeled by political institutions. Another goal is for students to improve their English reading and writing skills through studying in English a subject that they may be familiar with in the Japanese language.

[Course schedule and contents)]

1.Introduction: What is politics? What are political institutions? Why compare?

Part one: An overview of Japan's political history

2. Why study Japan: cultural vs insitutional explanations
3. Political history: Meiji and post-war constitutions
4. Ideology and cleavages in Japan’s post-war political history

Part two: Japan's political institutions in comparative perspective

5. Electoral systems 1: comparative overview
6. Electoral systems 2: From SNTV to MMM in Japan
7. Party systems and organizations 1: comparative overview
8. Party systems and organizations 2: Japanese parties and organizations

Continue to Japanese Politics-E2(2)↓↓↓

Japanese Politics-E2(2)

9. Executives and bureaucracy 1: comparative overview
10. Executives and bureaucracy 2: Japanese executive and bureaucracy
11. Local government 1: comparative overview
12. Local government 2: Japanese local government and decentralization

Part three: Themes in Japanese politics

13. Explaining the lack of populism in Japan: society, economy, or institutions?
14. New cleavages in Japan: class, inter-generational, multi-cultural divides?

Total:14 classes and 1 feedback

[Course requirements]

Previous knowledge in Japanese politics, social sciences or political science will not be required for this class. Students will be expected to read about 20-30 pages of rigorous and academic, though not technical, English. Students will also be expected to write their assignments in English (although this may change according to the class level).

[Evaluation methods and policy]

Students will be evaluated on pop quizzes = 30% and a final examination = 70% for their grade.

[Textbooks]

Rosenbluth and Thies 『Japan Transformed: Political Change and Economic Restructuring』

[References, etc.]

（**Reference book**）
Clark, Golder and Golder 『Principles of Comparative Politics, 2nd edition』（Sage CQ Press）ISBN:978-1608716791

[Study outside of class (preparation and review)]

Students will be expected to read and prepare for at least 2-3 hours per class each week.

[Other information (office hours, etc.)]

I will not have fixed office hours, but students may contact me by email for appointments or questions about the course.

Lecture code: H952001

Course number	U-LAS06 20045 LE42		
Course title (and course title in English)	Local Government in Comparative Perspective-E2 Local Government in Comparative Perspective-E2	Instructor's name, job title, and department of affiliation	Graduate School of Law Professor,HIJINO KEN
Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course introduces students to the universe of local government and local democracy. It asks students to think about why modern local governments exist at all, their designs and consequences, and potential in terms of contributing to challenges such as climate change, inequality, and globalization. We investigate these themes by looking primarily at the Japanese local government system but also in comparison to other local government systems elsewhere.

[Course objectives]

After taking this course, students should be able to explain the basic features of the origin and evolution of modern local government systems (both in federal and unitary systems), their institutional designs and consequences, and how their “performance” can be compared. Such knowledge should be grounded in empirical cases and examples including, but not limited to, Japan.

[Course schedule and contents)]

1. Introduction and overview: modern states and local government
2. The historical origins of modern local government
3. Institutional designs: constitutional frameworks
4. Institutional designs: local government powers
5. Institutional design: local government finance
6. Institutional designs: local government electoral systems
7. Institutional designs: local government executive systems
8. Institutional designs: local government bureaucracy
9. Institutional designs: multilevel party politics
10. Discussion and presentations
11. Discussion and presentations
12. Discussion and presentations
13. Discussion and presentations
14. Discussion and presentations

Total:14 classes and 1 feedback

[Course requirements]

Students do not need to have any background in social sciences or political science, though this would be

Continue to Local Government in Comparative Perspective-E2(2)↓↓↓

helpful. Students should be able to read 30 or so pages of English texts weekly (supplemented by Japanese material for Japanese students), engage in discussion during class, and complete a final term paper with referencing of a minimum 2,500 words.

[Evaluation methods and policy]

Biweekly class assignments (reading summaries and presentations): 50 per cent
Final term paper and/or examination: 50 per cent

[Textbooks]

Instructed during class
There will be no textbook, but suitable articles and readings (around 30 pages per week in English with supplementary readings in Japanese) which will be assigned from handbooks and articles, each week.

[References, etc.]

（Reference book）

Hijino, K. V. L. (2017). Local politics and national policy: Multi-level conflicts in Japan and beyond.
曽我謙吾　(2019) 日本の地方政府
ヒジノ、ケン　（2015）日本のローカルデモクラシー

[Study outside of class (preparation and review)]

The student would be expected to spend some 2 hours a week reading and 1-2 hours preparing assignments for this class.

[Other information (office hours, etc.)]

tbd

Lecture code: H943001

Course number	U-LAS06 20036 LE38		
Course title (and course title in English)	International History 1900 to the Present-E2 International History 1900 to the Present-E2	Instructor's name, job title, and department of affiliation	Graduate School of Law Associate Professor,MURPHY, Mahon
Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.4	Target year	2nd year students or above	Eligible students	For all majors

(Students of Faculty of Law cannot take this course as liberal arts and general education course. Please register the course with your department.)

[Overview and purpose of the course]

This course uses the First World War to discuss the international history of the twentieth century. The First World War marked a turning point shaping the course of twentieth century history. Often referred to as European war, this course will in fact highlight the global reach of the conflict. The main purpose of this course is to help us to understand how the First World War impacted the development of international history during the twentieth century even up to the present day. Taking 4 main themes: war, imperialism, revolution, and international cooperation, it discusses the changes in the international order effected by the First World War and new methods of international cooperation.

[Course objectives]

This course has 3 main objectives
1. To understand how the First World War shaped the history of the twentieth century.
2. To understand how events in the twentieth century impact us today.
3. To read and analyze primary source documents and academic articles written in English.

[Course schedule and contents)]

The course timetable will develop as follows:

1. Introduction: The World Before the First World War

War
2. The Outbreak of War in 1914
3. Fighting a Total War
4. The War in East Asia
Revolution
5. Women and the War
6. The Russian Revolution
7. Making Peace
Imperialism
8. The Global First World War
9. New Nations and the Collapse of Empires
10. The Impact of the War on China
International cooperation

Continue to International History 1900 to the Present-E2(2)↓↓↓

International History 1900 to the Present-E2(2)

11. Pandemic: the Spanish Flu
12. Post-war, Violence and Reconstruction
13. Culture and War

14. Review: Memory and War
15. Exam
16. Feedback

[Course requirements]

None

[Evaluation methods and policy]

Evaluation is based on the following:

Active participation in class 20%
Assignments 40%
End of Term exam 40%

- Those who are absent from four classes or more will not pass.

[Textbooks]

Students will be given primary source material and academic texts to prepare for each class.

[Study outside of class (preparation and review)]

Students will read and answer questions on an academic article and a primary source document each week to prepare for in class discussion.

[Other information (office hours, etc.)]

Lecture code: H944001

Course number	U-LAS06 20037 LE38				
Course title (and course title in English)	An International History of East Asia 1839-1945-E2 An International History of East Asia 1839-1945-E2	Instructor's name, job title, and department of affiliation	Graduate School of Law Associate Professor,MURPHY, Mahon		
Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Issues)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.4	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

The purpose of this course is to introduce students to an international history of East Asia in the period from the Opium War to the end of the Second World War, focusing on China, Japan and Korea. It begins by looking at the impact of the arrival of Western imperialism in the mid-nineteenth century and the response to this in East Asia. It discusses the the difficulties provoked by modernization and nationalism in the first-half of the twentieth century, taking in the outbreak of two world wars, the rise of communism, fascism and liberal internationalism. The course will focus throughout on the global transfer of ideas that helped to shape East Asia, such as Japan's participation in the League of Nations or the Guomindang's relationship with international communism.

[Course objectives]

This course has 3 main objectives:
1. Gain a basic background in the history of modern East Asia.
2. Understand how East Asia interacted with nineteenth century ideologies such as Nationalism, Imperialism and Communism.
3. Read and analyze primary source documents and academic articles written in English.

[Course schedule and contents)]

The Class will develop as follows:

1. Introduction

Imperialism in East Asia
2. The First Opium War and Unequal Treaties
3. The Meiji Restoration/Revolution/Reformation?
4. Chinese Self-Strengthening and the Boxer Rebellion
5. Korea and Japanese Imperialism, 1868-1910

Discourse on East Asia
6. 'The Yellow Peril' in Public Discourse
7. Pan-Asianism after the Russo-Japanese War

War and Revolution
8. From the 1911 Revolution to the First World War

Continue to An International History of East Asia 1839-1945-E2(2)↓↓↓

9. The Guomindang and the Chinese Communist Party
10.The League of Nations and East Asia

Empire and War
11. The Path to Global War: Japan and the Tripartite Pact
12. The Greater East Asia Co-Prosperity Sphere
13. End of Empire in East Asia

14. Review
15. Exam
16. Feedback class

[Course requirements]

None

[Evaluation methods and policy]

Evaluation is based on the following:

Active participation in class 20%
Assignments 40%
End of Term Paper 40%

- Those who are absent from four classes or more will not pass.

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Each week students will read and answer questions on an academic article and a primary source document to prepare for in class discussion.

[Other information (office hours, etc.)]

Lecture code: H949001

Course number	U-LAS06 20041 LE41		
Course title (and course title in English)	Theories of Justice and Human Rights-E2 Theories of Justice and Human Rights-E2	Instructor's name, job title, and department of affiliation	Graduate School of Law Program-Specific Associate Professor,ALVAREZ ORTEGA, Miguel

Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Issues)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.5	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

The problem of what constitutes a fair and just society has been a recurring topic not only for philosophers and lawyers but for human beings in general throughout history. The first half of this course introduces the main theories of justice developed both within and without the Western milieu taking a historical and a multicultural angle. The second half of this course deals with Human Rights both as a model of justice and as an international standard. The philosophical foundations of the notion of human rights, as well as its criticism, will be addressed from the perspective of contemporary thinkers from different schools by also considering the problem of the universalism-relativism dilemma. Moreover, issues concerning the efficacy of the instrument, both from an international and a constitutional point of view, will also be addressed to provide a comprehensive frame (philosophical, legal and political) for the students.

[Course objectives]

- to enable students to develop a critical approach to Justice and Human Rights.
- to provide students with instruments to critically assess compliance with international standards of Justice and Human Rights.

[Course schedule and contents)]

1. Introduction
2. Justice: a historical & terminological problem
3. Justice: classical approaches I
4. Justice: classical approaches II
5. Justice: contemporary approaches I
6. Justice: contemporary approaches II
7. Human Rights: a conceptual introduction
8. Human Rights: philosophical foundations I
9. Human Rights: philosophical foundations II
10. Human Rights in Muslim thought
11. Human Rights in Buddhist thought
12. Human Rights in Hindu thought
13. Human Rights in Confucianism
14. Human Rights: latest developments
15. Human Rights: efficacy and indicators.

The order of the lessons and the implementation of the syllabus may change according to the actual

Continue to Theories of Justice and Human Rights-E2(2)↓↓↓

development of the classes.

[Course requirements]

Proficiency in the English language is required.
Some philosophical background is desirable.

[Evaluation methods and policy]

Students are expected to read and prepare materials for discussions every week, as well as to make presentations before the class.

They will submit reports on the texts covered or a final essay, which will constitute 70% of the final grade.

Active participation and engagement in the sessions will constitute 30% of the final grade.

[Textbooks]

No single specific textbook will be followed. Specific papers and materials will be distributed each week.

[References, etc.]

（**Reference book**）
Rhona K.M. Smith 『Textbook on International Human Rights』 ISBN:978-0198746218
Students in need of a reference book may resort to the one here included.

[Study outside of class (preparation and review)]

Students are required to prepare texts for discussion on a weekly basis and be ready to present and discuss such material in class. They are also expected to critically reflect upon the addressed and discussed issues after class.

[Other information (office hours, etc.)]

Students may ask for an appointment and/or address their questions via e-mail.

Lecture code: H949002

Course number	U-LAS06 20041 LE41				
Course title (and course title in English)	Theories of Justice and Human Rights-E2 Theories of Justice and Human Rights-E2	Instructor's name, job title, and department of affiliation	Graduate School of Law Program-Specific Associate Professor,ALVAREZ ORTEGA, Miguel		
Group	Humanities and Social Sciences	Field(Classification)	Jurisprudence, Politics and Economics(Issues)		
Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.5	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

The problem of what constitutes a fair and just society has been a recurring topic not only for philosophers and lawyers but for human beings in general throughout history. The first half of this course introduces the main theories of justice developed both within and without the Western milieu taking a historical and a multicultural angle. The second half of this course deals with Human Rights both as a model of justice and as an international standard. The philosophical foundations of the notion of human rights, as well as its criticism, will be addressed from the perspective of contemporary thinkers from different schools by also considering the problem of the universalism-relativism dilemma. Moreover, issues concerning the efficacy of the instrument, both from an international and a constitutional point of view, will also be addressed to provide a comprehensive frame (philosophical, legal and political) for the students.

[Course objectives]

- to enable students to develop a critical approach to Justice and Human Rights.
- to provide students with instruments to critically assess compliance with international standards of Justice and Human Rights.

[Course schedule and contents)]

1. Introduction
2. Justice: a historical & terminological problem
3. Justice: classical approaches I
4. Justice: classical approaches II
5. Justice: contemporary approaches I
6. Justice: contemporary approaches II
7. Human Rights: a conceptual introduction
8. Human Rights: philosophical foundations I
9. Human Rights: philosophical foundations II
10. Human Rights in Muslim thought
11. Human Rights in Buddhist thought
12. Human Rights in Hindu thought
13. Human Rights in Confucianism
14. Human Rights: latest developments
15. Human Rights: efficacy and indicators.

The order of the lessons and the implementation of the syllabus may change according to the actual

Continue to Theories of Justice and Human Rights-E2(2)↓↓↓

development of the classes.

[Course requirements]

Proficiency in the English language is required.
Some philosophical background is desirable.

[Evaluation methods and policy]

Students are expected to read and prepare materials for discussions every week, as well as to make presentations before the class.

They will submit reports on the texts covered or a final essay, which will constitute 70% of the final grade.

Active participation and engagement in the sessions will constitute 30% of the final grade.

[Textbooks]

Not used
No single specific textbook will be followed. Specific papers and material will be distributed each week.

[References, etc.]

（**Reference book**）
Rhona K.M. Smith 『Textbook on International Human Rights』 ISBN:978-0198746218
Students in need of a reference book may resort to the one here included.

[Study outside of class (preparation and review)]

Students are required to prepare texts for discussion on a weekly basis and be ready to present and discuss such material in class. They are also expected to critically reflect upon the addressed and discussed issues after class.

[Other information (office hours, etc.)]

Students may ask for an appointment and/or address their questions via e-mail.

Lecture code: N157001

Course number	U-LAS10 10002 LE55				
Course title (and course title in English)	Calculus with Exercises A Calculus with Exercises A	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,Karel SVADLENKA		
Group	Natural Sciences	Field(Classification)	Mathematics(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	3
Number of weekly time blocks	2	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.2・Wed.2	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

Calculus and linear algebra form the essential mathematical background necessary for understanding and developing modern science and technology. In this lecture, basics of calculus required for further pursuing of studies majored in science are explained.

Calculus with Exercises A strengthens the theoretical base of high school knowledge of differentiation and integration for real functions of one variable, and provides instructions on other more advanced methods of mathematical analysis.

[Course objectives]

The objective of this course is to learn and understand basic notions of differentiation and integration of functions of one variable and methods of mathematical analysis based on them, as well as to become able to apply this knowledge to solving problems.
In addition to learning the basic calculus, students can learn through this course how to discuss and present mathematical topics in English.

[Course schedule and contents)]

This subject is composed of two interrelated parts: Lecture and Exercises. The exercises sessions will take place basically once in two weeks, their purpose being to deepen the students' understanding of the contents of the lecture sessions through active participation in problem solving and through regular submission of reports.

In the course outline below, the order in which the given items will be presented is not fixed and depends on the background and understanding of the enrollees.

1. Fundamental concepts (1 week)
Numbers, sets, mappings, basic notions of mathematical logic.
2. Properties of real numbers and continuous functions (3-4 weeks)
Infimum and supremum of sets of real numbers, convergence of sequences, infinite series, limits of functions, definition and basic properties of continuous functions (intermediate value theorem, etc.).
3. Differentiation of functions of one variable (4-5 weeks)
Differential coefficients, derivative, differentiation of composite functions and inverse functions, derivatives of higher order, Taylor expansion, the mean-value theorem and its applications (monotonicity, convexity, extrema), infinitesimals, calculation of approximations*.

Continue to Calculus with Exercises A(2)↓↓↓

Calculus with Exercises A(2)

4. Integration of functions of one variable (3-4 weeks)
Riemann integral, integrability of continuous functions, definite integrals, the fundamental theorem of calculus, integration by parts and by substitution, improper integrals, length of curve*.

Moreover, topics related to

5. Important functions (1-3 weeks)
Exponential function, trigonometric functions, logarithm, inverse trigonometric functions, Gamma function.

will be explained according to necessity at the corresponding place.

* denotes optional topics.

Total：14 classes, 1 Feedback session

[Course requirements]

None

[Evaluation methods and policy]

Students will be evaluated based on their performance in both the lecture and the exercises sessions.
* Lecture will be graded based mainly on the final examination.
* Exercises will be evaluated based mainly on submitted reports and participation in class.
The details of the evaluation system will be given by the lecturer in the first lecture.

Students who fail to pass the examination but reach a certain standard are eligible for reexamination.

[Textbooks]

A. M. Bruckner, J. B. Bruckner, B. S. Thomson 『Elementary Real Analysis』（Prentice-Hall）（This book can be downloaded for free at https://classicalrealanalysis.info/Free-Downloads.php .）

[References, etc.]

（**Reference book**）
A. M. Bruckner, J. B. Bruckner, B. S. Thomson 『Elementary Real Analysis』（This book can be downloaded for free at https://classicalrealanalysis.info/Free-Downloads.php .）
M. Spivak 『Calculus』（Publish or Perish）ISBN:978-0914098911
N. L. Carothers 『Real Analysis』（Cambridge University Press）ISBN:978-0521497565
E. Hewitt, K. Stromberg 『Real and Abstract Analysis』（Springer）ISBN:978-0387901381

[Study outside of class (preparation and review)]

It is difficult to follow the lecture without regular study. Therefore, students are expected to devote an amount of time equivalent to the time of the lecture to solve report problems and to review the contents of previous lectures.

[Other information (office hours, etc.)]

It is advisable to attend the lecture “Linear Algebra with Exercises A” in parallel.
Moreover, it is recommended to register for "Calculus with Exercises B" in the second semester.

There are no fixed office hours. If you wish to have a consultation, please feel free to contact the lecturer.

Lecture code: N158001

Course number	U-LAS10 10005 LE55		
Course title (and course title in English)	Calculus with Exercises B Calculus with Exercises B	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,Karel SVADLENKA

Group	Natural Sciences	Field(Classification)	Mathematics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	3
Number of weekly time blocks	2	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.2・Wed.2	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

Calculus and linear algebra form the essential mathematical background necessary for understanding and developing modern science and technology. In this lecture, basics of calculus required for further pursuing of studies majored in science are explained.

The course Calculus with Exercises B, after providing some more topics on functions of one variable that were not mentioned in "Calculus with Exercises A", explains differentiation and integration of functions of several variables.

[Course objectives]

The objective of this course is to learn and understand basic notions of differentiation and integration of functions of one and several variables and methods of mathematical analysis based on them, as well as to become able to apply this knowledge to solving problems.
In addition to mastering the basic calculus, students can learn through this course how to discuss and present mathematical topics in English.

[Course schedule and contents)]

This subject is composed of two interrelated parts: Lecture and Exercises. The exercises sessions will take place basically once in two weeks, their purpose being to deepen the students' understanding of the contents of the lecture sessions through active participation in problem solving and through regular submission of reports.

In the course outline below, the order in which the given items will be presented is not fixed and depends on the background and understanding of the enrollees.

1. Series and sequences of functions (3-4 weeks)
Infinite series (convergence criteria, absolute and conditional convergence), power series (radius of convergence, termwise differentiation and integration), sequences and series of functions (uniform convergence, termwise differentiation and integration).
2. Sets of points in a plane and in space (2-3 weeks)
Distance, convergence of sequences of points, open sets, closed sets, properties of continuous functions.
3. Differentiation of functions of several variables (4-5 weeks)
Partial differential coefficients, total differentiability, tangential plane, gradient vector, differentiation of composite functions (chain rule), Jacobian matrix and determinant, implicit functions, inverse mapping,

Continue to Calculus with Exercises B(2)↓↓↓

Calculus with Exercises B(2)

Taylor's formula, extreme value problems, extreme value problems with constraints.
4. Integration of functions of several variables (4-5 weeks)
Multiple integrals, iterated integrals, calculation of area and volume, change of variables for multiple integrals, improper integrals.

Total：14 classes, 1 Feedback session

[Course requirements]

Students must attend the course “Calculus with Exercises A” before taking “Calculus with Exercises B”. Moreover, students are expected to have mastered the contents of the course “Linear Algebra with Exercises A”.

[Evaluation methods and policy]

Students will be evaluated based on their performance in both the lecture and the exercises sessions.
* Lecture will be graded based mainly on the final examination.
* Exercises will be evaluated based mainly on submitted reports and participation in class.
The details of the evaluation system will be given by the lecturer at the first lecture.

Students who fail to pass the examination but reach a certain standard are eligible for reexamination.

[Textbooks]

A. M. Bruckner, J. B. Bruckner, B. S. Thomson 『Elementary Real Analysis』（Prentice-Hall）（The book can be downloaded for free at https://classicalrealanalysis.info/Free-Downloads.php .）

[References, etc.]

（**Reference book**）
A. M. Bruckner, J. B. Bruckner, B. S. Thomson 『Elementary Real Analysis』
M. Lovric 『Vector Calculus』（John Wiley & Sons）ISBN:978-0-4717-25695
I. Kriz, A. Pultr 『Introduction to Mathematical Analysis』（Birkhauser）ISBN:978-3-0348-0635-0

[Study outside of class (preparation and review)]

It is difficult to follow the lecture without regular study. Therefore, students are expected to devote an amount of time equivalent to the time of the lecture to solve report problems and to review the contents of previous lectures.

[Other information (office hours, etc.)]

It is desirable to take the course “Linear Algebra with Exercises B” in parallel.

There are no fixed office hours. If you wish to have a consultation, please feel free to contact the lecturer.

Lecture code: N159001

Course number	U-LAS10 10008 LE55		
Course title (and course title in English)	Linear Algebra with Exercises A Linear Algebra with Exercises A	Instructor's name, job title, and department of affiliation	Graduate School of Science Professor,COLLINS, Benoit Vincent Pierre

Group	Natural Sciences	Field(Classification)	Mathematics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	3
Number of weekly time blocks	2	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.3・Tue.2	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

Calculus and linear algebra form the essential mathematical background necessary for understanding and developing modern science and technology. In this lecture, basics of Linear Algebra required for further pursuing of studies majored in science are explained.

In the Linear Algebra A class, students will learn to manipulate concretely vectors, matrices, and systems of linear equations.

[Course objectives]

The goal of this class is to learn to manipulate concretely vectors, matrices, and systems of linear equations. In addition to learning linear algebra, students can learn how to discuss and present mathematical topics in English through this course.

[Course schedule and contents)]

This subject is composed of two interrelated parts: Lecture and Exercises. The exercises sessions will take place basically once in two weeks, their purpose being to deepen the students' understanding of the contents of the lecture sessions through active participation in problem solving and through regular submission of reports.
In the course outline below, the order in which the given items will be presented is not fixed and depends on the background and understanding of enrollees.
1. Fundamental concepts (1 week)
-numbers, sets, mappings, basic notions of mathematical logic
2. Vectors in the plane and 2x2 matrices (2 weeks)
-matrix and vector calculus, matrix inverses, Cayley Hamilton theorem
-linear transformations of the plane (rotation, reflections, etc) and matrices
-linear systems of equations and matrices
3. Concrete vector spaces and matrices (5-7 weeks)
-vectors, vector calculus, linear span
-matrices, matrix calculus (addition, scalar product, product)
-examples of matrices (2-3 weeks)
-elementary operations on matrices, rank, invertible matrices, inverse matrix
-solving linear equations, structure of solutions (3-4 weeks)
4. Determinant (4-6 weeks)
-row/column substitution and signature; definition of determinant and properties (3-4 weeks)

Continue to Linear Algebra with Exercises A(2)↓↓↓

Linear Algebra with Exercises A(2)

-computation of determinant, Cramer's rule, volume and determinant (1-2 weeks)

Total：14 classes, 1 Feedback session

[Course requirements]

None

[Evaluation methods and policy]

Students will be evaluated based on their performance in both the lecture and the exercises sessions.
* Lecture will be graded based mainly on the final examination.
* Exercises will be evaluated based mainly on submitted reports and participation in class.
The details of the evaluation system will be given by the lecturer at the first lecture.

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Jim Hefferon 『Linear Algebra and Its Applications』
This text is Free, under either the GNU Free Documentation License or the Creative Commons License Creative Commons Attribution-ShareAlike 2.5 License.
Website:
http://joshua.smcvt.edu/linearalgebra/

[Study outside of class (preparation and review)]

To be announced.

[Other information (office hours, etc.)]

It is advisable to attend the lecture “Calculus with Exercises A” in parallel.
Moreover, it is recommended to register for "Linear Algebra with Exercises B" in the second semester.

Students are welcome to ask questions during, at the beginning or at the end of the class.
The instructor encourages students to arrange an appointment with him if they have questions.

Lecture code: N160001

Course number	U-LAS10 10011 LE55				
Course title (and course title in English)	Linear Algebra with Exercises B Linear Algebra with Exercises B	**Instructor's name, job title, and department of affiliation**	Graduate School of Science Professor,COLLINS, Benoit Vincent Pierre		
Group	Natural Sciences	**Field(Classification)**	Mathematics(Foundations)		
Language of instruction	English	**Old group**	Group B	**Number of credits**	3
Number of weekly time blocks	2	**Class style**	Lecture	**Year/semesters**	2023・Second semester
Days and periods	Mon.3・Tue.2	**Target year**	Mainly 1st year students	**Eligible students**	For science students

[Overview and purpose of the course]

Linear algebra is one of the fundamental and important parts of mathematics. With Linear Algebra A and B, students are expected to understand not only the fundamental concepts of vector spaces and linear mappings, but also the concrete treatments of matrices and systems of linear equations.

[Course objectives]

The objective of this course is to introduce linear algebra concepts such as vector spaces, linear mappings, matrices and systems of linear equations.
In addition to learning linear algebra, students can learn how to discuss and present mathematical topics in English through this course.

[Course schedule and contents)]

1. Abstract Vector spaces
(1--3) Basis, dimension, linear mappings and matrices,
(4--5) change of bases, subspaces, direct sums, kernel and image

2. Euclidean Spaces
(6--7) Inner product, orthogonal matrices, unitary matrices,
(8--10) orthonormal basis and orthogonal complements

3. Eigenvalues and diagonalization of matrices
(11--12) Eigenvalues and eigenvectors, eigenpolynominals,
(13--14) diagonalization of symmetric matrices by
orthogonal matrices (diagonalization of Hermitian matrices by unitary matrices)

The schedule is subject to change.

Total：14 classes, 1 Feedback session

[Course requirements]

Students are expected to understand Calculus with Exercises A and Linear Algebra with Exercises A.

[Evaluation methods and policy]

Students will be evaluated based on their performance in both the lecture and the exercises sessions.
* Lecture will be graded based mainly on the final examination.

Continue to Linear Algebra with Exercises B(2)↓↓↓

Linear Algebra with Exercises B(2)

* Exercises will be evaluated based mainly on submitted reports and participation in class.
The details of the evaluation system will be given by the lecturer at the first lecture.
Students who fail to pass the examination but reach a certain standard are eligible for reexamination.

[Textbooks]

Not fixed

[References, etc.]

（Reference book）
Introduced during class

[Study outside of class (preparation and review)]

To be announced.

[Other information (office hours, etc.)]

It is advisable to attend the lecture
“Calculus with Exercises B” in parallel.

Students are welcome to ask questions during, at the beginning or at the end of the class.
The instructor encourages students to arrange an appointment with him if they have questions.

Lecture code: N168001

Course number	U-LAS10 10014 LE55		
Course title (and course title in English)	Mathematical Description of Natural Phenomena Mathematical Description of Natural Phenomena	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,Chang, Kai-Chun

Group	Natural Sciences	Field(Classification)	Mathematics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.3	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

One of the major reasons of providing this course is the noticeable gap between high school mathematics and college mathematics. The gap has led to a marked decline in the students' ability not only to grasp physical phenomena observed in engineering disciplines but also to explain principles behind the phenomena - e.g. to describe and analyze natural phenomena by means of differential equations.
This course aims at bridging the gap between high school mathematics and college mathematics. Through this course, students learn how the physical phenomena in engineering disciplines - e.g. vibration of a structure, wave propagation, fluid dynamics and so on - are described in differential equations. They also learn how those physical phenomena are solved by differential equations.

[Course objectives]

・To understand the relationship between scientific observation and mathematics.
・To understand how the physical phenomena in engineering disciplines are described in differential equations, as well as how to solve them.

[Course schedule and contents)]

* To achieve the goal, this lecture will cover the following topics.
1. Picture of Calculus, basics of differentiation and integration
2. e, the base of the natural logarithm
3. Complex numbers, exponential function, logarithmic function and trigonometric functions
4. Differential equations and physical phenomena modelling

* The lecture is designed to cover following topics, in detail.

1. Introduction
 - Describing phenomena, input-output system model, etc. [2 weeks]

2. Basics of Calculus
 - Picture of Calculus, derivatives, basic rules, chain rule, implicit differentiation, inverse functions and their derivatives, etc. [4 weeks]
 - Exponential and logarithmic functions, their derivatives, characterizations of exponential functions, etc. [2 weeks]

Continue to Mathematical Description of Natural Phenomena(2)↓↓↓

3. Differential equations and phenomenon descriptions
 - Radioactive decay, population growth/decay, mixed growth/decay [3 weeks]
 - Spring problems, equations of motion, simple harmonic motions, damped vibrations, etc. [3 weeks]

4. Feedback [1 week]

[Course requirements]

None

[Evaluation methods and policy]

Quizzes and exercises (50%) and final examination (50%)

[Textbooks]

Handouts distributed in class or uploaded to PandA

[References, etc.]

（**Reference book**）
G. Strang 『Calculus, 2nd ed.』（Wellesley-Cambridge Press）
W.F. Trench 『Elementary Differential Equations』（Brooks/Cole）

[Study outside of class (preparation and review)]

Students are expected to spend at least 2 hours on this course for preview and review. More than half of that time is spent preparing for class and doing assignments.

[Other information (office hours, etc.)]

Any inquiry to the instructor: chang.kaichun.4z{at}kyoto-u.ac.jp. (replace {at} with @)

Lecture code: N178001

Course number	U-LAS10 10025 LE55
Course title (and course title in English)	Mathematical Description of Natural Phenomena-E2 Mathematical Description of Natural Phenomena-E2
Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,ISLAM, A K M Mahfuzul
Group	Natural Sciences
Field(Classification)	Mathematics(Foundations)
Language of instruction	English
Old group	Group B
Number of credits	2
Number of weekly time blocks	1
Class style	Lecture
Year/semesters	2023・First semester
Days and periods	Tue.2
Target year	Mainly 1st year students
Eligible students	For science students

[Overview and purpose of the course]

Mathematics is a powerful tool. Mathematics helps us to understand nature better. Mathematics helps us to solve different problems elegantly. However, mathematics is not just calculation. The beauty of mathematics lies in abstraction. If you understand mathematics, you can describe mathematics using your own language. For example, the base of the natural logarithm e has a particular value of "2.718···". We all know that. But can you answer why e has such a value without using strict mathematical definitions? This course aims at developing a solid understanding of several mathematical concepts. The focus will be on deepening understanding through experimenting and simulating different natural phenomena. Through this course, students will learn how various natural phenomena, such as the vibration of a structure, wave propagation, fluid dynamics, and so on - can be described in differential equations. They will also learn how to solve these physical problems using different techniques. At the end of the course, students will be confident in developing mathematical models of different problems they face and effectively solving those problems.

[Course objectives]

1. To understand the relationship between scientific observation and mathematics
2. To learn why and how most physical phenomena can be expressed using differential equations
3. To understand the origin of basic mathematical concepts such as the basis of the natural logarithm e, complex numbers, etc.
4. To learn how to solve the differential equations numerically.

[Course schedule and contents)]

1. Introduction to ordinary differential equations [2 weeks]
   1-a) Basic definitions and concepts
   1-b) Some basic theory
   1-c) Applications
2. Different types of natural phenomena [2 weeks]
   2-a) Diffusion-type
   2-b) Hyperbolic-type
   2-c) Elliptic-type
   2-d) Experiments to show different types of natural phenomena
3. Review of calculus [3 weeks]
   3-a) Exponential and logarithmic functions
   3-b) The base of the natural logarithm, e
4. Introduction to partial differential equations [1 week]

Continue to Mathematical Description of Natural Phenomena-E2(2)↓↓↓

5. Techniques to solve differential equations [4 weeks]
   5-a) First-order differential equations
   5-b) Second-order differential equations
   5-c) Series solutions
   5-d) Numerical methods
6. Complex number [2 weeks]
   6-a) What is the number?
   6-b) Two-dimensional number
   6-c) Applications of complex numbers
7. Examinations [1 week]
8. Feedback [1 week]

[Course requirements]

None

[Evaluation methods and policy]

Quizzes and exercises (50%) and final examination (50%)

[Textbooks]

Instructed during class
- Instructed during class
- Handouts distributed in class and uploaded to website prior to class

[References, etc.]

(**Reference book**)
Stanley J. Farlow 『An Introduction to Differential Equations and Their Applications』
Stanley J. Farlow 『Partial Differential Equations for Scientists and Engineers』

[Study outside of class (preparation and review)]

Preparation and review are required. Handouts will be provided. Sample programs using Python will be provided to simulate different phenomena. Students are encouraged to run the programs and visualize the phenomena to have a deeper understanding.

[Other information (office hours, etc.)]

Students are welcome to contact me personally to discuss their problems.

Lecture code: N174001

Course number	U-LAS10 10023 LE55		
Course title (and course title in English)	Quest for Mathematics I-E2 Quest for Mathematics I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Senior Lecturer,Li, Douglas

Group	Natural Sciences	Field(Classification)	Mathematics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.3	Target year	Mainly 1st & 2nd year students	Eligible students	For liberal arts students

[Overview and purpose of the course]

This class is an introduction to calculus for those who did not study "Mathematics III (of the Japanese high school standard)".

[Course objectives]

The goal of the class is to solve problems of the same level with those in the entrance examination for science students. An additional goal of this course is to give a chance to the students to present and discuss mathematics in English.

[Course schedule and contents)]

The course will cover the following topics, and each of them is read during 3-4 weeks:
1. Limit of series and continuous functions
2. Differentiation of elementary functions (for example: sine, cosine, exponential etc.)
3. Brief introduction of the Riemann integral and differential equations
4. Applications.

Total：14 classes, 1 Feedback session

[Course requirements]

None

[Evaluation methods and policy]

The evaluation of the course will take into account the following criteria:
-homework (40%)
-presentation (20%)
-final report (40%)

[Textbooks]

Peter D. Lax 『Calculus With Applications』（Springer）

Continue to Quest for Mathematics I-E2(2)↓↓↓

Quest for Mathematics I-E2(2)

[References, etc.]

（Reference book）
加古孝 『自然科学の基礎としての微積分』（朝倉書店）

[Study outside of class (preparation and review)]

Exercises are given in class and students are required to solve them for clear understanding of the topics in class.

[Other information (office hours, etc.)]

High school text book "Mathematics III (高等学校 数学 III)" based on the Japanese high school standard is useful to understand of the subject of the class.

Office hours are not assigned and it is advisable to make comments willingly during and after the class.

Lecture code: N174002

Course number	U-LAS10 10023 LE55				
Course title (and course title in English)	Quest for Mathematics I-E2 Quest for Mathematics I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,Arseniy Aleksandrovich, Kuzmin		
Group	Natural Sciences	Field(Classification)	Mathematics(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

In the "Quest for Mathematics", complex numbers and their applications are introduced. At first, we will follow some of the steps of their invention and learn to understand their basic properties. These numbers are very important in many different fields, such as quantum mechanics or electric engineering. In this course we explore geometrical applications of complex numbers, geometrical transformations, and complex functions.

[Course objectives]

- To understand the origins and importance of complex numbers
- Understanding of the geometric representation of complex numbers
- Learn the complex numbers arithmetic
- Learn the relation between trigonometric and exponential functions
- Acquire the ability to use complex numbers

[Course schedule and contents)]

In this course the following topics are covered:

1. Introduction and history of complex numbers. Geometric definition of complex numbers.
2. From geometric definition to Bombelli's "wild thought". The Argand plane and modern definitions.
3. Simple complex arithmetic and De Moivre's formula.
4. Equivalence of symbolic and geometric arithmetic.
5. Euler's formula: moving particle argument.
6. Euler's formula: power series argument.
7. Applications: trigonometry.
8. Applications: geometry.
9. Applications: calculus.
10. Applications: algebra.
11. Applications: vector operations.
12. Complex numbers and Euclidean geometry: transformations.
13. Motions and reflections.
14. Similarities and complex arithmetic. Spatial complex numbers.

14 lectures in total and one feedback class.

Continue to Quest for Mathematics I-E2(2)↓↓↓

Quest for Mathematics I-E2(2)

[Course requirements]

No knowledge of complex numbers is required to join this class. All necessary concepts are introduced during the lecture.

[Evaluation methods and policy]

Evaluation will be based on:
10% attendance and participation
20% homework
20% quiz
50% final exam

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
John Stillwell 『Mathematics and its history』 （Springer）ISBN:978-1-4419-6052-8

[Study outside of class (preparation and review)]

Preparation for lectures will include revision of class materials and homework assignments. The work during the semester is most important, it helps to build up the understanding. If you have no problems with homework, there will be no problem solving the tests.

[Other information (office hours, etc.)]

Lecture code: N174003

Course number	U-LAS10 10023 LE55		
Course title (and course title in English)	Quest for Mathematics I-E2 Quest for Mathematics I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Senior Lecturer,Li, Douglas

Group	Natural Sciences	Field(Classification)	Mathematics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2

Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.3	Target year	Mainly 1st & 2nd year students	Eligible students	For liberal arts students

[Overview and purpose of the course]

This class is an introduction to calculus for those who did not study "Mathematics III (of the Japanese high school standard)".

[Course objectives]

The goal of the class is to solve problems of the same level with those in the entrance examination for science students. An additional goal of this course is to give a chance to the students to present and discuss mathematics in English.

[Course schedule and contents)]

The course will cover the following topics, and each of them is read during 3-4 weeks:
1. Limit of series and continuous functions
2. Differentiation of elementary functions (for example: sine, cosine, exponential etc.)
3. Brief introduction of the Riemann integral and differential equations
4. Applications.

Total：14 classes, 1 Feedback session

[Course requirements]

None

[Evaluation methods and policy]

The evaluation of the course will take into account the following criteria:
-homework (40%)
-presentation (20%)
-final report (40%)

[Textbooks]

Peter D. Lax 『Calculus With Applications』 （Springer）

Continue to Quest for Mathematics I-E2(2)↓↓↓

Quest for Mathematics I-E2(2)

[References, etc.]

（Reference book）

加古孝 『自然科学の基礎としての微積分』（朝倉書店）

[Study outside of class (preparation and review)]

Exercises are given in class and students are required to solve them for clear understanding of the topics in class.

[Other information (office hours, etc.)]

High school text book "Mathematics III (高等学校 数学 III)" based on the Japanese high school standard is useful to understand of the subject of the class.

Office hours are not assigned and it is advisable to make comments willingly during and after the class.

Lecture code: N175001

Course number	U-LAS10 10024 SE55				
Course title (and course title in English)	Quest for Mathematics II-E2 Quest for Mathematics II-E2	Instructor's name, job title, and department of affiliation	Research Institute for Mathematical Sciences Senior Lecturer,UEDA FUKUHIRO		
Group	Natural Sciences	Field(Classification)	Mathematics(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・First semester
Days and periods	Thu.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

You might have heard of the following expression from Gauss (1777-1855): "Mathematics is the queen of sciences and number theory is the queen of mathematics. She often condescends to render service to astronomy and other natural sciences, but in all relations she is entitled to the first rank."

What is number theory? At the most basic level, it is the study of the properties of the integers Z={..., -2, -1, 0, 1, 2, ...}.

In this course, we will study certain topics in elementary number theory, including (but not limited to) divisibility, congruences, quadratic reciprocity, and theory of quadratic forms. Some abstract algebra will be introduced in class as a tool of number theory.

[Course objectives]

The class is meant to help students of all disciplines improve their knowledges in number theory. Moreover, students will improve their communication skills in English via oral discussions and presentations.

[Course schedule and contents)]

Below is the contents and schedules of the course. Some of these topics may be assigned to the students for their presentations. The lectures and presentations, as well as their orders, may be modified, depending on students' backgrounds and understanding of the course materials. The instructor will provide corrections and comments on students' presentations.

(1) Introduction (Week 1)
-Some basics in set theory and logic, motivating examples and conjectures, remarks on the course materials.

(2) Divisibility (Weeks 2-4)
-The division algorithm, prime numbers;
-The fundamental theorem of arithmetic.

(3) Congruences (Weeks 5-8)
-Congruence relations;
-Fermat's theorem and Euler's generalization;
-The Chinese Remainder theorem, Hensel's lemma;

Continue to Quest for Mathematics II-E2(2)↓↓↓

Quest for Mathematics II-E2(2)

(4) Quadratic reciprocity (Weeks 9-12)
-Legendre symbols, the reciprocity law;
-Gaussian integers, two squares theorem.

(5) Quadratic forms (Week 13-14)

Total：14 classes, 1 Feedback session

[Course requirements]

There are no formal prerequisites for the class. Some familiarity with mathematical proofs (e.g. as one sees in Calculus and Linear Algebra) will be helpful, but not required.

[Evaluation methods and policy]

The evaluation consists of three weighted parts:

- Discussion performance in class (20%).

- Presentation (60%): Each student reviews a mathematical topic assigned by the instructor.

- Report (20%): An essay on the topic of presentation.

[Textbooks]

A. Weil 『Number Theory for Beginners』 （Springer）ISBN:9781461299585（E-book available at Kyoto U library.）
Ivan Niven, Herbert Zuckerman, and Hugh Montgomery 『An Introduction to the Theory of Numbers』 （Wiley）ISBN:9780471625469（This book is available online.）

[References, etc.]

（**Reference book**）
J. S. Milne 『Algebraic Number Theory』 （This online lecture note may be helpful to the students who have studied modern algebra systematically.）

[Study outside of class (preparation and review)]

Along with preparation and review, students are encouraged to form study groups.

[Other information (office hours, etc.)]

Lecture code: N175002

Course number	U-LAS10 10024 SE55		
Course title (and course title in English)	Quest for Mathematics II-E2 Quest for Mathematics II-E2	Instructor's name, job title, and department of affiliation	Research Institute for Mathematical Sciences Senior Lecturer,UEDA FUKUHIRO
Group	Natural Sciences	Field(Classification)	Mathematics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・Second semester
Days and periods	Thu.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

You might have heard of the following expression from Gauss (1777-1855): "Mathematics is the queen of sciences and number theory is the queen of mathematics. She often condescends to render service to astronomy and other natural sciences, but in all relations she is entitled to the first rank."

What is number theory? At the most basic level, it is the study of the properties of the integers Z={..., -2, -1, 0, 1, 2, ...}.

In this course, we will study certain topics in elementary number theory, including (but not limited to) divisibility, congruences, quadratic reciprocity, and theory of quadratic forms. Some abstract algebra will be introduced in class as a tool of number theory.

[Course objectives]

The class is meant to help students of all disciplines improve their knowledges in number theory. Moreover, students will improve their communication skills in English via oral discussions and presentations.

[Course schedule and contents)]

Below is the contents and schedules of the course. Some of these topics may be assigned to the students for their presentations. The lectures and presentations, as well as their orders, may be modified, depending on students' backgrounds and understanding of the course materials. The instructor will provide corrections and comments on students' presentations.

(1) Introduction (Week 1)
-Some basics in set theory and logic, motivating examples and conjectures, remarks on the course materials.

(2) Divisibility (Weeks 2-4)
-The division algorithm, prime numbers;
-The fundamental theorem of arithmetic.

(3) Congruences (Weeks 5-8)
-Congruence relations;
-Fermat's theorem and Euler's generalization;
-The Chinese Remainder theorem, Hensel's lemma;

Continue to Quest for Mathematics II-E2(2)↓↓↓

Quest for Mathematics II-E2(2)

(4) Quadratic reciprocity (Weeks 9-12)
-Legendre symbols, the reciprocity law;
-Gaussian integers, two squares theorem.

(5) Quadratic forms (Week 13-14)

Total：14 classes, 1 Feedback session

[Course requirements]

There are no formal prerequisites for the class. Some familiarity with mathematical proofs (e.g. as one sees in Calculus and Linear Algebra) will be helpful, but not required.

[Evaluation methods and policy]

The evaluation consists of three weighted parts:

- Discussion performance in class (20%).

- Presentation (60%): Each student reviews a mathematical topic assigned by the instructor.

- Report (20%): An essay on the topic of presentation.

[Textbooks]

Andre Weil 『Number Theory for Beginners』 （Springer）ISBN: 9781461299585（E-book available at Kyoto U library）
Ivan Niven, Herbert Zuckerman, and Hugh Montgomery 『An Introduction to the Theory of Numbers』 （Wiley）ISBN:9780471625469（This book is available online.）

[References, etc.]

（Reference book）
J. S. Milne 『Algebraic Number Theory』 （This online lecture note may be helpful to the students who have studied modern algebra systematically.）

[Study outside of class (preparation and review)]

Along with preparation and review, students are encouraged to form study groups.

[Other information (office hours, etc.)]

Lecture code: N169001

Course number	U-LAS10 20002 LE55		
Course title (and course title in English)	Advanced Calculus I-Vector Calculus Advanced Calculus I-Vector Calculus	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,QURESHI, Ali Gul

Group	Natural Sciences	Field(Classification)	Mathematics(Development)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.5	Target year	2nd year students or above	Eligible students	For science students

[Overview and purpose of the course]

Based on the knowledge of Calculus with Exercises A/B and Linear Algebra with Exercises A/B , or Calculus A/ B and Liner Algebra A/B, this course explains calculus of multiple variables and vector calculus. The course introduces the concepts of motion and potential in more than 2 dimensions, which are based on partial differentiation and integration related with multiple dimensions (such as line integral and surface integral).

[Course objectives]

To learn basics of calculus in functions of two or more variables, which are used in many other courses in natural sciences (such as Physics) and engineering.

[Course schedule and contents)]

1. Basic operations with vectors (5 Weeks)
- Dot and cross products; derivatives and integration of Vector Valued Functions
2. Vectors in other coordinate systems (2 Weeks)
- Frenet-Serret frame, Spherical and Cylindrical coordinate systems
3. Vector fields and potentials at n-dimensional Euclidean spaces (2 weeks)
- Operations over the vector fields (gradient, curl and divergence), scalar potential and vector potential
4. Line integrals and surface integrals (5 Weeks)
- Line integrals at 2-dimensional plane, surface integrals at 3-dimensional space, and integral theorems (Divergence theorem of Gauss, the Green's formula and the Stokes's theorem)
5. Feedback（1 Week）

[Course requirements]

To understand Calculus with Exercises A/B and Linear Algebra with Exercises A/B, or Calculus A/B and Linear Algebra A/B.

[Evaluation methods and policy]

Weekly submission of class examples, class participation and homework (25%), Snap quizzes (20%), Final examination(55%)

Continue to Advanced Calculus I-Vector Calculus(2)↓↓↓

Advanced Calculus I-Vector Calculus(2)

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）

Gilbert Srang et al. 『Calculus Vol. 3』（Open Stax）（Book is available online at https://openstax.org/details/books/calculus-volume-3）
Joel R. Hass, Christopher E. Heil and Maurice D. Weir 『Thomas' Calculus, 14th ed.』（Pearson）
Erwin Kreyszig 『Advanced Engineering Mathematics, 10th ed.』（Willey）
Frank Ayres Jr. and Elliott Mendelson 『Calculus, 6th ed.』（McGraw-Hill）

[Study outside of class (preparation and review)]

Students are encouraged to do assigned homework related to the classes.

[Other information (office hours, etc.)]

Lecture code: N170001

Course number	U-LAS10 20004 LE55		
Course title (and course title in English)	Advanced Calculus II-Differential Equations Advanced Calculus II-Differential Equations	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,QURESHI, Ali Gul
Group	Natural Sciences	Field(Classification)	Mathematics(Development)
Language of instruction	English	Old group	Group B
Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture
Year/semesters	2023・Second semester		
Days and periods	Wed.5	Target year	2nd year students or above
Eligible students	For science students		

[Overview and purpose of the course]

Based on the knowledge of Calculus with Exercises A/B and Linear Algebra with Exercises A/B or Calculus A/ B and Liner Algebra A/B, this course explains ordinary differential equations. Starting from the basic solutions techniques (such as separation of variables and integrating factors) for differential equations, the course introduces the second order linear differential equations and their solution. Differential equations are studied in context of modelling of various physical situations (for example, vibrations, mixing problem, population dynamics, etc.).

[Course objectives]

To learn the different types of differential equations and their solution methods.

[Course schedule and contents)]

1. Elementary methods of solution (6 weeks)
- Separation of variables, linear first order differential equations, total differential equations (exact differential equations) and integrating factors
2. Existence and uniqueness of the solution of initial value problems (4 weeks)
- Space of continuous functions and it's properties (normed spaces, completeness), iterated approximation, Cauchy-Lipschitz's theorem and the connection of solution
3. Linear differential equations (4 weeks)
- Space of solutions of homogeneous equations, variation of parameters, exponential function for matrices and Wronskian determinant.
4. Feedback (1 week)

[Course requirements]

To understand Calculus with Exercises A/B and Linear Algebra with Exercises A/B or Calculus A/B and Linear Algebra A/B.

[Evaluation methods and policy]

Weekly submission of class examples, class participation and homework (25%), Snap quizzes (20%), Final examination(55%).

Continue to Advanced Calculus II-Differential Equations(2)↓↓↓

Advanced Calculus II-Differential Equations(2)

[Textbooks]

Erwin Kreyszig 『Advanced Engineering Mathematics, 9th ed.』（Wiley, 2006）

[References, etc.]

（**Reference book**）
Joel R. Hass, Christopher E. Heil and Maurice D. Weir 『Thomas' Calculus, 14th ed.』（Pearson）
Gilbert Strang et al. 『Calculus Vol. 2 and Vol. 3』（OpenStax）（Books are available online at https://openstax.org/details/books/calculus-volume-2 and https://openstax.org/details/books/calculus-volume-3）
Richard Bronson and Gabriel Costa 『Differential Equations, 4th ed.』（McGraw-Hill）

[Study outside of class (preparation and review)]

Students are encouraged to do assigned homework related to the classes.

[Other information (office hours, etc.)]

Content of this course is independent from Advanced Calculus I of 1st semester.

Lecture code: N106001

Course number	U-LAS10 20006 LE55				
Course title (and course title in English)	Advanced Linear Algebra Advanced Linear Algebra	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,Chang, Kai-Chun		
Group	Natural Sciences	Field(Classification)	Mathematics(Development)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.2	Target year	2nd year students or above	Eligible students	For science students

[Overview and purpose of the course]

Linear Algebra is an important tool commonly used in many fields, in not only mathematics but also natural sciences, engineering, etc. This course extends the contents in "Linear Algebra A/B" courses (provided majorly for 1st year students) and discusses advanced concepts of linear algebra, such as orthogonality, diagonalization, Singular Value Decomposition (SVD) of a matrix, Jordan canonical form, and their applications to real-world problems, etc.

[Course objectives]

・To acquire the advanced concepts of linear algebra, such as orthogonality, diagonalization, SVD of matrix.
・To understand the applications of linear algebra to real-world problems.

[Course schedule and contents)]

1. Review of linear algebra [2 weeks]
 - Big picture, rank, dimension, LU/LDU factorization, Gauss-Jordan elimination, etc.
 - vector spaces, subspaces, nullspace, complete solutions, four subspaces and their dimensions and orthogonality, etc.

2. Orthogonality and its applications [3 weeks]
 - Orthogonality and orthogonality complement, projections, least square approximations, orthogonal bases, Gram-Schumidt process, etc.

3. Eigenvalues, eigenvectors, and their applications [4 weeks]
 - Eigenvalues and eigenvectors, diagonalization, matrix power, singular value decomposition (SVD) and their application to difference equations, differential equations and Markov process, etc.

4. Jordan canonical form [3 weeks]
- minimal polynomials, generalized eigenvectors, Jordan canonical form, and their applications.

5. Optional topics [2 weeks]
 - numerical solutions, complex vectors and matrices, other applications, etc.

6. Feedback [1 week]

Continue to Advanced Linear Algebra(2)↓↓↓

Advanced Linear Algebra(2)

[Course requirements]

Suggested prerequisites: Calculus A/B and Linear Algebra A/B or Calculus with Exercises A/B and Linear Algebra with Exercises A/B.

[Evaluation methods and policy]

Quizzes or assignments (50%); final examination (50%)

[Textbooks]

Handouts distributed in class or uploaded to PandA

[References, etc.]

（**Reference book**）
Strang, G. (2009) 『Introduction to Linear Algebra. 5th ed.』（Wellesley-Cambridge Press）
Lipschutz, S. and Lipson, M. (2012) 『Linear Algebra, 6th ed.』（McGraw-Hill）

[Study outside of class (preparation and review)]

Students are expected to spend at least 2 hours per week on preview and review. More than half of that time is spent preparing for class and doing assignments.

[Other information (office hours, etc.)]

Any inquiry to the instructor: chang.kaichun.4z{at}kyoto-u.ac.jp. (replace {at} with @)

Lecture code: N162001

Course number	U-LAS10 20010 LE55		
Course title (and course title in English)	Function Theory of a Complex Variable-E2 Function Theory of a Complex Variable-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Senior Lecturer,Li, Douglas
Group	Natural Sciences	Field(Classification)	Mathematics(Development)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.2	Target year	Mainly 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

Based upon knowledge of calculus, this is an introductory course to the function theory of one complex variable (i.e. introduction of complex analysis), and its goal is to understand fundamentals about holomorphic functions and meromorphic ones, which are dealt through the Cauchy's integral formula. The purpose of this course is not only to understand rigorous theories but to obtain some skills about the residue calculus. The theory for complex functions are not only beautiful in a mathematical sense but also very useful in applied fields e.g. physics, engineering and medical sciences etc. Almost all the mathematical theories in this course are rigorously dealt with, and some examples related with physics are also explained. An additional goal of this course is to give a chance to the students to present and discuss mathematics in English.

[Course objectives]

The goal is to understand fundamentals about holomorphic functions and meromorphic ones, which are dealt through the Cauchy's integral formula. In addition to learning modern mathematics and proofs, students can also learn how to discuss and present mathematical topics in English through this course.

[Course schedule and contents)]

The course will cover the following topics, and each of them is read in 2 or 3 weeks:
1. complex numbers, the complex number plane and the Riemann sphere
2. differential of complex functions; holomorphic functions and the Cauchy- Riemann equation etc.
3. power series and analytic functions
4. integral; the Stieltjes integral and Cauchy's integral formula
5. fundamental theories for holomorphic functions
6. singularities and residue; the Laurent expansion and the residue calculus.

Total：14 classes, 1 Feedback session

[Course requirements]

(Eligible students) mainly the sciences of the second grade

Students are required good understanding of both calculus and linear algebra.

[Evaluation methods and policy]

The evaluation of the course will take into account the following criteria:
-homework (40%)
-presentation (20%)

Continue to Function Theory of a Complex Variable-E2(2)↓↓↓

Function Theory of a Complex Variable-E2(2)

-final report (40%)

[Textbooks]

Not Specified

[References, etc.]

（Reference book）
Donald Sarason 『Complex Function Theory』（AMS: American Mathematical Society）
Elias Stein, Rami Shakarachi 『Complex Analysis』（Princeton University Press）ISBN:3-540-90328-3
磯 祐介 『複素関数論入門』（サイエンス社）ISBN:978-4-7819-1326-1

[Study outside of class (preparation and review)]

The students are requested to solve exercises given in class by themselves even though they are not assigned as homework.

[Other information (office hours, etc.)]

This class is an English class for the classes of 「関数論」, and their syllabuses are the same to one another.

Office hours are not assigned and it is advisable to make comments willingly during and after the class.

Lecture code: N164001

Course number	U-LAS10 20012 LE55		
Course title (and course title in English)	Nonlinear Mathematics-E2 Nonlinear Mathematics-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Senior Lecturer,Li, Douglas

Group	Natural Sciences	Field(Classification)	Mathematics(Development)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Fri.3	Target year	Mainly 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

Mathematical modeling is very important to understand and to analyze natural phenomena, and nonlinear models have been of great importance in many fields. This class emphasizes on mathematical analysis for those nonlinear models, esp. nonlinear differential equations, and the goal of the class is to study introductory theories to deal with nonlinear equations through some examples. Furthermore, this class is also intended for students to enjoy interesting approach to natural phenomena through mathematical analyses. An additional goal of this course is to give a chance to the students to present and discuss mathematics in English.

[Course objectives]

The goal of the class is to study introductory theories to deal with nonlinear differential equations through some examples. In addition to learning modern mathematics and proofs, students can learn how to discuss and present mathematical topics in English through this course.

[Course schedule and contents)]

Some mathematical models appeared in mathematical physics are shown, and fundamental mathematical theories related with those models are explained.
The course will cover the following topics:
1. Mathematical modeling in fluid mechanics (5 weeks)
2. Fundamental theories about differential equations (4 weeks)
3. Analysis of the aimed phenomena through mathematical approach (5 weeks).

Total：14 classes, 1 Feedback session

[Course requirements]

(Eligible students) mainly the sciences of the second grade.
Students are required good understanding of both calculus and linear algebra
studied in the first grade.

Continue to Nonlinear Mathematics-E2(2)↓↓↓

Nonlinear Mathematics-E2(2)

[Evaluation methods and policy]

The evaluation of the course will take into account the following criteria:
-homework (40%)
-presentation (20%)
-final report (40%)

[Textbooks]

Not Specified

[References, etc.]

（**Reference book**）
F.G. Tricomi 『Differential equations』 （reprinted form Dover Publications）
E. Goursat 『A course in mathematical analysis" vol. 1-3』 （reprinted form DoverPublications）

[Study outside of class (preparation and review)]

Students are required to solve exercises given in class for deep understanding of the class.

[Other information (office hours, etc.)]

This class is an English class of "非線型数学" read in the first semester. Their syllabuses are the same to each other, but topics in class especially those of fluid mechanics, are not the same.

Lecture code: N161001

Course number	U-LAS10 20017 LE55		
Course title (and course title in English)	Honors Mathematics A-E2 Honors Mathematics A-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,Karel SVADLENKA
Group	Natural Sciences	Field(Classification)	Mathematics(Development)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.3	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

This course provides opportunities to learn mathematics in more depth for highly motivated students. It supplements Calculus A and Linear Algebra A, and takes these basic courses as starting point to treat more advanced related topics.

[Course objectives]

In addition to learning modern mathematics and proofs, students can learn how to discuss and present mathematical topics in English through this course.

[Course schedule and contents)]

Below is a list of themes that may be covered.
The actual topics of the lecture will be determined upon investigating the interests and level of the participating students. The selected topics will be covered during 15 lectures, including one feedback session.

1. Topics in set theory (tentatively 5~9 weeks)
1.1 Equivalence relations, quotients and order relations
1.2 Axioms of Zermelo-Fraenkel set theory
1.3 Cantor-Schroeder-Bernstein theorem
1.4 Cantor's diagonal argument

2.Fundamental theory of real numbers (tentatively 3~6 weeks)
2.1 Peano' s axioms
2.2 Construction of Z, Q and R

3. Convex analysis (tentatively 2~5 weeks)
3.1 Convex sets and their properties
3.2 Convex functions and their properties

4. Topics in Hilbert spaces (tentatively 2~5 weeks)
4.1 Inner product spaces
4.2 Riesz representation theorem
4.3 Self-adjoint and normal operators
4.4 The spectral theorem

Continue to Honors Mathematics A-E2(2)↓↓↓

Honors Mathematics A-E2(2)

5. Numerical linear algebra (tentatively 2~5 weeks)
5.1 Singular decomposition of a matrix, least square approximation, QR decomposition
5.2 Diagonally dominant matrices
5.3 Basic iterative methods for linear systems
5.4 Conjugate gradient method

[Course requirements]

Calculus A and Linear Algebra A. Students are strongly encouraged to take Calculus B and Linear Algebra B in parallel (or prior) to this course.

[Evaluation methods and policy]

The evaluation of the course will take into account the following criteria:
(1) homework and presentation of students during the lectures (40%)
(2) midterm and final examination (60%)
However, according to the situation, the evaluation may be based only on
(1) homework and presentation of students during the lectures (100%) .
The method of evaluation will be made precise at the first lecture.

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Paul R. Halmos 『Naive set theory』（Springer, 1974）ISBN:978-0-387-90092-6（e-bookあり）
Other references will be announced during the class according to the selected topics.

[Study outside of class (preparation and review)]

As in every math course, students should read notes carefully and repeatedly after the class, solve exercise problems and try to find alternative proofs, counterexamples, etc.
After many hours of such practice you may get an intuitive understanding of the materials covered.

[Other information (office hours, etc.)]

Students are welcome to ask questions during or at the end of the class.
The schedule of office hours will be announced in the first lecture.

Lecture code: N165001

Course number	U-LAS10 20018 LE55						
Course title (and course title in English)	Honors Mathematics B-E2 Honors Mathematics B-E2			**Instructor's name, job title, and department of affiliation**	Graduate School of Science Professor,COLLINS, Benoit Vincent Pierre		
Group	Natural Sciences			**Field(Classification)**	Mathematics(Development)		
Language of instruction	English	**Old group**	Group B	**Number of credits**	2		
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester		
Days and periods	Tue.3	**Target year**	Mainly 2nd year students	**Eligible students**	For science students		

[Overview and purpose of the course]

This course provides opportunities to learn mathematics in more depth for highly motivated students. It supplements Calculus A, B and Linear Algebra A, B, and takes these basic courses as starting point to treat more advanced related topics.
Through this course, students can also learn how to read, listen to, discuss and present mathematical arguments in English.

[Course objectives]

One of the goals of this course is to help students get used to rigorous proofs of mathematical statements and abstract notions in mathematics. These two features are central to and represent the power of modern mathematics, because rigorously proven facts form unshakeable building blocks of far-reaching theories, and an abstract notion is applicable to various different situations as far as they share a key property.
If the number of students permits, the course will be interactive. In particular, an additional goal of this course is to provide a chance for the students to discuss mathematics in English.

[Course schedule and contents)]

Below is a list of themes that may be covered.
The actual topics of the lecture will be determined upon investigating the interests and level of the participating students.

1. Finite groups (tentatively 4 weeks)
1.1 definition, basic notions, class formula
1.2 symmetric and alternating groups
1.3 elementary graph theory, Cayley graphs

2 representation of finite groups (tentatively 4 weeks)
2.1 matrix algebras, representations
2.2 character formulas
2.3 examples (symmetric group, SL2(Fp))

3 matrix groups -- complex and real case (tentatively 4 weeks)
3.1 unitary and orthogonal groups
3.2 matrix decompositions, properties of groups
3.3 notions of Lie algebras, representations of groups

Continue to Honors Mathematics B-E2(2)↓↓↓

Honors Mathematics B-E2(2)

3.4 characters, invariants.

4. Orthogonal functions and Fourier series (tentatively 3 or 4 weeks)
4.1 Orthonormal system of functions
4.2 Space of continuous functions on the circle and its completion
4.3 Fourier series
4.4 Notions of convergence of the Fourier series
4.5 Fourier series and Fourier transform

OR

5. Linear programming (tentatively 3 or 4 weeks)
5.1 Introduction to optimization with constraints
5.2 Basic properties of convex sets and convex functions
5.3 Duality
5.4 The simplex method and Karush-Kuhn-Tucker conditions

Total：14 classes, 1 Feedback session

[Course requirements]

Calculus A, B and Linear Algebra A, B.
Familiarity with materials covered in Honors Mathematics A may be helpful.

[Evaluation methods and policy]

The evaluation of the course will take into account the following criteria:
(1) homework and presentation of students during the course (about 40%)
(2) final examination (about 60%)
Details will be discussed with students during the first classes.

[Textbooks]

Not fixed

[References, etc.]

(**Reference book**)
Introduced during class

[Study outside of class (preparation and review)]

As in every math course, students should read notes carefully and repeatedly after the class, solve exercise problems and try to find alternative proofs, counterexamples, etc.
After many hours of such practice you may get an intuitive understanding of the materials covered.

[Other information (office hours, etc.)]

Students are welcome to ask questions during or at the end of the class.
The schedule of office hours will be announced in the first lecture.

Lecture code: N804001

Course number	U-LAS11 10002 LE55		
Course title (and course title in English)	Introductory Statistics-E2 Introductory Statistics-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,VEALE, Richard Edmund

Group	Natural Sciences	Field(Classification)	Data Science(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2

Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Statistical methods are used throughout science, but there is often a wide gap between basic statistics courses and how statistical methods are applied in the scientific literature. This course intends to narrow this gap by introducing students to basic statistical concepts and by providing insight into how these concepts are used in the "real" scientific world. This will entail descriptive statistics, inferential statistics, and data visualization. Real-world examples will be drawn from the behavioral and life sciences, medicine, and epidemiology. The language of instruction in this course is English which will help to understand the statistical terminology in the scientific literature.

[Course objectives]

- To acquire basic statistical knowledge and the ability to conduct basic statistical analysis.
- To be able to critically read scientific reports and to judge their quality in terms of statistical methodology.

[Course schedule and contents)]

1) Introduction
2) Data collection: Survey sampling
3) Data collection: Experiments and clinical trials
4) Data editing and summary
5) 2 by 2 tables: Chi-square tests
6) Tests for independence: Fisher's exact tests
7) Risk ratios and odds ratios
8) Tests of difference of two proportions
9) Random sampling, randomization, and sample size calculations
10) Probability distributions and limit theorems
11) Tests of two means
12) Correlations and regressions
13) How to use statistics correctly?
14) Further studies
15) Feedback

Continue to Introductory Statistics-E2(2)↓↓↓

Introductory Statistics-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (30 points), written reports as homework (50 points) and 5 random in-class (open-note) quizzes, the lowest of which will be dropped (20 points). The quizzes and reports are to test whether the students have achieved the course goals. Students who are absent more than four times will not be credited.

[Textbooks]

Not used
Lecture notes will be provided during the course.

[References, etc.]

（**Reference book**）
Klein, Dabney 『The cartoon introduction to statistics』 （Hill and Wang Pub）ISBN: 0809033593

[Study outside of class (preparation and review)]

To achieve the course goals, students should review the lecture material and practice with homework provided in class. This class uses the statistical software JMP which is available to Kyoto University students. The time necessary for review should be in the range of 3 hours per class.

[Other information (office hours, etc.)]

No fixed office hours, but students are welcome to arrange appointments by email.

Lecture code: N804002

Course number	U-LAS11 10002 LE55		
Course title (and course title in English)	Introductory Statistics-E2 Introductory Statistics-E2	Instructor's name, job title, and department of affiliation	Institute for Life and Medical Sciences Associate Professor,VANDENBON, Alexis

Group	Natural Sciences	Field(Classification)	Data Science(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Statistics is arguably the most important science in the world, because every other field of science depends upon it. Nowadays, science is becoming increasingly driven by large amounts of data. The key problem is how to extract knowledge from this data. Statistical analysis is a necessary step in solving this problem. This course will introduce the theory behind basic statistics and practical applications.

[Course objectives]

Students will learn about basic concepts in statistics, and learn to apply them on real datasets. Students will develop a feeling for critical thinking when faced with data, be able to make hypotheses, and suggest relevant ways to test them.

[Course schedule and contents)]

Lectures 1 and 2. Introduction to statistics and data analysis. Statistics in the context of the general process of investigation. Introduction to numerical and categorical data. Simple ways of visual inspection (scatter plots, histograms, etc) and summary statistics.
Lecture 3 and 4. Probability. Formal introduction to probability, probability distributions, independent and dependent variables, and conditional, marginal, joint probability, and random variables.
Lecture 5. Distributions of random variables. Introduction to the normal distribution and its properties.
Lectures 6 and 7. Foundations for inference. We will discuss the principles of parameter inference, and the reliability of parameter estimates, including standard errors and confidence intervals. We will also introduce hypothesis testing and p-values based on these principles.
Lectures 8 and 9. The Central Limit Theorem and inference for numerical data. Practical applications, and the t-test.
Lectures 10 and 11. Inference for categorical data. We examine proportions, their confidence intervals, hypothesis testing, and comparison.
Lecture 12. Introduction to linear regression. We will cover line fitting, residuals, correlation, and least squares regression. The assumptions, interpretation, and weaknesses of linear regression will be introduced.
Lecture 13. Multiple and logistic regression. We expand the principles of simple linear regression to cases with many predictors (multiple regression), and cases where the outcomes are binary categorical (logistic regression).
Lecture 14. Review of course material.
Lecture 15. Final examination, if the COVID-19 situation allows it. If a face-to-face examination is impossible, the final examination will be replaced by a number of smaller assignments.
Lecture 16. Feedback

Continue to Introductory Statistics-E2(2)↓↓↓

Introductory Statistics-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Grading will be based on a final examination (50%) and small assignments (50%).

[Textbooks]

Diez, Cetinkaya-Rundel, and Barr 『OpenIntro Statistics (Fourth Edition)』 (OpenIntro, Inc.) ISBN:978-1943450077 (The course lectures will follow the content of this textbook. Please note that this textbook is also freely (legally) available for download at https://www.openintro.org/stat/textbook.php?stat_book=os)

[Study outside of class (preparation and review)]

The course will follow a textbook. At the end of each lecture I will specify the sections to read before the next lecture.

[Other information (office hours, etc.)]

No fixed office hours. Students are requested to make appointments directly or by email.

Lecture code: N815001

Course number	U-LAS11 10010 LE55		
Course title (and course title in English)	Mathematical Statistics-E2 Mathematical Statistics-E2	Instructor's name, job title, and department of affiliation	Research Institute for Mathematical Sciences Associate Professor,Croydon, David Alexander

Group	Natural Sciences	Field(Classification)	Data Science(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.3	Target year	Mainly 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This course will develop the theory of statistical inference, which has applications across the natural and social sciences, and beyond. It will focus on the key topics of parameter estimation and hypothesis testing. As well as presenting the theoretical justification for various techniques covered, it will also be a goal to show how these can be applied in examples.

[Course objectives]

- To understand the basic concepts of, and mathematical justification for, point estimation and hypothesis testing
- To be able to apply key techniques of statistical inference in applications

[Course schedule and contents)]

The following indicates possible topics that will be covered and the approximate schedule, though the precise details may vary depending on the students' proficiency level and background.

(1) Review of probability theory [3 weeks]
Outcomes and events, probability spaces, conditional probability, independence, random variables, probability mass functions, probability density functions, expectation and variance, multivariate distributions, common families of distributions

(2) Point estimates [5 weeks]
Parameterized statistical models, statistics and estimators, sampling distribution, bias, mean-squared error, maximum likelihood estimates (computation and properties), confidence intervals, point estimation for linear models

(3) Hypothesis testing [4 weeks]
Null and alternative hypotheses, likelihood ratio tests, methods of evaluating tests, goodness-of-fit tests, tests for comparing mean and variance of two samples, tests for independence, p-values

(4) Applications [2 weeks]
Example applications will be explored in exercise sheets covering the main aspects of the course, and the solutions of these will be discussed in class.

Total: 14 classes and 1 week for feedback.

Continue to Mathematical Statistics-E2(2)↓↓↓

Mathematical Statistics-E2(2)

[Course requirements]

No statistical knowledge will be assumed. However, some basic calculus (e.g. finding the maximum of a function using differentiation) will be helpful.

[Evaluation methods and policy]

There will be 3 exercise sheets throughout the course, for which students will be expected to return work and present some of their answers in class. This will account for 30% of the final mark. The remaining 70% will be based on a final exam.

[Textbooks]

There will be no set textbook for the course, as the lectures will contain all the material needed for the homework and exam. However, students might find the following useful as additional reading:

Introduction to Mathematical Statistics, McKean, Hogg and Craig, Pearson, 2020
Statistical Inference, Casella and Berger, Duxbury, 2002
Mathematical Statistics: An Introduction to Likelihood Based Inference, Rossi, Wiley, 2018

(All of these references contain much more than will be covered in the course.)

[Study outside of class (preparation and review)]

The lecturer will present the basic concepts in class, upon which exercise sheets will be set. The time required to complete these exercise sheets will vary from assignment to assignment and student to student, but the lecturer estimates that they will take 4-5 hours each.

[Other information (office hours, etc.)]

Lecture code: N815002

Course number	U-LAS11 10010 LE55		
Course title (and course title in English)	Mathematical Statistics-E2 Mathematical Statistics-E2	Instructor's name, job title, and department of affiliation	Research Institute for Mathematical Sciences Associate Professor,Croydon, David Alexander

Group	Natural Sciences	Field(Classification)	Data Science(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.1	Target year	Mainly 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This course will develop the theory of statistical inference, which has applications across the natural and social sciences, and beyond. It will focus on the key topics of parameter estimation and hypothesis testing. As well as presenting the theoretical justification for various techniques covered, it will also be a goal to show how these can be applied in examples.

[Course objectives]

- To understand the basic concepts of, and mathematical justification for, point estimation and hypothesis testing
- To be able to apply key techniques of statistical inference in applications

[Course schedule and contents)]

The following indicates possible topics that will be covered and approximate schedule, though the precise details may vary depending on the students' proficiency level and background.

(1) Review of probability theory [3 weeks]
Outcomes and events, probability spaces, conditional probability, independence, random variables, probability mass functions, probability density functions, expectation and variance, multivariate distributions, common families of distributions

(2) Point estimates [5 weeks]
Parameterized statistical models, statistics and estimators, sampling distribution, bias, mean-squared error, maximum likelihood estimates (computation and properties), confidence intervals, point estimation for linear models

(3) Hypothesis testing [4 weeks]
Null and alternative hypotheses, likelihood ratio tests, methods of evaluating tests, goodness-of-fit tests, tests for comparing mean and variance of two samples, tests for independence, p-values

(4) Applications [2 weeks]
Example applications will be explored in exercise sheets covering the main aspects of the course, and the solutions of these will be discussed in class.

Total: 14 classes and 1 week for feedback.

Continue to Mathematical Statistics-E2(2)↓↓↓

Mathematical Statistics-E2(2)

[Course requirements]

No statistical knowledge will be assumed. However, some basic calculus (e.g. finding the maximum of a function using differentiation) will be helpful.

[Evaluation methods and policy]

There will be 3 exercise sheets throughout the course, for which students will be expected to return work and present some of their answers in class. This will account for 30% of the final mark. The remaining 70% will be based on a final exam.

[Textbooks]

There will be no set textbook for the course, as the lectures will contain all the material needed for the homework and exam. However, students might find the following useful as additional reading:

Introduction to Mathematical Statistics, McKean, Hogg and Craig, Pearson, 2020
Statistical Inference, Casella and Berger, Duxbury, 2002
Mathematical Statistics: An Introduction to Likelihood Based Inference, Rossi, Wiley, 2018

(All of these references contain much more than will be covered in the course.)

[Study outside of class (preparation and review)]

The lecturer will present the basic concepts in class, upon which exercise sheets will be set. The time required to complete these exercise sheets will vary from assignment to assignment and student to student, but the lecturer estimates that they will take 4-5 hours each.

[Other information (office hours, etc.)]

Lecture code: N809001

Course number	U-LAS11 10009 LE55		
Course title (and course title in English)	Basic Data Analysis-E2 Basic Data Analysis-E2	**Instructor's name, job title, and department of affiliation**	Institute for Life and Medical Sciences Associate Professor,VANDENBON, Alexis
Group	Natural Sciences	**Field(Classification)**	Data Science(Foundations)

Language of instruction	English	**Old group**	Group B	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Tue.2	**Target year**	All students	**Eligible students**	For all majors

[Overview and purpose of the course]

Nowadays, research in many fields of science is increasingly dependent on large amounts of data. The key problem is how to turn this data into new knowledge. This course covers a wide variety of data analysis and machine learning approaches. The course starts with an introduction of the basic concepts in machine learning. After that, we will introduce regression and classification methods, including linear models, tree-based methods, support vector machines, and principal component analysis. Practical applications will be demonstrated using the statistical programming language R.

[Course objectives]

Students will learn about basic concepts in data analysis and statistical learning, such as regression and classification problems, and supervised and unsupervised machine learning. Students will become familiar with strengths and weaknesses of several approaches, and learn how to apply them on real datasets.

[Course schedule and contents)]

Lectures 1 and 2. Introduction to data analysis and machine learning: We will discuss data analysis in the context of scientific investigation. Using several examples, the concepts of supervised and unsupervised learning, regression and classification problems, and assessment of model accuracy will be introduced.

Lectures 3 and 4. Linear regression: Introduction to linear regression as a simple supervised learning approach. We will cover simple and multiple linear regression, discuss how to interpret models, and compare linear regression with K-nearest neighbors.

Lectures 5 and 6. Classification methods. We will introduce classification methods, including logistic regression, linear discriminant analysis, and quadratic discriminant analysis. We will discuss the differences between them, and their strong and weak points.

Lecture 7 and 8. Model assessment: We will introduce several approaches for evaluating the accuracy of models, including cross-validation and bootstrapping.

Lectures 9 and 10. Tree-based methods: Focussing on decision trees, we will introduce tree-based methods for regression and classification. After that, we will cover more advanced methods, such as Bagging, Random Forests, and Boosting.

Lecture 11. Support Vector Machines (SVMs): We will introduce maximal margin classifiers, and use this as

Continue to Basic Data Analysis-E2(2)↓↓↓

Basic Data Analysis-E2(2)

a base to exploring SVMs.

Lectures 12 and 13: Unsupervised learning: Introduction to unsupervised learning problems. We will introduce Principal Component Analysis, K-means clustering, and hierarchical clustering.

Lecture 14. Review of course material.

Lecture 15. Final examination, if the COVID-19 situation allows it. If a face-to-face examination is impossible, the final examination will be replaced by a number of smaller assignments.

Lecture 16. Feedback

[Course requirements]

The course is intended for students who have a basic understanding of statistics. Programming experience is useful but not required.

[Evaluation methods and policy]

Grading will be based on a final examination (50%) and small assignments (50%).

[Textbooks]

James, Witten, Hastie and Tibshirani 『An Introduction to Statistical Learning: with Applications in R』（Springer）ISBN:978-1461471370（The course lectures will follow the content of this textbook (Edition 1). Sections of the book to read in preparation of each class will be announced. This textbook contains theoretical parts as well as practical exercises. Please note that this textbook is also freely (legally) available for download at https://www.statlearning.com.）

[Study outside of class (preparation and review)]

The course will follow a textbook. At the end of each lecture I will specify the sections to read before the next lecture.

[Other information (office hours, etc.)]

No fixed office hours. Students are requested to make appointments directly or by email.

Lecture code: N816001

Course number	U-LAS11 20002 LE55				
Course title (and course title in English)	Second Course in Statistics-E2 Second Course in Statistics-E2	Instructor's name, job title, and department of affiliation	Research Institute for Mathematical Sciences Associate Professor,Croydon, David Alexander		
Group	Natural Sciences	Field(Classification)	Data Science(Development)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.2	Target year	Mainly 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This second course in statistics provides an in-depth introduction to regression, which is the area of statistics in which a dependent variable is modelled as a linear function of one or more predictor variables, together with a random error. Regression has applications across scientific research, engineering, and various other fields, and it will be an additional goal of the course to explore some of these. Whilst some knowledge of introductory statistical theory might be helpful, the course is intended to be self-contained.

[Course objectives]

- To gain a mathematical foundation in regression analysis
- To understand how to interpret and evaluate a linear model
- To develop skills in using statistical software (R)
- To be able to apply simple linear regression, multiple linear regression, and generalized linear models in examples

[Course schedule and contents)]

The following indicates possible topics that will be covered and approximate schedule, though the precise details may vary depending on the student's proficiency level and background. Moreover, in addition to the mathematical content, applications will be considered throughout the course.

(1) Simple linear regression [7 weeks]
Definition of the model, parameter estimation, model interpretation and evaluation

(2) Multiple linear regression [4 weeks]
Estimators for such models, tests for significance of regression, tests on individual regression coefficients and subsets of coefficients, confidence intervals on regression coefficients, polynomial regression

(3) Generalized linear models [3 weeks]
Link functions and linear predictors, parameter estimation, model analysis, specific examples of generalized linear models including logistic regression and Poisson regression

Total: 14 classes and 1 week for feedback

[Course requirements]

Whilst not essential, it will benefit students if they have previously taken an introductory statistics course. In

Continue to Second Course in Statistics-E2(2)↓↓↓

order to complete the assignments, students will be asked to download and use the free statistical software R (and RStudio). No previous knowledge of statistical computing/programming will be assumed.

[Evaluation methods and policy]

There will be regular (approximately fortnightly) exercise sheets throughout the course, for which students will be expected to return work and present some of their answers in class. This will account for 70% of the final mark. The remaining 30% will be based on a final exam.

[Textbooks]

There will be no set textbook for the course, as the lectures will contain all the material needed for the homework and exam. However, students might find the following useful as additional reading:
Introduction to the Practice of Statistics, Moore and McCabe
Regression: Linear Models in Statistics, Bingham and Fry, Springer, 2010
Introduction to Linear Regression Analysis, Montgomery, Peck, and Vining, Wiley, 2012

[Study outside of class (preparation and review)]

The lecturer will present the basic concepts in class, upon which assignments will be set. The time for these might vary from assignment to assignment, and student to student, but the lecturer estimates these to take 2-3 hours each.

[Other information (office hours, etc.)]

Lecture code: N813002

Course number	U-LAS11 20005 SE55		
Course title (and course title in English)	Data Analysis Practice I-E2 Data Analysis Practice I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Pharmaceutical Sciences Program-Specific Associate Professor,Martin Robert

Group	Natural Sciences	Field(Classification)	Data Science(Development)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・First semester
Days and periods	Wed.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

The world around us, is filled with numbers (data) that range over many scales of space and time and that describe its organization. In biology, traditionally, data feature parts lists and partial views of the connections between those parts. However, there is also a vast amount of quantitative (numerical data) that is accumulating, whether from sequences of DNA, concentrations of various biomolecules, or other types of data.

The ability to handle, process, explore, and visualize data are important skills for all students. While in this course many examples will be derived from biology, the mindset and basic analysis workflows are widely applicable in any domain of science, engineering and beyond.

In this course you will learn how to use R, RStudio, and the Tidyverse packages to clean, process, manipulate, explore, and visualize data. This course is for beginners and there is no specific requirement.

[Course objectives]

By the end to this course participants should be able to:
- Perform basic data processing and analysis using R
- Find and describe different forms of (biological) data
- Elaborate specific questions about the data
- Clean and process raw data
- Transform data
- Draw various types of plots to interpret from its results
- Gain insight into data
- Develop analysis workflows
- Effectively communicate the results of data analysis

[Course schedule and contents)]

Week 1 Guidance and introduction
Week 2 What is data? Getting started with R
Week 3 Workflow demonstration
Week 4-5 Importing and cleaning up data
Week 6-7 Data transformation
Week 8 Data visualization
Week 9 Digging deeper into R using dplyr

Continue to Data Analysis Practice I-E2(2)↓↓↓

Data Analysis Practice I-E2(2)

Week 10 Dealing with specific data (strings, dates, etc.)
Week 11 Getting to grips with ggplot - producing publication-quality figures
Week 12 Working with single variables
Week 13 Exploring relationships among variables
Week 14 Looking back and looking forward
Week 16 Feedback

[Course requirements]

Students should bring a computer to class to complete in-class exercises and tutorials as well as homework assignments.

[Evaluation methods and policy]

20 % Class attendance/ participation
60 % In-class exercises and homework assignments
20 % Project and presentation

[Textbooks]

Owen L. Petchey, Andrew P. Beckerman, Natalie Cooper, and Dylan Z. Childs 『Insights from Data with R : An Introduction for the Life and Environmental Sciences』（Oxford University Press USA, 2021）
The textbook listed above will be the main resource for the course but students are not required to buy it. Kyoto University Library has some digital license available.

[References, etc.]

（**Reference book**）
Wickham and Grolemund 『R for data science』（O'Reilly Media, 2017）

[Study outside of class (preparation and review)]

Out of class activities will mainly be for assigned readings and homework assignments and for working on a project. Students should expect to spend about 1-2 hours per week preparing for the class and completing assignments.

[Other information (office hours, etc.)]

Announced during class.

Lecture code: N814001

Course number	U-LAS11 20006 SE55				
Course title (and course title in English)	Data Analysis Practice II-E2 Data Analysis Practice II-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Associate Professor,PATAKY，Todd		
Group	Natural Sciences	Field(Classification)	Data Science(Development)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・Second semester
Days and periods	Fri.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course aims to explore a wide variety of data analysis methods in a manner that emphasizes data interpretation. Probability and distributions will be explored using graphical and numerical approaches. Concepts from classical hypothesis testing and machine learning will be emphasized through example. No prior knowledge of statistics or data science is required. Computer programming experience is useful but not required.

[Course objectives]

Students will learn the basics of data science, statistics and computer programming. Students will understand when certain data science tools are useful and when they are less useful or even inappropriate. This lecture will extensively use the Python programming language (python.org) and Jupyter Notebooks (jupyter.org). The final goal of this course is to produce a Final Project, which involves (1) analysis of a real-world dataset using a variety of analysis techniques, and (2) creation of a full report of your findings, in a user-friendly format, similar to real-world report that you might one day produce for a data analysis customer.

[Course schedule and contents)]

The following weekly topics will be covered:

1) Jupyter I: Introduction
2) Python I: Basics
3) Python II: Visualizing Data
4) Python III: Getting Data
5) Python IV: Parsing Data
6) Jupyter II: Organizing Code
7) Classical Stats I: Descriptive Statistics & Correlation
8) Classical Stats II: Hypothesis Testing
9) Classical Stats III: Meaning of Probabilities
10) Machine Learning I: Classification
11) Machine Learning II: Clustering
12) Machine Learning III: Regression
13) Machine Learning IV: Preprocessing & Dimensionality Reduction
14) Jupyter III: Organizing Reports
15) Feedback

Continue to Data Analysis Practice II-E2(2)↓↓↓

Data Analysis Practice II-E2(2)

[Course requirements]

There are no specific requirements for this class. However, students must be willing to work with open-source software, which is relatively poorly documented compared to commercial software. The class instructor will help with problems, but students are also encouraged to find solutions to their problems through internet searches.

Additionally, skills in the following would be helpful:
- Computer programming: Python experience (or experience with any other language)
- HTML editing: Markdown (or any other high-level HTML-generation language)
- Statistics: basic hypothesis testing, basic machine learning, etc.

[Evaluation methods and policy]

Students are expected to produce all in-class demonstrations independently, and to independently complete regular assignments.

Evaluation will be based on the following criteria:

- Assignments (80%) [10 @ 8% each]
- Final Project (20%)

TOTAL: 100%

[Textbooks]

An open, electronic textbook will be electronically distributed to students and will be used in all classes. All other necessary materials will also be distributed electronically and will be discussed in class.

[References, etc.]

（**Reference book**）

Joel Grus 『Data Science from Scratch: First Principles with Python』（O'Reilly Media）ISBN:978-1491901427（Lectures will loosely follow this textbook's content. This textbook is OPTIONAL, but will be useful for reviewing concepts and for independent study.）
"Data Science from Scratch" is a useful reference book, but is not required for this class. Lecture notes and all other materials will be made available electronically.

（**Related URL**）

https://github.com/joelgrus/data-science-from-scratch(Software (data and code) for “Data Science from Scratch” by Joel Grus)
https://www.jupyter.org(Jupyter will be used extensively for both lectures and assignments.)

[Study outside of class (preparation and review)]

This course has a variety of out-of-class assignments (including a Final Project) and no exam. Students who do not pay attention to the lecture content during class will likely have difficulties completing the assignments.

The lecture content will be made available prior to the lecture. It is recommended that students review this content prior to the lecture.

Continue to Data Analysis Practice II-E2(3)↓↓↓

Data Analysis Practice II-E2(3)

[Other information (office hours, etc.)]

OFFICE HOURS:
Immediately before / after class or by appointment (pataky.todd.2m @ kyoto-u.ac.jp)

Lecture code: N208001

Course number	U-LAS12 10002 LE57		
Course title (and course title in English)	Fundamental Physics A Fundamental Physics A	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,QURESHI,　Ali Gul

Group	Natural Sciences	Field(Classification)	Physics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.4	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

Lectures on the topics of physics (classical mechanics) that are common and necessary to all students who study natural sciences.

[Course objectives]

To acquire knowledge of basic concepts of physics such as motion, energy, gravitation, and the related laws of these topics.

[Course schedule and contents)]

1. Kinematics, velocity and acceleration, components of polar coordinates (3 weeks)
2. Laws of motion, equations of motion and application (3 weeks)
3. Law of conservation, work and energy, angular momentum, momentum (3 weeks)
4. Motion due to a central force, planetary motion under the gravitation of the sun (3 weeks)
5. Motion of a system of particles (2 weeks)
6. Feedback (1 week)

[Course requirements]

This course is intended mainly for students who studied physics at high school. Those who did not study physics are recommended to take "Elementary Course of Physics A".

[Evaluation methods and policy]

Weekly submission of class examples, class participation and homework (25%), Snap quizzes (20%), Final examination(55%)

[Textbooks]

Not used

[References, etc.]

（**Reference book**）

William Moebs et al. 『University Physics Vol.1』（OpenStax）（Book is available at https://openstax.org/details/books/university-physics-volume-1）

Raymond A. Serway, John W. Jewett jr. 『Physics for scientists and engineers with modern physics』（Brooks/Cole Cengage Learning）ISBN:1133953980

Marcelo Alonso, Edward Finn 『Physics』（Addison-Wesley）ISBN:0201565188

Continue to Fundamental Physics A(2)↓↓↓

Fundamental Physics A(2)

[Study outside of class (preparation and review)]

Students are advised to refer to the class handouts and readings provided in the classes. Homework is assigned to strengthen the learning of the topics covered in class, therefore, it is advised to students to do their homework regularly and carefully.

[Other information (office hours, etc.)]

Office hours will be provided during the first lecture.

Lecture code: N261002

Course number	U-LAS12 10003 LE57				
Course title (and course title in English)	Fundamental Physics A-E2 Fundamental Physics A-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Engineering Senior Lecturer,Lim, Sunghoon		
Group	Natural Sciences	**Field(Classification)**	Physics(Foundations)		
Language of instruction	English	**Old group**	Group B	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Tue.2	**Target year**	Mainly 1st year students	**Eligible students**	For science students

[Overview and purpose of the course]

This course introduces the terminology and fundamental concepts of classical mechanics. It covers law of conservation involving energy and momentum and mathematical modeling of a system of particles.

[Course objectives]

The goal of this course is to learn the concepts of analytic method for solving equations of motions which are the most common and important mathematical models in science and engineering and to develop an ability to apply the theories to solve a real world physics problem.

[Course schedule and contents)]

1. Vectors, kinematics, and circular motion (3 weeks)
2. Newton's laws of motion and circular motion dynamics (3 weeks)
3. Momentum and conservation of momentum (2 weeks)
4. Potential energy and conservation of energy (3 weeks)
5. System of particles and rigid body dynamics (3 weeks)
6. Final examination (1 week)
7. Feedback session (1 week)

[Course requirements]

Basic knowledge of high school physics is required for effective lesson.

[Evaluation methods and policy]

Attendance and homework (30%), Midterm examination (30%), and final examination (40%)

[Textbooks]

Study guides will be given in every lecture.

[References, etc.]

（**Reference book**）

David Halliday, Robert Resnick, and Jearl Walker 『Fundamentals of Physics 10th Edition』 （Wiley）
ISBN:111823071X

[Study outside of class (preparation and review)]

Study guides and simple assignments will be provided every week, to help you expand your knowledge.

[Other information (office hours, etc.)]

Questions can be sent by email, and will be answered electronically.

Lecture code: N209001

Course number	U-LAS12 10005 LE57				
Course title (and course title in English)	Fundamental Physics B Fundamental Physics B	**Instructor's name, job title, and department of affiliation**	Graduate School of Engineering Associate Professor,QURESHI,　Ali Gul		
Group	Natural Sciences	**Field(Classification)**	Physics(Foundations)		
Language of instruction	English	**Old group**	Group B	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・Second semester
Days and periods	Thu.4	**Target year**	Mainly 1st year students	**Eligible students**	For science students

[Overview and purpose of the course]

The objective of this course is to introduce fundamental concepts of physics relating with electricity and magnetism.

[Course objectives]

. To understand the basic concepts of electricity and magnetism
. To be able to relate and appreciate the role of these concepts in many natural phenomenon
. To learn about the working of inventions (such as motors, generators, etc.) based on applications of these concepts.

[Course schedule and contents)]

1)- Introduction to Electric fields, electric charge, Coulomb's law, Electric Flux, Gauss's law, Electric Potential, Equipotential lines and electric fields.(3 weeks)

2)- Capacitance and capacitors: Capacitors connected in parallel and series, Equivalent Capacitance (2 weeks)

3)- Electric Current, Ohm's Law, Resistors in parallel and series, Equivalent resistance, Kirchhoff's rules (3 weeks)

4)- Introduction to Magnetic Fields, Torque on a Current Loop, charged particle in uniform magnetic field, Magnetic flux (2 weeks)

5)- Electrocmagnetic Induction: Faraday's Law, Lenz's law, generators (2 weeks)

6)- Maxwell's Equations and Electromagnetic Waves (2 weeks)

7)- Feedback (1 week)

[Course requirements]

This course is intended mainly for students who studied physics at high school.

Continue to Fundamental Physics B(2)↓↓↓

Fundamental Physics B(2)

[Evaluation methods and policy]

Weekly submission of class examples, class participation and homework (25%), Snap quizzes (20%), Final examination(55%).

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）
Samuel J. Ling et al. 『University Physics, Vol. 2』（OpenStax）（The book is available online at https://openstax.org/details/books/university-physics-volume-2）
Serway, R.A & Jewett, J.W. Jr. (2011) 『Physics for Scientists and Engineers With Modern Physics』（Brooks/Cole Publishers）

[Study outside of class (preparation and review)]

Students are advised to go through the class handouts and the readings suggested in the class for each topic. Homework is assigned to strengthen the learning of the topic covered in the class, therefore, it is advised to the students to do homework regularly and carefully.

[Other information (office hours, etc.)]

Lecture code: N264001

Course number	U-LAS12 10006 LE57				
Course title (and course title in English)	Fundamental Physics B-E2 Fundamental Physics B-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Engineering Senior Lecturer,DE ZOYSA，Menaka		
Group	Natural Sciences	**Field(Classification)**	Physics(Foundations)		
Language of instruction	English	**Old group**	Group B	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・Second semester
Days and periods	Thu.3	**Target year**	Mainly 1st year students	**Eligible students**	For science students

[Overview and purpose of the course]

This course will explain students the fundamental concepts of electricity and magnetism. To obtain a better understanding of the concepts, solve the problems during the lectures.

[Course objectives]

・ Understand the basic laws of electricity and magnetism.
・ Understand the concepts better by applying the laws and concepts to solve problems.

[Course schedule and contents)]

1. Overview of the course, introduction to vector calculus (1 week)
2. Coulomb's law, electric field, electrostatic potentials (2 weeks)
3. Gauss's law (1 week)
4. Electric field around conductors (1 week)
5. Electrostatic capacitance (2 weeks)
6. Electrostatic energy and force (2 weeks)
7. Boundary-value problems (2 weeks)
8. Electric current (1 week)
9. Magnetic field of moving charges (2 weeks)
10. Feedback (1 week)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on participation (20%), mid-term examination (30%), and final examination (50%).

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
David J. Griffiths 『Introduction to Electrodynamics』

[Study outside of class (preparation and review)]

Students are required to do their homework. When trouble is encountered during homework, please refer recommended textbook or please ask the instructor.

[Other information (office hours, etc.)]

Office hour: Anytime by email and appointments should be made via email.

Lecture code: N264002

Course number	U-LAS12 10006 LE57				
Course title (and course title in English)	Fundamental Physics B-E2 Fundamental Physics B-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,BANERJEE, Amit		
Group	Natural Sciences	Field(Classification)	Physics(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.3	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

This course aims to introduce the fundamental concepts of classical electromagnetic theory, which plays a fundamental role in many areas of science and engineering.

After learning the concepts introduced in this course, students will be able to (a) understand fundamental properties of electromagnetic fields and their governing equations in the language of vector calculus, (b) solve problems involving electromagnetic fields and motion under their influence, (c) mathematically and intuitively understand the concept of electromagnetic wave, and (d) advance their mathematical skills, particularly regarding vector calculus and 2D/ 3D polar coordinate systems.

[Course objectives]

(1) To explain fundamental concepts of electromagnetic theory, (2) To encourage practical problem solving and teach necessary mathematical tools, (3) To appreciate the foundational role of these concepts in theoretical and applied physics, (4) To provide a solid foundation for students to acquire advanced knowledge on the subject in future.

[Course schedule and contents)]

1. Introduction to electromagnetic theory and review of vector (2 weeks)

2. Electrostatics: Coulomb's law of electrostatic interaction; superposition principle; continuous charge distributions; electrostatic field; divergence and curl of electrostatic fields; Gauss's law; electrostatic potential, work and energy in electrostatics (5 weeks)

3. Magnetostatics: Lorentz force law; interaction between electric current and magnetic field; continuity equation; steady current; Biot-Savart law and Ampere's law; divergence and curl of magnetostatic fields; concept of vector potential; current loop and magnetic dipole (3 weeks)

4. Electrodynamics: electromotive force; electro-magnetic induction and inductors; electric current, resistor, capacitor, and Kichhoff's law; DC, AC circuits (2 weeks)

5. Electromagnetic wave: Maxwell's correction to Ampere's law; Maxwell's equations and electromagnetic wave propagation (2 weeks)

5. Feedback（1 week）

Continue to Fundamental Physics B-E2(2)↓↓↓

Fundamental Physics B-E2(2)

[Course requirements]

Basic understanding of high-school physics and calculus. Some understanding of vector analysis will be helpful.

[Evaluation methods and policy]

Evaluation procedure: active participation (10%), one assignment (40%), and final examination (50%)

[Textbooks]

David J. Griffiths 『Introduction to Electrodynamics』 （Cambridge University Press）ISBN:978-1108420419

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Following study materials and working on assignment / homework

[Other information (office hours, etc.)]

To be discussed during lectures.

Lecture code: N256001

Course number	U-LAS12 10008 EE57		
Course title (and course title in English)	Elementary Experimental Physics-E2 Elementary Experimental Physics-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,WENDELL,Roger Graduate School of Science Senior Lecturer,LEE, Shiu Hang Graduate School of Engineering Senior Lecturer,Lim,　Sunghoon Graduate School of Human and Environmental Studies

Group	Natural Sciences	Field(Classification)	Physics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	2	Class style	Experiment	Year/semesters	2023・Second semester
Days and periods	Fri.3・4	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

Natural sciences are the product of experimental investigation and theoretical interpretation. In this course, students will learn to use various measurement instruments to perform experiments in topics including atomic, laser, particle, and low temperature physics.

Basic topics in experimental physics will be covered, enabling students to get a deeper understanding of the natural sciences. In addition, techniques for processing and analyzing experimental data will be mastered. Finally, students will learn how to write scientific reports and present their results orally.

[Course objectives]

- Learn physics by carrying out experiments and discussing in an open setting
- Learn basic skills for processing and analyzing experimental data.
- Learn how to keep a laboratory notebook, and write up experimental reports.
- Learn to give a scientific presentation explaining the results of an experiment.

Students will be evaluated on these skills on the basis of their experimental reports and contributions to in-class discussions.

[Course schedule and contents)]

The first week will be an introduction to the course and its experiments.
Thereafter, classes will be divided into Experimental and Discussion sessions.

Experiments will be performed during the Experimental sessions and group discussions of those results and related physics topics will be held in the subsequent Discussion session.

Experiments available in this course include:

1. Measurement of the magnetic field of a coil using a Hall element
2. Thermionic emission experiment
3. Experiments with lasers
4. Measuring the wavelength of light using diffraction gratings
5. Franck-Hertz experiment

Continue to Elementary Experimental Physics-E2(2)↓↓↓

Elementary Experimental Physics-E2(2)

6. Measurement of Planck's constant
7. Radiation in the Natural World
8. Measurements of Atomic Spectra
9. Coupled Oscillation Studies
10. Electrical Resistance Measurements

Students will perform six experiments from this list and give one oral presentation about one of them.

The class will meet 15 times, including the feedback session.

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on in-lab experimentation, experimental reports (6), and one oral presentation.
Details will be explained in class.

[Textbooks]

Instructed during class
Information about the English language textbook specific to the experiments in the course will be provided during the first lecture.

[References, etc.]

（Reference book）
Introduced during class
Additional information will be provided during class as necessary.

[Study outside of class (preparation and review)]

Students should read the textbook ahead of each experimental session.

[Other information (office hours, etc.)]

Students are encouraged to ask questions during the experimental sessions, and are welcome to contact instructors by email outside of class hours.
Students should make sure to attend the first lecture to receive further information about the course and its textbook.
If you decide to take the course, you must have accident insurance such as “Personal Accident Insurance for Students Pursuing Ed. & Rsch.(学生教育研究災害傷害保険)”.

Lecture code: N277001

Course number	U-LAS12 10034 LE57				
Course title (and course title in English)	Thermodynamics-E2 Thermodynamics-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Senior Lecturer,DECHANT, Andreas		
Group	Natural Sciences	Field(Classification)	Physics(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.3	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

This course provides a comprehensive overview of equilibrium thermodynamics. What makes thermodynamics at the same time appealing but also a little bit mysterious, is that its laws are universal: All macroscopic physical objects that we can observe in our daily lives must obey the laws of thermodynamics. Apart from introducing the various thermodynamic laws and relations and learning how to apply them to different physical systems, we will also understand why thermodynamics is so universal.
The first part introduces the basic concepts of thermodynamics such as thermodynamic systems, environment and state variables. We will formulate the first law of thermodynamics, which relates heat and work through internal energy, and the second law of thermodynamics, which characterizes irreversibility using entropy.
In the second part, the various thermodynamic potentials, such as free energy, are introduced and applied to concrete examples by viewing energy and entropy as thermodynamic functions. Here we will also study the Maxwell relations, which provide a connection different physical quantities.
The third part will deal with phase transitions and phase equilibria. We will understand how to describe a liquid chaning into a gas, and under which conditions both liquid and gas can exist at the same time.

[Course objectives]

- Understanding heat and entropy and how they appear in the laws of thermodynamics.
- Being able to apply thermodynamics to describe physical processes.
- Understanding why thermodynamics is so fundamental for many everyday phenomena.

[Course schedule and contents)]

Week 1-8: Fundamental principles of thermodynamics
- System, environment, and boundary
- States, processes, and equilibrium: the zeroth law
- Heat, work, and energy: the first law
- Irreversibility and entropy: the second law
- Carnot heat engine and efficiency

Week 9-11: Thermodynamic potentials
- State variables and differentials
- Energy and entropy revisited
- Free energy, enthalpy and all the others
- Maxwell relations
- Selected applications

Week 12-14: Phase transitions

Continue to Thermodynamics-E2(2)↓↓↓

Thermodynamics-E2(2)

- Phases and Gibbs' rule
- Phase transitions, critical exponents, and scaling

Week 15：Final written examination
Week 16：Feedback

[Course requirements]

None

[Evaluation methods and policy]

The final score will be determined by weekly assignments (50%) and the final written examination (50%). The total score will be on a scale from 0 to 100 and students will need at least 60 points to pass.

[Textbooks]

C.J. Adkins 『Equilibrium thermodynamics』 （Cambridge University press） ISBN:0521274567

[Study outside of class (preparation and review)]

Students will be asked to complete and hand in assignments.

[Other information (office hours, etc.)]

Most communications between the instructor and students will be carried out using PandA, where you can also find announcements and the assignments. Students can also contact the instructor directly via e-mail, or during the office hour on Thursday from 15:00-16:00.

Lecture code: N255001

Course number	U-LAS12 10012 LE57				
Course title (and course title in English)	Elementary Course of Physics A-E2 Elementary Course of Physics A-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Senior Lecturer,PETERS,Robert		
Group	Natural Sciences	Field(Classification)	Physics(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.3	Target year	All students	Eligible students	For science students

[Overview and purpose of the course]

This course gives an introduction to classical mechanics in English. Using simplified models, we will describe the motion of particles and learn the physical meaning of force, energy, work, and potential. In particular, we will study Newton's laws and apply them to several simple systems. After this, I will introduce the concepts of work, energy, and potential and explain how to solve problems in classical mechanics using these concepts.

In principle, this course is given in English. However, if there are parts that the students cannot understand in English, I can and will explain those in Japanese.

[Course objectives]

- Learning the fundamentals of classical mechanics (Newton's laws, work, energy)
- Being able to solve problems in classical mechanics

[Course schedule and contents)]

In principle, the course will be offered as the following plan. However, there may be changes depending on the progress of the course.
The course will be adapted to the level of the students!

1-2. Introduction to necessary mathematics: curves and coordinate systems
3. Definition of position, velocity, and acceleration
4-5. Introduction to Newton's laws and simple applications
6. Friction
7. Curved motion
8.-9. Oscillations
10. Work
11-12. Energy and potential
13-14. Central forces and the Kepler problem

<<Final examination>>
15. Feedback

Continue to Elementary Course of Physics A-E2(2)↓↓↓

Elementary Course of Physics A-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Worksheets/reports (50%) + examination (50%)

[Textbooks]

I will provide lecture notes.

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Revision of the course by doing the work sheets

[Other information (office hours, etc.)]

Office hours: After the course

Furthermore, I will provide lecture notes which help to understand the lecture.

Although no specific knowledge about physics is needed to take this course, basic skills in differential and integral calculus are expected.

The worksheets will give students an opportunity to practice their English skills in science.

Lecture code: N271001

Course number	U-LAS12 10030 LE57		
Course title (and course title in English)	Elementary Course of Physics B-E2 Elementary Course of Physics B-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,Arseniy Aleksandrovich, Kuzmin

Group	Natural Sciences	Field(Classification)	Physics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.2	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

This course is oriented for those who did not learn physics in high school. This course follows the "Elementary Course of Physics A".

If you already know the subject of this course, you can still benefit from joining me. I will follow two approaches, American and Russian, by using two of the most popular textbooks in US and in Russian Universities for general physics by Halliday and Resnick, and Savelyev, respectively.

This course aims to teach the basics of physics and its methods. Some mathematical constructs are introduced from a simple physical picture, such as a divergence. This course consists of three main topics: Thermodynamics, Electrostatics, and a short introduction in the Relativistic Mechanics.

In Thermodynamics, ideas of heat, pressure, temperature, and entropy are explained.

In Electricity, electrostatic charges and field are introduced, and their interaction is explained.

In Relativistic Mechanics, an idea of a four-vector is introduced, Lorentz transformations are discussed, as well as relationship between momentum and energy.

[Course objectives]

Understanding of the main ideas in Electricity, Thermodynamics, and Relativity will give the listener the ability to make basic calculations and estimations of various phenomena surrounding us in the everyday life.

The main goal is to introduce students to the scientific method and physical thinking.

[Course schedule and contents)]

The following topics are explained in this course:

1. Introduction to temperature and heat. The first law of thermodynamics.
2. Heat transfer mechanisms.
3. The kinetic theory of gases, ideal gas.
4. The distribution of molecular speeds, degrees of freedom.
5. Entropy and the second law of thermodynamics.
6. Heat engines, Carnot engine, statistical view of the entropy.

Continue to Elementary Course of Physics B-E2(2)↓↓↓

7. Coulomb's law. A charge in an electric field.
8. Electric field. Electric fields due to a charge and a dipole.
9. Electric flux. Gauss' law.
10. Applying Gauss' law to problems with different symmetries.
11. Electric potential. Equipotential surfaces. Calculating the field from potential.
12. Capacitance. Energy stored in an electric field.
13. Current and resistance. Electric circuits.
14. Four-vectors, Lorentz transformation, energy and momentum of a relativistic particle.

14 lectures in total and one feedback class.

[Course requirements]

This course is for those students who did not select physics as the entrance examination subject.

[Evaluation methods and policy]

Evaluation will be based on:
10% attendance and participation
20% homework
20% quiz
50% final exam

[Textbooks]

Halliday & Resnick 『Fundamentals of physics』（Wiley, 2014）ISBN: 978-1-118-23072-5
I. V. Savelyev 『Physics, a general course, volume 1』ISBN:5-03-000900-0
I. V. Savelyev 『Physics, a general course, volume 2』ISBN:5-03-000900-0

[Study outside of class (preparation and review)]

Preparation for lectures will include revision of class materials and homework assignments. Detailed instructions will be given during the class.

[Other information (office hours, etc.)]

Lecture code: N211001

Course number	U-LAS12 10015 LE57		
Course title (and course title in English)	Advanced Dynamics Advanced Dynamics	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,KIM SUNMIN

Group	Natural Sciences	Field(Classification)	Physics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.3	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

This course deals with the mechanics of rigid body based on Newton's mechanics. Description of motion of rigid bodies and related applications will be explained in detail.

[Course objectives]

To understand various dynamic topics comprehensively based on many practical examples and problems

[Course schedule and contents)]

The main topics in this lecture are as follows;
(Each items will be covered by 2-3 weeks)

1. Curvilinear motion of a particle [1 week]
- Rectangular components, normal and tangential components, cylindrical components
2. Planer motion of a rigid body [2 weeks]
- Translation, rotation about a fixed axis, relative motion analysis using rotating axes
3. General motion of a rigid body [2 weeks]
- The time derivative of a vector in a rotating reference frame
4. Force and energy of a rigid body [3 weeks]
- Mass moment of inertia, equations of motion, principle of work and energy, conservation of energy
5. Impulse and momentum of a rigid body [3 weeks]
- Linear and angular momentum, impact, principle of impulse and momentum, conservation of momentum
6. Three dimensional motion analysis [3 weeks]
- Moments and products of inertia, equations of motion, gyroscopic motion
7. Final Examination
8. Feedback [1 week]

[Course requirements]

Having taken the course"Fundamental Physics A" is recommended.

[Evaluation methods and policy]

Evaluation is based on assignments (40%) and written tests (final exam: 60%).

Continue to Advanced Dynamics(2)↓↓↓

Advanced Dynamics(2)

[Textbooks]

Not used
Some handout materials will be provided during the class.

[References, etc.]

（**Reference book**）
R. C. Hibbeler 『Dynamics』（Prentice Hall）ISBN:978-0-13-291127-6（very well organized textbook with abundant examples）

[Study outside of class (preparation and review)]

Self-review is strongly recommended after each lecture.

[Other information (office hours, etc.)]

No specific office hour. Email communication is preffered through [kim.sunmin.6x@kyoto-u.ac.jp].

Lecture code: N276001

Course number	U-LAS12 10033 LE57		
Course title (and course title in English)	Advanced Dynamics-E2 Advanced Dynamics-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,BANERJEE, Amit
Group	Natural Sciences	Field(Classification)	Physics(Foundations)
Language of instruction	English	Old group	Group B
Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture
Year/semesters	2023・Second semester		
Days and periods	Tue.4	Target year	Mainly 1st year students
Eligible students	For science students		

[Overview and purpose of the course]

This course aims to introduce advanced concepts of classical mechanics. After learning the content of this course, students will be able to apply Newtonian mechanics to solve advanced problems of classical mechanics, including but not limited to: (a) rotation of rigid bodies, (b) motion under central forces, for example, planetary motion, (c) motion observed from non-inertial frames, etc. Students are also expected to be able to advance their mathematical skills, particularly regarding vector calculus and 2D/ 3D polar coordinate systems by studying the concepts of this course.

[Course objectives]

(1) To build upon the ideas learnt in Fundamental physics A, (2) To introduce advanced concepts of dynamics of rigid bodies, (3) To encourage practical problem solving.

[Course schedule and contents)]

1. Brief review of Cartesian, Spherical and Cylindrical coordinate systems, vector analysis and coordinate transformation, Newton's laws, inertial and non-inertial frames, conservation of energy and momentum, collision problems, distributed systems and center of mass (5 weeks)

2. Central forces, angular momentum, planetary motion and Kepler's laws (2 weeks)

3. Motion observed from non-inertial frames; fictitious forces (2 weeks)

4. Simple motion of Rigid bodies, angular momentum, rotation along fixed axis, moment of inertia (2 weeks)

5. General motion of rigid bodies, inertia tensor and principal axes, Euler's equations of rigid body rotation; precession and nutation, Free symmetric top, Euler angles, heavy symmetric top (3 weeks)

6. Feedback (1 week)

[Course requirements]

Completion of Fundamental Physics A is required.

Continue to Advanced Dynamics-E2(2)↓↓↓

Advanced Dynamics-E2(2)

[Evaluation methods and policy]

Evaluation will be based on active participation (10%), one assignments (40%), Final exam (50%).

[Textbooks]

Instructed during class

[References, etc.]

(Reference book)

Introduced during class

[Study outside of class (preparation and review)]

Following study materials and working on assignments

[Other information (office hours, etc.)]

Will be discussed in the class.

Lecture code: N207001

Course number	U-LAS12 10017 LE57				
Course title (and course title in English)	Physics of Wave and Oscillation Physics of Wave and Oscillation		Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,KIM SUNMIN	
Group	Natural Sciences	Field(Classification)	Physics(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.4	Target year	Mainly 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This course deals with fundamentals of oscillations and waves which commonly relate to various fields in nature such as dynamic motion as well as electromagnetic phenomenon.

[Course objectives]

To understand the basic concepts of wave and oscillation with its mathematical description method

[Course schedule and contents)]

The course contents are as follows:

1) Introduction to the wave and oscillation phenomena
2) Equation and solution of simple harmonic motion
3) The solution of simple harmonic motion (continued)
4) Resistance and damped oscillation
5) Damped oscillation and forced vibration
6) Forced vibration and resonance
7) Coupled vibration and normal mode coordinates
8) Normal mode of a multi-degree-of-freedom system
9) Vibration of multiple rigid bodies
10) Vibration of an elastic body
11) Vibration of a string
12) Fourier series
13) Wave equation and solution, Sinewave
14) Waves superposition and interference
<<Final Examination>>
15) Feedback

[Course requirements]

Having taken the course "Fundamental Physics A＆B" is recommended.

Continue to Physics of Wave and Oscillation(2)↓↓↓

Physics of Wave and Oscillation(2)

[Evaluation methods and policy]

Evaluation is based on assignments (40%) and written tests (final exam: 60%).

[Textbooks]

Not used
Lecture notes will be provided during the class.

[References, etc.]

（**Reference book**）
Walter Fox Smith 『Wave and Oscillations』 （Oxford University Press）ISBN:978-0-19-539349-1（very well organized context to deliver the basic concept of wave and oscillations）

[Study outside of class (preparation and review)]

Self-review is strongly recommended after each lecture.

[Other information (office hours, etc.)]

No specific office hour. Email communication is preferred through [kim.sunmin.6x@kyoto-u.ac.jp].

Lecture code: N275001

Course number	U-LAS12 10032 LE57		
Course title (and course title in English)	Physics of Wave and Oscillation-E2 Physics of Wave and Oscillation-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,BANERJEE, Amit

Group	Natural Sciences	Field(Classification)	Physics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.4	Target year	Mainly 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

Through theoretical explanations and (some) experimental demonstrations, this course will enable students to grasp, explain, and apply the fundamental concepts of oscillation and wave related phenomena in physical systems.

[Course objectives]

Physics of oscillation and wave related phenomenon is a fundamental tool for understanding nature and many brunches of modern technology. In my opinion, it is also one of the most 'fun' topics in physics to study!

In this course, we will begin our study with the simplest situation involving oscillation of one particle and slowly build up a comprehensive theoretical understanding of complex vibrations and wave. Also, whenever possible, we will test these theories through experimental demonstrations.

My primary objectives in this course are:

(1) to clearly explain the fundamental theoretical concepts of oscillation and wave related phenomena in physical systems, (2) to show experimental verification of these concepts wherever possible, (3) to elaborate the technological significance of these concepts, (4) to motivate practical problem solving.

[Course schedule and contents)]

1. Oscillation of a single particle: simple harmonic motion, equation of motion and its solution, potential and kinetic energies; damped harmonic oscillator and Quality factor; damped-forced vibration and the phenomenon of resonance; superposition principle. (5 weeks)

2. Coupled oscillators: coupled oscillation of two particles; normal modes; 3 coupled oscillators; N-coupled oscillators. (5 weeks)

3. Waves: wave equation and its solutions; longitudinal and transverse waves; normal modes of a string under tension; standing and travelling waves; Fourier decomposition of plucked strings' vibration; dispersion, group and phase velocities. (4 weeks)

4. Feedback.（1 week）

Continue to Physics of Wave and Oscillation-E2(2)↓↓↓

Physics of Wave and Oscillation-E2(2)

[Course requirements]

Basic knowledge of trigonometry and Newton's laws are required. Some understanding of complex numbers will be helpful.

[Evaluation methods and policy]

Evaluation procedure: active participation (10%), one assignment (40%), and final examination (50%)

[Textbooks]

A. P. French 『Vibrations and Waves』 （CBS Publishers & Distributors）ISBN:8123909144, 9788123909141（The M.I.T. Introductory Physics Series, 2003）

[References, etc.]

（Reference book）
Introduced during class

[Study outside of class (preparation and review)]

Following study materials and working on assignment / homework

[Other information (office hours, etc.)]

Will be discussed in class

Lecture code: N251001

Course number	U-LAS12 10019 LE57		
Course title (and course title in English)	Advanced Course of Electromagnetism-E2 Advanced Course of Electromagnetism-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,Lim, Sunghoon

Group	Natural Sciences	Field(Classification)	Physics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.1	Target year	Mainly 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

Based on the knowledge you gained from the Fundamental Physics B course, this course will expand your understanding of electromagnetic theory. After a review of the basics of classical electromagnetism up-to Maxwell's equations, we will explore the subjects of electromagnetic wave propagation, interference and diffraction, as well as the derivation of electric and magnetic properties in substances and their boundaries.

[Course objectives]

- Follow the historical progression in our understanding of electromagnetic laws.
- Understand the meaning of physical properties in electromagnetism.
- Apply the laws electromagnetism to solve practical problems.

[Course schedule and contents)]

1. Mathematics review: Coordinate systems, fields, gradient, divergence, curl [2 week].
2. Electrics review: Coulomb's force, dipoles, electric potential, Gauss's law [2 weeks].
3. Magnetics review: Ampere's law, Faraday's law [2 weeks].
4. AC circuits: Resistive, inductive, and capacitive load [1 week].
5. Maxwell's equations: Electromagnetic radiation, interference, diffraction [4 weeks].
6. Electromagnetic properties in substances and at boundaries [2 weeks].
7. Finite element analysis for electromagnetism and its applications [1 weeks].

Final examination [1 week].
Feedback session [1 week].

[Course requirements]

Fundamental Physics B course.

[Evaluation methods and policy]

Evaluation will be based on:
- Class Participation (20%): Student participation will be asked in solving problems and discussing theories and their application.
- Homework (30%): Typical problems will be assigned, which you can solve by applying the laws and methods learnt during lectures.
- Final examination (50%): You will be tested with a series of problems that combine previously studied cases and original cases.

Continue to Advanced Course of Electromagnetism-E2(2)↓↓↓

[Textbooks]

Study guides will be provided every week, to help you expand your knowledge. The study guides closely match the week's topic, providing in-depth explanations, problem solving strategies, and summaries of key points.

[References, etc.]

（**Reference book**）
David Griffiths 『Introduction to Electrodynamics』 （Pearson）ISBN:129-202-142-X（Amazon link: http://www.amazon.co.jp/Introduction-Electrodynamics-4th-David-Griffiths-ebook/dp/B00HR7MXAY）

[Study outside of class (preparation and review)]

For smooth progress of the class, I recommend that students refer to the reference book or textbooks on 'Fundamental Physics' to understand the terminologies related to class in advance. Students can review the contents of the class using the lecture notes, and take-home assignments will be given to help them understand.

[Other information (office hours, etc.)]

Questions can be sent by email, and will be answered either electronically or by appointment (depending on the case).

Lecture code: N260002

Course number	U-LAS12 10026 LE57		
Course title (and course title in English)	Physics for All-E2 Physics for All-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Engineering Senior Lecturer,ISLAM, A K M Mahfuzul

Group	Natural Sciences	**Field(Classification)**	Physics(Foundations)

Language of instruction	English	**Old group**	Group B	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Tue.3	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For liberal arts students

[Overview and purpose of the course]

With the wide-spread of mobile communication, humans are now exposed to electromagnetic fields severely. As today's society is based on various electromagnetic phenomena, it has become a necessity to understand electromagnetics for all. This course focuses on the philosophical view of different physical laws to enrich the understanding of electromagnetics and communication. We will learn that all the complex phenomena found in the universe consist of some basic laws. We will try to understand how these basic laws work using several experiments and illustrations. We will learn different applications of electromagnetism in our lives. We will also learn about harmful electromagnetic radiation. On our journey toward understanding electromagnetism, we will learn that the universe is more mysterious than we thought.

[Course objectives]

- To understand electricity and magnetism
- To understand different features of wave and its role in communication
- To be able to explain various natural phenomena and
- To understand the role of electromagnetic in modern society and the importance of being aware of electromagnetic radiation

[Course schedule and contents)]

The basic outline of the course is given below. The subject and order may change during the course depending on the progress level and feedback.

1. Introduction [1 week]
2. Wave mechanism [3 weeks]
   2-a) Oscillation and wave
   2-b) Different types of wave
   2-c) Features of wave, wave velocity, wave equation, etc
   2-d) Energy transportation
   2-e) Experiment
   2-f) Communication and wave
   2-g) Destructive waves
3. Electromagnetic wave [1 week]
   3-a) Electromagnetic force and other fundamental forces
   3-b) Difference between an electromagnetic wave and a mechanical wave
4. Experiment [1 week]

Continue to Physics for All-E2(2)↓↓↓

Physics for All-E2(2)

   4-a) Investigate the speed of an electromagnetic wave
   4-b) Demonstrate that an electromagnetic wave does not require a medium
   4-c) Demonstrate that electromagnetic wave have similar features like a mechanical wave
5. Field and space [3 weeks]
   5-a) What is field?
   5-b) Scalar field and vector field
   5-c) Relationship between field and force
   5-d) Device law of gravitation and coulomb's law
   5-e) What is space? What is dimension?
6. Electricity and magnetism [3 weeks]
   6-a) Are electricity and magnetism two different phenomena?
   6-b) Einstein's special relativity and electromagnetism
   6-c) Application of electricity and magnetism in our lives
   6-d) Experiment to show how movement causes interaction between electricity and magnetism
7. Electromagnetic radiation and hygiene [2 weeks]
8. Examination [1 week]
9. Feedback [1 week]

[Course requirements]

None

[Evaluation methods and policy]

The evaluation will be based on assignments (20%), mid-term examination (30%) and term-end examination (50%).

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）

The lecture series by the legendary physicist Richard Feynman will form the base of the course. A few related topics will be selected and presented by graphical illustrations to focus on the philosophical view.

The Feynman Lectures on Physics, Volume II, http://www.feynmanlectures.caltech.edu/II_toc.html

（**Related URL**）

http://www.feynmanlectures.caltech.edu/II_toc.html(The Feynman Lectures on Physics, Volume II)

[Study outside of class (preparation and review)]

The students are encouraged to participate in discussion with others within and outside the class. Sample programs written in Python will be provided. Students are encouraged to play with the programs to visualize how the basic rules work.

[Other information (office hours, etc.)]

Questions and requests are always welcome by email. A dedicated forum will be prepared for discussion.

Lecture code: N260003

Course number	U-LAS12 10026 LE57				
Course title (and course title in English)	Physics for All-E2 Physics for All-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Senior Lecturer,DECHANT，Andreas		
Group	Natural Sciences	Field(Classification)	Physics(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.3	Target year	Mainly 1st & 2nd year students	Eligible students	For liberal arts students

[Overview and purpose of the course]

This course introduces physics to students from non-physics majors. Students will learn about the basics of classical physics-mechanics and electrodynamics. While the main purpose of this course is to gain an intuitive understanding of elementary physics, another major objective is to learn the art of problem solving: How can we use what we learned to tackle problems that we have not encountered before? Physics, with its combination of fundamental concepts and concrete problems, provides a unique opportunity to acquire this crucial skill.

[Course objectives]

- Understand the basics of mechanics and electrodynamics and where they appear in everyday situations.
- Become familiar with the underlying mathematical concepts.
- Learn how to solve problems in a systematic way.

[Course schedule and contents)]

Week 1: Observation, measurement, and units
Here, we will learn how to observe physical laws in the world around us. We will introduce different physical quantities, their units and how to measure them.

Week 2-4: Motion in one, two and three dimensions
In this section, we will learn how to use calculus to describe the motion of objects, first along a straight line and then along paths in three-dimensional space.

Week 5-6: Newton’s laws of motion
This section deals with forces acting on physical objects. We will discuss Newton’s three laws and learn how to apply them to predict whether and how objects will move under the influence of forces.

Week 7-9: Momentum and energy
We will introduce the concepts of momentum and energy and discuss how the fact that they do not change during the motion of objects helps us to predict the flight of rockets and the outcomes of collisions.

Week 10-11: Oscillations and periodic motion
Oscillations, like the swinging of a pendulum, shape our daily lives in many ways,the most obvious being the earth’s orbit around the sun; in physics, they are equally important and fundamental for understanding many phenomena. In this section, we will learn why periodic motion is so universal and how we can describe it

Continue to Physics for All-E2(2)↓↓↓

Physics for All-E2(2)

using differential equations.

Week 12-14: Electrodynamics
In the final part of this course, we will learn about electric and magnetic fields and how they can be used to describe the motion of charged objects. The goal of this section is to understand the physical basis of electricity, which is so crucial for our daily lives.

Week 15：Final written examination

Week 16：Feedback

[Course requirements]

None

[Evaluation methods and policy]

The final score will be determined by weekly exercise sheets (50%) and the final written examination (50%). Students need at least 60% in total to pass.

[Textbooks]

H.D. Young and R.A. Freedman 『University Physics with Modern Physics』（Pearson）ISBN:978-0133969290

[Study outside of class (preparation and review)]

Students will be asked to complete and hand in assignments on a weekly basis.

[Other information (office hours, etc.)]

Office hour: Wed. 15:00-16:00

Lecture code: N260004

Course number	U-LAS12 10026 LE57		
Course title (and course title in English)	Physics for All-E2 Physics for All-E2	Instructor's name, job title, and department of affiliation	Kyoto University Not fixed

Group	Natural Sciences	Field(Classification)	Physics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.3	Target year	Mainly 1st year students	Eligible students	For all majors

[Overview and purpose of the course]

The lecture will focus on enabling students, especially from non-physics majors, to grasp basic concepts and principles of physics, and to learn how to apply them to understand the physical world around us. Particular focus will be on problem solving in mechanics, which will be presented systematically so that students gain a deeper understanding of mathematical and logical treatment of familialr physical problems. To further cement understanding and nurture students' love for science, focus will be on interactive learning using newly developed online tools.

[Course objectives]

1) To introduce students with little physics background to basic but important concepts in physics.
2) To nurture students' problem solving ability in physics.
3) To impact a deeper understanding of familiar physical phenomena.

[Course schedule and contents)]

The following topics will be introduced from the basics, assuming that students completely do not have or have little prior knowledge of physics.

1) Introduction to vectors in motion (2 weeks)

Here we will learn about vectors and how to use them to describe motion in terms of position, displacement, velocity and acceleration.

2) Introduction to motion of objects in two dimensions (3 weeks)

By the end of this topic, you will learn how to use vectors to describe both linear, projectile and circular motions, and also be able to derive the kinematic equations of motion when given displacement, velocity and a constant acceleration.

3) Introduction to Newton's laws of motion and momentum (2 weeks)

We will learn about Newton's laws of physics which form the foundation of modern physics. We will explore the relationship between force and acceleration, and extend the Newton's laws to momentum and

Continue to Physics for All-E2(2)↓↓↓

conservation of momentum. Practical application to solving common motion problems in nature will be presented.

4) Introduction to work and energy (2 weeks)

Work and energy are important physical properties. We will learn about how work is done when a force moves from one point to another. We will derive the relationship between work and energy (work-energy theorem). Concepts of potential energy and kinetic energy and the law of conservation of mechanical energy will be introduced.

5) Introduction to simple circular motions and oscillations (3 weeks)

Sometimes motion occurs in a circular path, like when you drive around a curved road. This topic will introduce you to forces involved in circular motion such as centripetal forces. We will make everything pretty simple so that by the end of this topic, you will be able to derive the basic equations of circular motion. We will also look at harmonic oscillation exhibited by a mass attached to spring, i.e., Hooke's law.

6) Introduction to electricity and magnetism (2 weeks)

A simplified introduction will be given to highlight the basics of both electricity and magnetism.

7) Exam and feedback (2 weeks)

[Course requirements]

None

[Evaluation methods and policy]

1) Weekly assignments will be given to gauge students' understanding of the lecture contents.

2) Evaluation
  Assignments: 40%
  End-term exam: 60%

[Textbooks]

Handouts

[References, etc.]

（**Reference book**）
David Halliday, Robert Resnick and Jearl Walker 『Fundamentals of Physics 9th Edition』（Wiley; 9 edition）ISBN:470469080（ISBN-13: 978-0470469088）

[Study outside of class (preparation and review)]

Students are encouraged to spare enough time for revision and review of previous lectures and read ahead in preparation for future lectures.

Continue to Physics for All-E2(3)↓↓↓

Physics for All-E2(3)

[Other information (office hours, etc.)]

Office hour will be announced during class. Questions and requests are always welcome by email.

Lecture code: N253001

Course number	U-LAS12 10021 LE57		
Course title (and course title in English)	A Guide to Modern Physics A-E2 A Guide to Modern Physics A-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,WENDELL,Roger

Group	Natural Sciences	Field(Classification)	Physics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course will gently introduce topics from classical (Newtonian) mechanics, thermodynamics, and touch on ideas in modern physics, such as relativity.
Prior knowledge of physics is not required and students from any major will be able to follow the course.

Lectures will be discussion-oriented, with several examples and in-class demonstrations. There will be many opportunities for students to improve their scientific English abilities.

This class is similar to 物理学概論A, but in English.

[Course objectives]

The object of the course is to understand fundamental concepts in modern physics and learn about how to describe the natural world with science.

[Course schedule and contents)]

Lectures will introduce students to various topics in fundamental physics.

1) Topics in classical Mechanics:
Velocity, Acceleration, Momentum, Forces, Gravity, Equations of Motion

2) Topics in thermodynamics:
Heat, Work, Entropy, Carnot Cycle

3) Topics in Light and Waves
Wave nature of light, Refraction, Interference, Optics

4) Topics in Modern Physics
Basic Quantum Mechanics, Special Relativity

We will spend 3 to 4 weeks on each of the topics above, choosing those most suitable for enrolled students.
Each topic will be presented in a clear and simple format without use of advanced mathematics.

Continue to A Guide to Modern Physics A-E2(2)↓↓↓

A Guide to Modern Physics A-E2(2)

There will be a total of 15 lectures total, including the feedback session.

[Course requirements]

None

[Evaluation methods and policy]

Student's comprehension of the course material will be evaluated based on participation in in-class discussions (20 points) and reports (80 points).

[Textbooks]

We won't use a single textbook, but the lecturer will provide materials relevant for each topic.

[References, etc.]

(Reference book)
Introduced during class

[Study outside of class (preparation and review)]

In order to get the most from the lectures, students need to review material from the previous lecture for discussion. Homework will be due two weeks from the date it is assigned and students are encouraged to bring questions during the intervening week to improve their understanding of the assignment.

[Other information (office hours, etc.)]

Students interested in improving their scientific English and learning something about physics are encouraged to join this course.

No prior physics experience is required. We might introduce differentiation and integration in some cases, but these will be explained in simple terms.

Lecture code: N272001

Course number	U-LAS12 10031 LE57						
Course title (and course title in English)	Fundamentals of Materials I-E2 Fundamentals of Materials I-E2			Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,GAO，Si		
Group	Natural Sciences		Field(Classification)	Physics(Foundations)			
Language of instruction	English		Old group	Group B	Number of credits	2	
Number of weekly time blocks	1	Class style	Lecture		Year/semesters	2023・First semester	
Days and periods	Thu.2	Target year	Mainly 1st & 2nd year students		Eligible students	For science students	

[Overview and purpose of the course]

This is the first half of a two-semester course Fundamentals of Materials. The purpose of this course is to give a concise but comprehensive introduction covering all major classes of materials to the students majored in physical engineering. The characteristics of all main classes of materials - metals, polymers and ceramics, as well as their physical properties, are explained with reference to real-world examples. In the first semester we will firstly introduce the elements and atomic structure, and then mainly focus on the structure and mechanical properties of metallic materials.

[Course objectives]

Students are expected to have a broad understanding of fundamental aspects of metallic materials, such as atomic microstructure, microstructures and mechanical properties of metallic materials by taking this course.

[Course schedule and contents)]

Week 1. Introduction to materials and materials science
Week 2. Atomic structure and interatomic bonding
Week 3. Structure of crystalline solids
Week 4-5. Imperfections in solids
Week 5. Diffusion
Week 6-7. Mechanical properties of metals
Week 8. Strengthening mechanisms in crystalline materials
Week 9. Failure of materials
Week 10. Phase diagrams
Week 11. Phase transformations
Week 12-13. Engineering alloys
Week 14. Characterization techniques of the materials

A total of 14 lectures and one feedback class will be given.

[Course requirements]

None

Continue to Fundamentals of Materials I-E2(2)↓↓↓

Fundamentals of Materials I-E2(2)

[Evaluation methods and policy]

Attendance and class participation [50%]
Homework assignments [50%]

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
William D. Callister, David G. Rethwisch, 『Materials Science and Engineering: An Introduction』（John Wiley & Sons Inc）ISBN:1118319222

[Study outside of class (preparation and review)]

Assignment (Quiz) are set for the review after class. The necessary time for assignments is around 1.5 hours for each class.

[Other information (office hours, etc.)]

Lecture code: N273001

Course number	U-LAS12 10029 LE57				
Course title (and course title in English)	Fundamentals of Materials II-E2 Fundamentals of Materials II-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,GAO, Si		
Group	Natural Sciences	Field(Classification)	Physics(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.2	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This is the second half of a two-semester course Fundamentals of Materials. The purpose of this course is to give a concise but comprehensive introduction covering all major classes of materials to the students majored in physical engineering. The characteristics of all main classes of materials, metals, polymers and ceramics, as well as their physical properties, are explained with reference to real-world examples. In the second semester we will mainly focus on the structure and physical properties of ceramics, polymers and composites. Electrical, thermal, magnetic and optical properties of materials will also be introduced.

[Course objectives]

By taking this course the students are expected to have a broad understanding of fundamental aspects regarding to the processing and properties of ceramics, polymers and composites.

[Course schedule and contents)]

Week 1-2. Structures and properties of ceramics
Week 3. Applications and processing of ceramics
Week 4-5. Polymer structures
Week 6. Characteristics, applications and processing of polymers
Week 7-8. Composites
Week 9. Corrosion and degradation of materials
Week 10. Electrical properties
Week 11. Thermal properties
Week 12. Magnetic properties
Week 13. Optical properties
Week 14. Economic, environmental, and societal issues in materials science and engineering

A total of 14 lectures and one feedback class will be given.

[Course requirements]

None

Continue to Fundamentals of Materials II-E2(2)↓↓↓

Fundamentals of Materials II-E2(2)

[Evaluation methods and policy]

Attendance and class participation [50%]
Homework assignments [50%]

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
William D. Callister, David G. Rethwisch, 『Materials Science and Engineering: An Introduction』（John Wiley & Sons Inc）ISBN:1118319222

[Study outside of class (preparation and review)]

Assignment (Quizes) are set for the review after class. The necessary time for assignments is around 1.5 hours for each class.

[Other information (office hours, etc.)]

Lecture code: N263001

Course number	U-LAS12 10027 LE57		
Course title (and course title in English)	Introduction to Light Control-E2 Introduction to Light Control-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,DE ZOYSA，Menaka
Group	Natural Sciences	Field(Classification)	Physics(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.3	Target year	Mainly 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

The objective of the course is to introduce light control technologies. Staring with explaining the wave equation and basic properties of light, I will expand the lectures up-to cutting-edge light control technologies based on nanostructures.

[Course objectives]

・ Understand the basic properties of light.
・ Understand the cutting-edge light control technologies based on nanostructures.

[Course schedule and contents)]

1. Overview of the course, introduction to light (1 week)
2. Maxwell’ s equations, wave equation (3 weeks)
3. Reflection, transmittance, total internal reflection (2 weeks)
4. Interference, diffraction, and its control (2 weeks)
5. Light emission, absorption, and its control (2 weeks)
6. Cutting-edge light control technologies based on nanostructures (4 weeks)
7. Feedback (1 week)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on participation (10%), homework (40%), and final examination (open book) (50%).

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Max Born and Emil Wolf 『Principles of Optics』

[Study outside of class (preparation and review)]

Students are required to do their homework. When trouble is encountered during homework, please refer recommended textbook or please ask the instructor.

[Other information (office hours, etc.)]

Office hour: Anytime by email and appointments should be made via email.

Lecture code: N257001

Course number	U-LAS12 20002 LE57		
Course title (and course title in English)	Introduction to Statistical Physics-E2 Introduction to Statistical Physics-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Senior Lecturer,PETERS,Robert

Group	Natural Sciences	Field(Classification)	Physics(Development)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.4	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

The first part of the lecture is a review of thermodynamics, covering the laws of thermodynamics and thermodynamic potentials. The second part of the lecture gives an introduction to statistical physics. The goal of the second part is to derive and understand the laws of thermodynamics, starting from a microscopic view. Among the subjects covered in this part is the statistical interpretation of temperature and entropy. We will learn the concept of probability and introduce the microcanonical and canonical ensembles and their applications.

In principle, this course is given in English. However, if there are parts that the students cannot understand in English, I can and will explain those in Japanese.

[Course objectives]

- Understanding the laws of thermodynamics and the thermodynamic potentials;
- Understanding the connection between a microscopic Hamiltonian and macroscopic properties

[Course schedule and contents)]

In principle, the course will be offered as the following plan. However, there may be small changes depending on the progress of the course.

(Part 1: Review of thermodynamics)

1-2 Ideal gas and the laws of thermodynamics
3. Some applications: Equilibrium between different systems, vapor pressure
4-5. Thermodynamic potentials, Relations between thermodynamic derivatives

(Part 2: Statistical Physics)
6. Probability and rules for large numbers
7. Microcanonical ensemble and entropy
8-9. Two-level system and the ideal gas in the microcanonical ensemble
10. Canonical ensemble
11-12. Applications of the canonical ensemble
13. Other ensembles
14. Fluctuations and expectation values

Continue to Introduction to Statistical Physics-E2(2)↓↓↓

Introduction to Statistical Physics-E2(2)

<<Final examination>>
15. Feedback

[Course requirements]

None

[Evaluation methods and policy]

Worksheets/reports (50%) + examination (50%)

[Textbooks]

I will provide lecture notes.

[References, etc.]

(Reference book)
Introduced during class

[Study outside of class (preparation and review)]

Revision of the course by doing the work sheets

[Other information (office hours, etc.)]

Office hours: After the course

Furthermore, I will provide lecture notes which help to understand the lecture.

The worksheets will give students an opportunity to practice their English skills in science.

Lecture code: N249001

Course number	U-LAS12 20004 LE57		
Course title (and course title in English)	Theory of Special Relativity-E2 Theory of Special Relativity-E2	Instructor's name, job title, and department of affiliation	Yukawa Institute for Theoretical Physics Associate Professor,Antonio De Felice

Group	Natural Sciences	Field(Classification)	Physics(Development)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

The aim of this lecture is to intoduce the basic concepts of Einstein's theory of relativity. First, the theory of special relativity will be explained in detail. After this, the basics of general relativity will be introduced in an elementary way. The lecture is supposed to be interactive.

[Course objectives]

The students will learn the formalism needed to study special/general relativity.
They will learn a geometrical intuition in the theory of relativity.

[Course schedule and contents)]

I. Introduction and Historical backgrounds
II. Einstein's Principle of Relativity
III. Special Relativity and Lorentz Transformation
IV. Relativistic Mechanics
V. Interesting Examples of Lorentz Transformation
VI. Maxwell Equation and Lorentz Invariance
VII. Relativistic Momentum and Energy II: Four Vectors and Transformation Properties
VIII. General Relativity

In total, at most 14 classes will be offered (one for each week of the semester) plus one feedback meeting with the students.

[Course requirements]

Fundamental Physics A　(recommended) , Fundamental Physics B (recommended)

[Evaluation methods and policy]

Evaluation method: 25%: mid term exam; 75%: final exam. No homework is given during the whole duration of the course.

[Textbooks]

Antonio De Felice 『Lecture notes (given in the class as a pdf file)』

[References, etc.]

（**Reference book**）
Hans C. Ohanian, Remo Ruffini 『Gravitation and Spacetime』（Cambridge University Press, 2013）
Hans Stephani 『Relativity』（Cambridge University Press, 2004）

Continue to Theory of Special Relativity-E2(2)↓↓↓

Theory of Special Relativity-E2(2)

Wolfgang Pauli 『Theory of Relativity』（Dover Publications, 1958）

[Study outside of class (preparation and review)]

The students will be provided with the lecture notes of the course [as a pdf file in PandA and on kulasis]. They are supposed to study them, not only to review the work done in previous lectures but also to prepare for the upcoming ones.

[Other information (office hours, etc.)]

2 hours of office hours per week to be decided with students [usually taking place on Fridays at noon]. E-mail will be provided, so that the students can contact the teacher at any time.

Lecture code: N254001

Course number	U-LAS12 20006 LE57		
Course title (and course title in English)	Analytic Dynamics-E2 Analytic Dynamics-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Science Senior Lecturer,PETERS,Robert

Group	Natural Sciences	**Field(Classification)**	Physics(Development)

Language of instruction	English	**Old group**	Group B	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Tue.3	**Target year**	Mainly 2nd year students	**Eligible students**	For science students

[Overview and purpose of the course]

Starting from Newton's mechanics, we will introduce the principle of stationary action and the Lagrangian formalism for solving problems in theoretical mechanics. Using this formalism, we will analyze different important examples, such as oscillations, central forces, and the rigid body. After that, we will introduce the Hamiltonian formalism, which is the basis for Quantum mechanics.

In principle, this course is given in English. However, if there are parts that the students cannot understand in English, I can and will explain those in Japanese.

[Course objectives]

- to understand and be able to use the Lagrangian formalism;
- to understand the basics of the Hamiltonian formulation of classical mechanics

[Course schedule and contents)]

This course will cover the following topics:
- Introduction to Lagrangian mechanics
- Application of Lagrangian mechanics to more complex examples
- Introduction to the Hamiltonian formalism

In principle, the course will be offered as the following plan. However, there may be small changes depending on the progress.

(Introduction to Lagrangian mechanics)
1. Review of Newton's mechanics
2. Derivation of the Lagrangian equations
3-4. Simple applications of the Lagrangian equations
5. Lagrangian multiplier
6. Introduction to variational calculus and its application to mechanics

(Complex examples)
7.-9. Coupled Oscillations
10.-12. Rigid body

(Introduction to the Hamiltonian formalism)

Continue to Analytic Dynamics-E2(2)↓↓↓

Analytic Dynamics-E2(2)

13.-14. Hamiltonian formalism

<<Final examination>>
15. Feedback

If there is time left, we there will be an additional chapter about central forces.

[Course requirements]

Understanding of kinematics and Newton mechanics; basic knowledge of differential equations.

[Evaluation methods and policy]

Worksheets/reports (50%) + examination (50%)

[Textbooks]

Besides book recommendations, I will upload lecture notes.

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Revision of the course by doing the work sheets

[Other information (office hours, etc.)]

Office hours: After the course

Furthermore, I will provide lecture notes which help to understand the lecture.

The worksheets will give students an opportunity to practice their English skills in science.

Lecture code: N270001

Course number	U-LAS12 20020 LE57		
Course title (and course title in English)	Introduction to Quantum Physics-E2 Introduction to Quantum Physics-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,Arseniy Aleksandrovich, Kuzmin

Group	Natural Sciences	Field(Classification)	Physics(Development)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.4	Target year	Mainly 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

Quantum mechanics is one of the most successful theories in physics. It describes the physics of the microscopic world: molecular, atomic and subatomic processes. At first, we will follow the history of the quantum mechanics, and start with the black body radiation. The necessity of quantization arises from the failure to describe the black body radiation using classical physics. We will then examine the experimental evidences of the particle-wave duality. The Schrodinger equation is then introduced to describe simplest quantum systems. This course aims to show the necessity of quantum mechanics and to give listeners tools to describe the basic quantum systems.

[Course objectives]

To understand the fundamental concepts of quantum mechanics.
To learn mathematical methods which describe quantum objects.

[Course schedule and contents)]

In this course the following topics are covered:

1. Brief overview of relativistic energy and momentum. When classical physics was not enough anymore.
2. Black body radiation. Classical and quantum approaches.
3. Quantum properties of electro-magnetic radiation: photoelectric effect, Bothe experiment, Compton effect.
4. Rutherford model of atom.
5. Bohr model of atom.
6. Wave properties of particles: De Broglie's wave hypothesis.
7. Experimental conformations of De Broglie's hypothesis. Uncertainty principle.
8. Wave function and Schrodinger equation.
9. Particle in the infinite potential well.
10. One dimensional quantum system: harmonic oscillator.
11. Quantum tunneling of particles through potential barriers.
12. Physical states and operators.
13. Postulates of quantum mechanics.
14. Quantization of angular momentum.

14 lectures in total and one feedback class

Continue to Introduction to Quantum Physics-E2(2)↓↓↓

Introduction to Quantum Physics-E2(2)

[Course requirements]

It is desirable to take introduction to physics A and B courses. Knowledge of mechanics and wave theory is welcome.

[Evaluation methods and policy]

Evaluation will be based on:
10% attendance and participation
20% homework
20% quiz
50% final exam

[Textbooks]

I. V. Savelyev 『Physics, a general course (vol. 3)』 (Mir Publishers) ISBN:5-03-000900-0

[References, etc.]

(**Reference book**)
Introduced during class

[Study outside of class (preparation and review)]

Preparation for lectures will include revision of class materials and homework assignments. Detailed instructions will be given during the class.

[Other information (office hours, etc.)]

Lecture code: N274001

Course number	U-LAS12 20022 LE57		
Course title (and course title in English)	Soft Matter Physics-E2 :From Condensed Matter to Life Soft Matter Physics-E2 :From Condensed Matter to Life	Instructor's name, job title, and department of affiliation	Graduate School of Science Program-Specific Senior Lecturer,BRANDANI, Giovanni・Bruno

Group	Natural Sciences	Field(Classification)	Physics(Development)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.5	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

Soft matter is a broad term used to describe substances that are neither solid nor liquid. These include many materials that we encounter daily in our life, such as soap, rubber, and ice-cream, but also much of the components of life itself, such as chromosomes and membranes. In this course, we will use the tools of physics to understand how simple components can lead to the complex behavior observed in soft materials and living systems. More specifically, we will see why the properties of soft materials change over time and depending on how the material is manipulated; learn about the physics of polymers and the origin of rubber elasticity; and understand how small molecules can self-assemble into more complex structures. The students will also have many opportunities to apply the theory of soft matter to answer interesting questions in biology. For example, how can proteins adopt their unique folded structure that let them perform their function so well? How difficult is for cells and viruses to organize their long genome into a compact space? How do membranes transform and make complex life possible?

[Course objectives]

To recognize the various types of soft materials around us and in living organisms.
To explain the key properties of soft materials using simple theoretical arguments based on thermodynamics.
To explore the science of life from the perspective of soft matter physics.

[Course schedule and contents)]

Schedule:
1. Introduction to the course
2. Introduction to thermodynamics and statistical physics
3. Colloidal suspensions and the role of entropy in the state of matter
4. Interactions between colloidal particles
5. The response of materials to stress: visco-elasticity and glasses
6. Polymers and their conformation in space
7. The physics of DNA and applications to genome organization
8. The protein folding problem
9. Formation of gels and the origin of rubber elasticity
10. Multi-component fluids: mixed or unmixed?
11. The dynamics of phase separation (also, why it is difficult to make stable emulsions)
11. Understanding crystallization
13. Self-assembly and membranes
14. Extra topic / exam preparation

Continue to Soft Matter Physics-E2 :From Condensed Matter to Life(2)↓↓↓

15. Final exam
16. Feedback
＊15 lectures per semester, the semester yields two credits (including classes for feedback). Note: the above class numbers do not include examinations.

[Course requirements]

Course open to all students, but a basic knowledge of classical mechanics is helpful.

[Evaluation methods and policy]

Class attendance and participation (50%), final exam (50%)

[Textbooks]

Richard A. L. Jones. 『Soft Condensed Matter』 （Oxford University Press） ISBN:9780198505891

[Study outside of class (preparation and review)]

Students are encouraged to take notes during class and to review them afterwards.

[Other information (office hours, etc.)]

Please feel free to contact me by email at brandani@biophys.kyoto-u.ac.jp

Lecture code: N269001

Course number	U-LAS12 20019 LE57		
Course title (and course title in English)	Introduction to Plasma Science-E2 Introduction to Plasma Science-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,Arseniy Aleksandrovich, Kuzmin

Group	Natural Sciences	Field(Classification)	Physics(Development)

Language of instruction	English	Old group	Group B	Number of credits	2

Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.3	Target year	Mainly 1st year students	Eligible students	For all majors

[Overview and purpose of the course]

Plasma is diverse and very abundant. Almost 99% of the visible matter in the observable Universe is in the state of plasma. It is everywhere in Space and on Earth, naturally occurring and produced in laboratories or used in factories. Stars, nebulas, Auroras, sparks, arc welding, thermonuclear reactors - this is just a beginning of a big list of various plasmas.

In this course the so-called fourth state of matter - plasma, will be introduced. We will start with a brief overview of possible plasmas and will define it. Next, we'll go into some details about plasma description. There are various approaches to describe plasma, they depend on the plasma kind. We will mainly focus on a single particle approach. If you are not familiar with some mathematics or physics, I will introduce the necessary concepts in class. So any humanities students are welcome.

After we finish with a more formal descriptions, we will review some of the cosmic plasmas: our Sun, solar wind, and Auroras.

Then I will introduce some of technological plasma applications and will focus on explanation of a magnetic confinement of plasma for energy generation.

[Course objectives]

The goal of this course is to introduce listeners to the "forth state of matter" - plasma.
To understand what is plasma and what are its properties.
To learn the role of plasma in the cosmic phenomena.
To learn about scientific and technological applications of plasma.
To understand basic idea of the fusion energy research.

[Course schedule and contents)]

1. Kinds of plasma, definitions of plasma.
2. Motion of a charged particle in electric and magnetic fields.
3. Particle drifts and collisions.
4. Formation of plasma and ionization of gases.
5. Laboratory plasma: glow, arc and corona discharges.
6. Cosmic plasma: star formation and start structure.
7. Cosmic plasma: solar corona and solar wind.
8. Aurora and how it is formed.

Continue to Introduction to Plasma Science-E2(2)↓↓↓

Introduction to Plasma Science-E2(2)

9. Technological applications of plasma.
10.The ultimate energy source on Earth: thermonuclear fusion.

14 lectures in total and one feedback class.

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on:
10% attendance and participation
20% homework
20% quiz
50% final exam

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）
John Wesson 『Tokamaks』（Clarendon Pres - Oxford）ISBN:0-198-50922-7
Syun-Ichi Akasofu 『Exploring the secrets of the aurora』（Springer）ISBN: 0-387-45094-7
A. C. Phillips 『The physics of stars』（John Wiley & Sons）ISBN:0-471-94057-5
Markus Aschwanden 『Physics of the solar corona』（Springer）ISBN:3-540-30765-6
Francis F. Chen 『Introduction to Plasma Physics and Controlled Fuion』（Springer）ISBN: 978-3-319-22308-7

[Study outside of class (preparation and review)]

Preparation for lectures will include revision of class materials and homework assignments. Detailed instructions will be given during the class.

[Other information (office hours, etc.)]

Lecture code: N248001

Course number	U-LAS12 20017 LE57						
Course title (and course title in English)	Introduction to Cosmology-E2 Introduction to Cosmology-E2			Instructor's name, job title, and department of affiliation	Yukawa Institute for Theoretical Physics Associate Professor,Antonio De Felice		
Group	Natural Sciences			Field(Classification)	Physics(Development)		
Language of instruction	English	Old group	Group B	Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester		
Days and periods	Wed.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors		

[Overview and purpose of the course]

The aim of this lecture is to introduce the basic concepts of modern cosmology. Our current understanding about the history of the universe is explained so that one can capture how observational data are interpreted with the aid of the law of physics in an elementary way. For this purpose, the development of the basic theories of physics necessary to describe modern cosmology will be reviewed in a less rigorous way. The lecture is supposed to be interactive.

[Course objectives]

Students will be able to understand how to approach the study of cosmology in a mathematical and physical way.
They will be introduced to the problems of modern cosmology, and to the methods cosmologist use to try to solve them.
The discussion will tend to link cosmology to other fields in physics, e.g. thermodynamics, (some notions of) particle physics.

[Course schedule and contents)]

I. Introduction and Historical backgrounds
II. The Role of the Speed of Light in Special Relativity
III. Newtonian Gravity and General Relativity
IV. Homogeneous Universe Model based on General Relativity and Discovery of the Expanding Universe
V. Tips of Thermodynamics
VI. Nucleosynthesis in the Early Universe
VII. Prediction and Discovery of Cosmic Microwave background
VIII Shortcoming of the Big-Bang Cosmology
IX. Inflationary universe
X. Inevitable Quantum fluctuation
XI. Structure Formation of the Universe
XII. Inflation Again in the Present Universe?

In total, at most 14 classes will be offered (one for each week of the semester) plus one feedback meeting with the students.

Continue to Introduction to Cosmology-E2(2)↓↓↓

Introduction to Cosmology-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation method: 25%: mid term exam; 75%: final exam. No homework is given during the whole duration of the course.

[Textbooks]

Antonio De Felice 『Lecture notes』 （given in the class as a pdf file）

[References, etc.]

（**Reference book**）
Michael Rowan-Robinson 『Cosmology』 （Clarendon Press, Oxford, 2011）

[Study outside of class (preparation and review)]

The students will be provided with the lecture notes of the course [as a pdf file in PandA and on kulasis]. They are supposed to study them, not only to review the work done in previous lectures but also to prepare for the upcoming ones.

[Other information (office hours, etc.)]

Office hours: 2hrs per week to be decided with the students [usually taking place on Fridays at noon]. E-mail will be provided, so that the students can contact the teacher at any time.

Lecture code: N371001

Course number	U-LAS13 10002 LE60				
Course title (and course title in English)	Essentials of Basic Physical Chemistry-E2 Essentials of Basic Physical Chemistry-E2	**Instructor's name, job title, and department of affiliation**	Institute of Advanced Energy Senior Lecturer,ARIVAZHAGAN　RAJENDRAN		
Group	Natural Sciences	**Field(Classification)**	Chemistry(Foundations)		
Language of instruction	English	**Old group**	Group B	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Mon.2	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For science students

[Overview and purpose of the course]

We learn about the structure, properties and reactions of matters for the base of physical chemistry. Contents are covered by following fields of the structure and properties of the atom and molecules, quantum chemistry, thermodynamics, and chemical reactions. Aim of this course is the understanding of these concepts.

[Course objectives]

The aim of this class is to understand the basic principles of physical chemistry for beginners.

[Course schedule and contents)]

1. Basics and units of chemistry
2. Structure and property of the atom: Bohr's atomic model
3. Structure and property of the atom: Electronic waviness and orbit function
4. Structure and property of the atom: Electron configuration and periodic table
5. Structure and property of the atom: Ionization energy and electron affinity
6. Molecules: Covalent bonds (s and p-bonds), hybrid orbitals
7. Molecules: Coordinate bond
8. Molecules: Ionic bonds, van der Waals force, and hydrogen bond
9. Thermodynamics: 1st & 2nd law of thermodynamics and phase diagram
10. Chemical equilibrium: Equilibrium constant and Le Chatelier's principle
11. Chemical equilibrium: A rate equation and reaction mechanism
12. Oxidation and reduction: Oxidation state and battery
13. Acid and base: Definition and dissociation equilibrium
14. Acid and base: Neutralization titration, hydrolysis, and buffer solution
15. Assignment which is considered as a term examination
16. Feedback

[Course requirements]

None

Continue to Essentials of Basic Physical Chemistry-E2(2)↓↓↓

Essentials of Basic Physical Chemistry-E2(2)

[Evaluation methods and policy]

Results will be evaluated by the submission of homework written in English (30%), attendance and discipline (20%), and assignment which is considered as a term examination (50%).

[Textbooks]

Peter Atkins and Julio de Paula 『Atkins' Physical Chemistry, 10th Edition』 (Oxford University Press)
ISBN:978-0-19-969740-3

[References, etc.]

(**Reference book**)
Introduced during class

[Study outside of class (preparation and review)]

I recommend that the students should review the points to be learned.
The students, who have not studied high-school physics, can take this lecture, it is desired that they should make up for the knowledge lacked by self-study and inquiry to the teacher after lectures or in office hour.

[Other information (office hours, etc.)]

Office hours are set at 15:00-17:00 in every Friday.

Lecture code: N365001

Course number	U-LAS13 10004 LE60		
Course title (and course title in English)	Basic Physical Chemistry (thermodynamics)-E2 Basic Physical Chemistry (thermodynamics)-E2	Instructor's name, job title, and department of affiliation	Institute of Advanced Energy Senior Lecturer,ARIVAZHAGAN RAJENDRAN

Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.3	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

We learn about the thermodynamics in the state-change of matter, also in the chemical reactions. Contents of the lecture covers the following fields of change of state, thermodynamic laws, definition of the quantities (enthalpy, entropy, free energy, chemical potential), chemical equilibrium, and reaction kinetics. Aim of this course is the understanding of these concepts.

[Course objectives]

The aim of this class is to understand the basic principles of thermodynamics.

[Course schedule and contents)]

1. Change of the system and quantity of state
2. Thermal energy and work
3. 1st law of thermodynamics: Change of internal energy and enthalpy
4. Chemical reaction and thermal energy
5. Interpretation of internal energy in molecular level
6. Change of state of the ideal gas
7. 2nd law of thermodynamics: Entropy
8. Entropy change in the change of state
9. 3rd law of thermodynamics: Conversion from heat to work
10. Gibbs energy
11. Change of the Gibbs energy when temperature and pressure change
12. Chemical potential
13. Change of state and chemical potential change of matter
14. Chemical equilibrium and rate of chemical reaction
15. Assignment which is considered as a term examination
16. Feedback

[Course requirements]

None

Continue to Basic Physical Chemistry (thermodynamics)-E2(2)↓↓↓

Basic Physical Chemistry (thermodynamics)-E2(2)

[Evaluation methods and policy]

Results will be evaluated by the submission of homework written in English (30%), attendance and discipline (20%), and assignment which is considered as a term examination (50%).

[Textbooks]

Yunus A. Cengel and Michael A. Boles 『Thermodynamics: An Engineering Approach, 8th Edition in SI Units』（McGraw-Hill Education）ISBN:978-981-4595-29-2
Peter Atkins and Julio de Paula 『Atkins' Physical Chemistry, 10th Edition』（Oxford University Press）ISBN:978-0-19-969740-3

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

I recommend that the students should review the points to be learned.

[Other information (office hours, etc.)]

Office hours are set at 15:00-17:00 in every Friday.

Lecture code: N365002

Course number	U-LAS13 10004 LE60		
Course title (and course title in English)	Basic Physical Chemistry (thermodynamics)-E2 Basic Physical Chemistry (thermodynamics)-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,Nguyen Thanh Phuc

Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.1	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

Physical chemistry is the discipline that studies the basic concepts and principles of the formation of molecules and substances, the nature and characteristics of chemical bonds and molecular structures, chemical equilibrium, and reaction rates.
This course is designed as introductory physical chemistry, specifically aims to learn and understand the principles and applications of thermodynamics. The knowledge learned from this course will be the foundation for learning all areas of chemistry, including advanced-level physical chemistry, organic chemistry, and inorganic chemistry.

[Course objectives]

・ To understand important thermodynamic quantities including the entropy and the free energies
・ To understand the laws of thermodynamics
・ To understand the phases of substances and the associated phase transitions
・ To be able to apply thermodynamics to physical and chemical equilibria

[Course schedule and contents)]

The following topics will be covered. The order of topics and subtopics and the number of weeks allocated to each topic is subject to change, depending on the students' understanding.

1. Introduction to thermodynamics [1 week]
2. Basic concepts of thermodynamics [1~2 weeks]
The system, the surrounding, thermodynamic states, state functions, work, heat, heat capacities, enthalpy
3. Gas, ideal and real gases [1~2 weeks]
4. Spontaneous processes and thermodynamic equilibrium [2~3 weeks]
The second law of thermodynamics, entropy, the Gibbs free energy
5. Phase and phase transitions [1~2 weeks]
6. Thermodynamics of chemical equilibrium [2~3 weeks]
7. Examples of chemical equilibrium [2~3 weeks]
8. Chemical Kinetics [1 week]
9. Final paper (report)
10. Feedback [1 week]
Total：14 classes, 1 Feedback session

Continue to Basic Physical Chemistry (thermodynamics)-E2(2)↓↓↓

Basic Physical Chemistry (thermodynamics)-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

The evaluation will be based on a final paper (report) (86 points) and class attendance and active participation (14 points).

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
D. W. Oxtoby, H. P. Gillis, L. J. Butler 『Principles of Modern Chemistry, 8th Edition』（Cengage Learning）ISBN:1305079116
P. Atkins, J. D. Paula, J. Keeler 『Atkins' Physical Chemistry, 11th Edition』（Oxford University Press）ISBN:0198769865

[Study outside of class (preparation and review)]

Students are responsible for the preparation and review of each class.

[Other information (office hours, etc.)]

It is advisable to ask questions and make comments willingly during the class.

Instructor: Nguyen Thanh Phuc (email: nthanhphuc@moleng.kyoto-u.ac.jp)

Office hour: appointment by email (Katsura campus, A4-205)

Lecture code: N366003

Course number	U-LAS13 10006 LE60				
Course title (and course title in English)	Basic Physical Chemistry (quantum theory)-E2 Basic Physical Chemistry (quantum theory)-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Engineering Senior Lecturer,Nguyen Thanh Phuc		
Group	Natural Sciences	**Field(Classification)**	Chemistry(Foundations)		
Language of instruction	English	**Old group**	Group B	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Wed.1	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For science students

[Overview and purpose of the course]

Physical chemistry is the discipline that studies the basic concepts and principles of the formation of molecules and substances, the nature and characteristics of chemical bonds and molecular structures, chemical equilibrium, and reaction rates.
This course is designed as the introductory physical chemistry, specifically aims to learn and understand the principles of quantum mechanics and its applications to the formation of atoms and molecules, the basic constituents of substances. The knowledge learned from this course will be the foundation for learning all areas of chemistry, including advanced-level physical chemistry, organic chemistry, and inorganic chemistry.

[Course objectives]

・ To understand the principles of quantum mechanics
・ To understand the descriptions of atoms and molecules based on quantum mechanics
・ To be able to use quantum mechanics to solve for the electronic wavefunctions in atoms and molecules
・ To understand the description of chemical bonds based on the concept of molecular orbitals

[Course schedule and contents)]

The following topics will be covered. The order of topics and subtopics and the number of weeks allocated to each topic is subject to change, depending on the students' understanding.

1. Introduction to quantum mechanics [1 week]
The breakdown of classical mechanics and the birth of quantum mechanics
2. Quantum mechanical principles [1~2 weeks]
Energy quantization, wave-particle duality, the Born interpretation of the wavefunction
3. Examples of Schrodinger equation [1~2 weeks]
A particle in a box, tunneling, vibrational and rotational motions
4. Hydrogen atom [1~2 weeks]
Atomic orbitals and their energies
5. Multi-electron atoms [1~2 weeks]
Electron spin, the Pauli exclusive principle, the periodic table
6. Diatomic and polyatomic molecules [1~2 weeks]
Molecular orbitals, linear-combination-of-atomic-orbital (LCAO) approximation
7. Chemical bonds [1~2 weeks]
Covalent and ionic bonds
8. Interactions between molecules [1~2 weeks]

Continue to Basic Physical Chemistry (quantum theory)-E2(2)↓↓↓

Basic Physical Chemistry (quantum theory)-E2(2)

9. Final paper (report)
10. Feedback [1 week]
Total：14 classes, 1 Feedback session

[Course requirements]

None

[Evaluation methods and policy]

The evaluation will be based on a final paper (report) (86 points) and class attendance and active participation (14 points).

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
P. Atkin, J. D. Paula, J. Keeler 『Atkin's Physical Chemistry, 11th Edition』（Oxford University Press）
ISBN:0198769865
D. W. Oxtoby, H. P. Gillis, L. J. Butler 『Principles of Modern Chemistry, 8th Edition』（Cengage Learning）
ISBN:1305079116

[Study outside of class (preparation and review)]

Students are responsible for the preparation and review of each class.

[Other information (office hours, etc.)]

It is advisable to ask questions and make comments willingly during the class.

Instructor: Nguyen Thanh Phuc (email: nthanhphuc@moleng.kyoto-u.ac.jp)

Office hour: appointment by email (Katsura campus, A4-205)

Lecture code: N366002

Course number	U-LAS13 10006 LE60				
Course title (and course title in English)	Basic Physical Chemistry (quantum theory)-E2 Basic Physical Chemistry (quantum theory)-E2	Instructor's name, job title, and department of affiliation	Institute of Advanced Energy Senior Lecturer,ARIVAZHAGAN RAJENDRAN		
Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.2	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

We learn about the basics of quantum theory from the chemistry point of view. At first, we learn about the properties of electromagnetic waves and De Broglie wave of matter. Once we understand the wave particle duality, we move to the fundamental atomic models such as Bohr atomic model. Then we learn about the quantization of energy, the wave function and orbitals of atoms, and Schrödinger wave equation. We solve the Schrödinger wave equation to get an insight on the absorption and vibrational spectra of molecules. We then study the wave function and atomic spectra of hydrogen atom, and spin of electron in detail. Finally, we learn about the application of quantum chemistry in various fields.

[Course objectives]

The aim of this class is to understand the basic principles of quantum chemistry.

[Course schedule and contents)]

1. Property of the electromagnetic wave
2. Bohr's atomic model
3. De Broglie wave of matter
4. Time independent Schrödinger wave equation
5. Time dependent Schrödinger wave equation
6. One dimensional potential wells
7. One dimensional harmonic oscillation
8. Wave equation of hydrogen atom
9. Wave function and energy eigenvalue of hydrogen atom
10. Angular momentum and Zeeman effect
11. Spin of electron
12. Spin-orbit interaction
13. Term symbols and revised Zeeman effect
14. Application of quantum chemistry
15. Assignment which is considered as a term examination
16. Feedback

Continue to Basic Physical Chemistry (quantum theory)-E2(2)↓↓↓

Basic Physical Chemistry (quantum theory)-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Results will be evaluated by the submission of homework written in English (30%), attendance and discipline (20%), and assignment which is considered as a term examination (50%).

[Textbooks]

Donald A. McQuarrie 『Quantum Chemistry, 2nd Edition』 （University Science Books） ISBN:978-1-891389-50-4
Peter Atkins and Julio de Paula 『Atkins' Physical Chemistry, 10th Edition』 （Oxford University Press） ISBN:978-0-19-969740-3

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

I recommend that the students should review the points to be learned.

[Other information (office hours, etc.)]

Office hours are set at 15:00-17:00 in every Friday.

Lecture code: N368002

Course number	U-LAS13 10008 LE60						
Course title (and course title in English)	Basic Organic Chemistry I-E2 Basic Organic Chemistry I-E2			Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,Juha Lintuluoto		
Group	Natural Sciences			Field(Classification)	Chemistry(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester		
Days and periods	Thu.2	Target year	Mainly 1st year students	Eligible students	For science students		

[Overview and purpose of the course]

For natural science chemistry students (1st year class (T17-T22) designated in the Department of Chemical Science and Technology, Faculty of Engineering). This course will serve as an entrance to systematically study organic chemistry, which is essential for understanding useful substances such as pharmaceuticals, pesticides, fragrances, and materials at the molecular level. This course gives the opportunity to learn English while studying chemistry, an important skill for chemists. This course covers the Basic Organic Chemistry I 「基礎有機化学I」 course held for classes T17-22 in Japanese.

[Course objectives]

Learn the basics of organic chemistry as a molecular science and form the basis for learning advanced organic chemistry.
The comprehension goals for individual lecture items are described in the Course schedule and Contents.

[Course schedule and contents)]

Using designated textbook, lectures will be given on topics 1-7 below. One feedback class will held for this course to make 15 lessons in total.

1. Explanation on how to proceed with the lectures and an overview of organic chemistry (1 lesson)

2.Covalent bonding and shapes of molecules (3 Lessons)
Describing electronic structure of atoms, covalent bonds and molecular polarities. Understanding of molecular structures using valence bond and molecular orbital methods and resonance.

3.Alkanes and cycloalkanes (2 Lessons)
The structure, conformation, and physical properties of alkanes and cycloalkanes will be described.

4.Acids and Bases (3 Lessons)
Bronsted-Lowry acids and bases, acid dissociation constants, pKa , the relative strengths of acids and bases, the equilibrium of the acid-base reactions, reaction coordinate diagrams, molecular structure and acidity, and Lewis acids and bases are described.

5.Alkenes: Bonding and properties (1 Lesson)
The structure, character of the alkenes, and physical properties of alkenes will be described.

Continue to Basic Organic Chemistry I-E2(2)↓↓↓

Basic Organic Chemistry I-E2(2)

6.Reaction mechanisms (1 Lesson)
How to describe and understand the reaction mechanisms of organic reactions.

7.Alkene reactions (4 Lessons)
The reaction mechanisms, reaction selectivity, and thermodynamics of electrophilic addition reactions to alkenes, oxidation reactions and reduction reactions of alkenes will be described.

[Course requirements]

This course is suitable for industrial chemistry students from groups 1T17-1T22.

[Evaluation methods and policy]

The course be conducted based on normal points (attendance and participation, homework and efforts, 20 points in total) and final exam (80 points).

[Textbooks]

Brown, Iverson, Anslyn, Foote 『Organic Chemistry』（Cengage Learning）ISBN:978-1-305-58035-0（8th Edition, Chapters 1-2, 4-6）
村上正浩監訳 『ブラウン有機化学（上）』（東京化学同人）ISBN:978-4807907793
Japanese version of Brown, Iverson, Anslyn, Foote is also OK.

[Study outside of class (preparation and review)]

Imposing homework for review and requesting submission

[Other information (office hours, etc.)]

Lecture code: N368003

Course number	U-LAS13 10008 LE60				
Course title (and course title in English)	Basic Organic Chemistry I-E2 Basic Organic Chemistry I-E2	Instructor's name, job title, and department of affiliation	Institute for Chemical Research Senior Lecturer,Amelie Perron		
Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.4	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This course is intended for Japanese and international students registered in natural science majors who are interested in learning chemistry in English.

Basic Organic Chemistry I explains the fundamental concepts of organic chemistry, aiming to help students understand the structures and properties of organic compounds. This course can be taken alone or in combination with Basic Organic Chemistry II.

[Course objectives]

Students will be able to analyze the structure of organic compounds and predicting their properties based on their bonding, atomic orbitals, hybridization state, intermolecular forces and resonance structures.

[Course schedule and contents)]

The semester will be divided as follows:

Week 1: Introduction to Organic Chemistry
Week 2: Atomic Orbitals
Week 3: Molecular Representations
Week 4: Geometry of Compounds
Week 5: Intermolecular Forces
Week 6: Resonance
Week 7: Mid-term Exam
Week 8: Acids and Bases (Part 1)
Week 9: Acids and Bases (Part 2)
Week 10: IUPAC (International Union of Pure and Applied Chemistry) Nomenclature (Part 1)
Week 11: IUPAC Nomenclature (Part 2)
Week 12: Conformations of Alkanes and Cycloalkanes
Week 13: Amino Acids and Proteins
Week 14: Classification and Structures of Carbohydrates
Week 15: Final Exam
Week 16: Feedback

Continue to Basic Organic Chemistry I-E2(2)↓↓↓

Basic Organic Chemistry I-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (30%), mid-term exam (30%) and final examination (40%).

[Textbooks]

David Klein 『Organic Chemistry』（Wiley）ISBN:1118452283（not mandatory）

[References, etc.]

（Reference book）

Handouts will be provided at the beginning of each lecture.

[Study outside of class (preparation and review)]

Students should review the course materials after each class.

[Other information (office hours, etc.)]

Teaching Approach:

The new concepts are introduced in a skill-building format with practice problems (in class) and exercises (in class) to help students master the course material (no homework).

Lecture code: N369002

Course number	U-LAS13 10009 LE60		
Course title (and course title in English)	Basic Organic Chemistry II-E2 Basic Organic Chemistry II-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,Juha Lintuluoto

Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.2	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

The purpose is to provide the basics of organic chemistry for science students. Specifically, lectures and exercises are undertaken on the physical properties, synthetic methods, and basic reactivity of unsaturated compounds, and alkyl halides which are important organic compounds as basic raw materials for the chemical industry.

All Department of Chemical Science and Technology students (groups T17-T22) who passed Basic Organic Chemistry I course can take this course (Thu 2), which covers the corresponding Japanese course (基礎有機化学II). If the time overlaps with the Physical Chemistry Class, consult the course instructors directly.

This course gives the opportunity to learn English while studying chemistry, an important skill for chemists.

[Course objectives]

Students will acquire the basics of organic chemistry, which is essential for fully understanding more deeply organic chemistry and to prepare for the second year studies.

[Course schedule and contents)]

Lectures will be given on the basics of organic compounds and reactions, and the naming of organic compounds in Chapter 3 and Chapters 7 to 9 of the textbook described below.

The items and contents of the lectures are as follows.
Chapter 3 Stereoisomerism and Chirality: 3 lectures
Chapter 7 Alkynes: 3 lectures
Chapter 8 Haloalkanes, Halogenation, and Radical Reactions: 3 Lectures
Chapter 9 Nucleophilic Substitution Reaction and β - Elimination Reaction: 3 lectures
Organic Compound Nomenclature: 2 lectures
Feedback: 1 lecture

[Course requirements]

This course is suitable for Department of Chemical Science and Technology students from groups T17-T22 who passed Basic Organic Chemistry I course.

[Evaluation methods and policy]

Exercises during the lecture and report submissions will be set as normal points (maximum 10 points) and added to the results of the regular examination (maximum 90 points). A total of maximum 100 points will be

Continue to Basic Organic Chemistry II-E2(2)↓↓↓

Basic Organic Chemistry II-E2(2)

given, and 60 points or more will result passed grade.

[Textbooks]

Brown, Iverson, Anslyn, Foote 『Organic Chemistry』（Cengage Learning）ISBN:978-1-305-58035-0（8th Edition, Chapters 3, 7-9）
村上正浩監訳 『ブラウン有機化学（上）』（東京化学同人）ISBN:978-4807907793
Japanese version of Brown, Iverson, Anslyn, Foote is also OK.

[References, etc.]

（Reference book）
Introduced during class

[Study outside of class (preparation and review)]

Prepare for the lessons based on the lesson plan. In addition, after the lecture, answer the report assignments and review the exercises in the textbook to deepen your understanding.

[Other information (office hours, etc.)]

Lecture code: N369003

Course number	U-LAS13 10009 LE60				
Course title (and course title in English)	Basic Organic Chemistry II-E2 Basic Organic Chemistry II-E2	Instructor's name, job title, and department of affiliation	Institute for Chemical Research Senior Lecturer,Amelie Perron		
Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.4	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This course is intended for Japanese and international students registered in natural science majors who are interested in learning chemistry in English.

Basic Organic Chemistry II explains the fundamental concepts behind the reactivity of organic compounds. This course can be taken alone or in combination with Basic Organic Chemistry I.

[Course objectives]

Students will be able to describe basic organic reaction mechanisms (nucleophilic substitutions, eliminations and electrophilic additions) and apply this knowledge to predict the major product in organic reactions, such as those involving hydrocarbons, alcohols, alkyl halides and alkenes.

[Course schedule and contents)]

The semester will be divided as follows:

Week 1: General Concepts and Stereoisomerism
Week 2: Enantiomers and Optical Activity
Week 3: Resonance (Review)
Week 4: Chemical Reactivity
Week 5: Substitution Reactions (Part 1)
Week 6: Substitution Reactions (Part 2)
Week 7: Mid-term Exam
Week 8: Alkene and Elimination Reactions (Part1)
Week 9: Alkene and Elimination Reactions (Part 2)
Week 10: Substitution vs. Elimination
Week 11: Addition Reactions (Part 1)
Week 12: Addition Reactions (Part 2)
Week 13: Synthesis
Week 14: Review of the Main Concepts
Week 15: Final Exam
Week 16: Feedback

Continue to Basic Organic Chemistry II-E2(2)↓↓↓

Basic Organic Chemistry II-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (30%), mid-term exam (30%) and final examination (40%).

[Textbooks]

David Klein 『Organic Chemistry』 (Wiley) ISBN:1118452283 (not mandatory)

[References, etc.]

(**Reference book**)
Handouts will be provided at the beginning of each lecture.

[Study outside of class (preparation and review)]

Students should review the course materials after each class.

[Other information (office hours, etc.)]

Teaching Approach:

The new concepts are introduced in a skill-building format with practice problems (in class) and exercises (in class) to help students master the course material (no homework).

Lecture code: N374001

Course number	U-LAS13 10012 EE60		
Course title (and course title in English)	Fundamental Chemical Experiments-E2 Fundamental Chemical Experiments-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Human and Environmental Studies 基礎化学実験授業担当教員 Graduate School of Engineering Associate Professor,Cedric Tassel Graduate School of Engineering Senior Lecturer,LANDENBERGER, Kira Beth Graduate School of Engineering Associate Professor,Juha Lintuluoto Graduate School of Engineering Senior Lecturer,Nguyen Thanh Phuc Graduate School of Engineering Associate Professor,Yi Wei Graduate School of Engineering Associate Professor,NAGAMINE SHINSUKE
Group	Natural Sciences	**Field(Classification)**	Chemistry(Foundations)

Language of instruction	English	**Old group**	Group B	**Number of credits**	2
Number of weekly time blocks	2	**Class style**	Experiment	**Year/semesters**	2023・First semester
Days and periods	Wed.3・4/Fri.3・4	**Target year**	Mainly 1st year students	**Eligible students**	For science students

[Overview and purpose of the course]

The purpose of this laboratory class is to practice the basic identification and synthesis of chemical compounds as well as to learn the underlying principles involved.

[Course objectives]

Students will gain understanding in basic chemical concepts by actual hands-on work performing fundamental analysis of chemical compounds.

[Course schedule and contents)]

Registration information: https://www.z.k.kyoto-u.ac.jp/zenkyo/guidance

1. General Guidance [2 times]
The aims and contents of the experiments, how to make laboratory notes and reports, and how to use experimental instruments, labware and reagents safely.

2. Qualitative Inorganic Analysis Experiments [4 times]
(1) Basic Reactions of Fe3+ and Al3+ (3rd Analytical Group).
(2) Basic Reactions of Ag+, Pb+, Cu2+ and Bi3+ (1st and 2nd Analytical Groups).
(3) Basic Reactions of Ni2+, Co2+, Mn2+ and Zn2+ (4th Analytical Group).
(4) Analysis of an Unknown Sample Containing Some Cations.

3. Volumetric Analysis Experiments [4 times]
(1) Chelatometric Titration: Quantitative Determinations of Ca2+ and Mg2+ in tap water.
(2) Iodometry: Quantitative Determination of NaClO in Bleach.
(3) Oxidation Reaction Rate: Measurement of a Pseudo-first-order Reaction Rate Constant.
(4) Adsorption of Oxalic Acid by Activated Carbon.

Continue to Fundamental Chemical Experiments-E2(2)↓↓↓

Fundamental Chemical Experiments-E2(2)

4. Experiments in Organic Chemistry [4 times]
(1) Qualitative Analysis of Organic Compounds.
(2) Structure and Property of Organic Compounds: Azo Dyes and Fluorescent Dyes.
(3) Organic Synthesis I: Acetylation of 4-Methoxyaniline.
(4) Organic Synthesis II: Nitration and Hydrolysis.

5. Feedback [1 time]

[Course requirements]

None

[Evaluation methods and policy]

Grades will be based on submitted reports and performance during of a total of 12 hands-on chemical experiments.

[Textbooks]

『Fundamental Chemistry Experiments』（This textbook will be delivered at the class.）

[Study outside of class (preparation and review)]

Preparation for each experiment should be done in advance. Understand the principles involved, and summarize these beforehand in the experimental notes regarding the reagents, equipment, and procedures and methods to be used.

[Other information (office hours, etc.)]

・For the registration of the class, please see *1 below.
・Detailed information of the registration will be given at the homepage “KULASIS” in the beginning of April.
・Attend the first class, the course guidance will be given there.
・When you decide to take the class, you must have your own safety glasses as well as obtain the insurance for study and research “学生教育研究災害傷害保険”. (Safety glasses can be purchased at the COOP Shop “生協” and the insurance “学生教育研究災害傷害保険” is processed at the Education Promotion and Student Support Department Desk ”教育推進・学生支援部”.)

*1
Students must apply for the course before registration if they intend to register for experiment or exercise class of Natural Sciences Group. Please register for the class if you are permitted to participate.
・Application period:
Before the guidance of the first class
・Posted:
Details will be posted on “Notification” (Academic affairs information on liberal arts and sciences) in KULASIS in early April.
・Application method:
This will be explained in the “Notification” on KULASIS
・Selection method:
If the number of students who wish to take the class exceeds the course limit, a lottery will be held. The results will be announced after the guidance session.

・Notice: Unlike the other class designated courses, students can register the “Fundamental Chemical Experiments” course even if it is not the day/period of their class designated course. However, this shall not apply in the case when the class is oversubscribed.

Lecture code: N374002

<table>
<tr><td>Course number</td><td colspan="3">U-LAS13 10012 EE60</td></tr>
<tr><td>Course title (and course title in English)</td><td>Fundamental Chemical Experiments-E2
Fundamental Chemical Experiments-E2</td><td>Instructor's name, job title, and department of affiliation</td><td>Graduate School of Human and Environmental Studies
基礎化学実験授業担当教員
Graduate School of Engineering
Associate Professor,Cedric Tassel
Graduate School of Engineering
Senior Lecturer,LANDENBERGER, Kira Beth
Graduate School of Engineering
Associate Professor,Juha Lintuluoto
Graduate School of Engineering
Senior Lecturer,Nguyen Thanh Phuc
Graduate School of Engineering
Associate Professor,Yi Wei
Kyoto University
Not fixed</td></tr>
</table>

Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	2	Class style	Experiment	Year/semesters	2023・Second semester
Days and periods	Wed.3・4/Fri.3・4	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

The purpose of this laboratory class is to practice the basic identification and synthesis of chemical compounds as well as to learn the underlying principles involved.

[Course objectives]

Students will gain understanding in basic chemical concepts by actual hands-on work performing fundamental analysis of chemical compounds.

[Course schedule and contents)]

Registration information: https://www.z.k.kyoto-u.ac.jp/zenkyo/guidance

1. General Guidance [2 times]
The aims and contents of the experiments, how to make laboratory notes and reports, and how to use experimental instruments, labware and reagents safely.

2. Qualitative Inorganic Analysis Experiments [4 times]
(1) Basic Reactions of Fe3+ and Al3+ (3rd Analytical Group).
(2) Basic Reactions of Ag+, Pb+, Cu2+ and Bi3+ (1st and 2nd Analytical Groups).
(3) Basic Reactions of Ni2+, Co2+, Mn2+ and Zn2+ (4th Analytical Group).
(4) Analysis of an Unknown Sample Containing Some Cations.

3. Volumetric Analysis Experiments [4 times]
(1) Chelatometric Titration: Quantitative Determinations of Ca2+ and Mg2+ in tap water.
(2) Iodometry: Quantitative Determination of NaClO in Bleach.
(3) Oxidation Reaction Rate: Measurement of a Pseudo-first-order Reaction Rate Constant.
(4) Adsorption of Oxalic Acid by Activated Carbon.

Continue to Fundamental Chemical Experiments-E2(2)↓↓↓

Fundamental Chemical Experiments-E2(2)

4. Experiments in Organic Chemistry [4 times]
(1) Qualitative Analysis of Organic Compounds.
(2) Structure and Property of Organic Compounds: Azo Dyes and Fluorescent Dyes.
(3) Organic Synthesis I: Acetylation of 4-Methoxyaniline.
(4) Organic Synthesis II: Nitration and Hydrolysis.

5. Feedback [1 time]

[Course requirements]

None

[Evaluation methods and policy]

Grades will be based on submitted reports and performance during of a total of 12 hands-on chemical experiments.

[Textbooks]

『Fundamental Chemical Experiments』（This textbook will be delivered at the class.）

（Related URL）

https://ocw.kyoto-u.ac.jp/en/ilas/02(Video materials for chemical operation.)

[Study outside of class (preparation and review)]

Preparation for each experiment should be done in advance. Understand the principles involved, and summarize these beforehand in the experimental notes regarding the reagents, equipment, and procedures and methods to be used.

[Other information (office hours, etc.)]

・For the registration of the class, please see *1 below.
・Detailed information of the registration will be given at the homepage “KULASIS” in mid-September.
・Attend the first class, the course guidance will be given there.
・When you decide to take the class, you must have your own safety glasses as well as obtain the insurance for study and research “学生教育研究災害傷害保険”. (Safety glasses can be purchased at the COOP Shop “生協” and the insurance “学生教育研究災害傷害保険” is processed at the Education Promotion and Student Support Department Desk ”教育推進・学生支援部”.)

*1
Students must apply for the course before registration if they intend to register for experiment or exercise class of Natural Sciences Group. Please register for the class if you are permitted to participate.
・Application period:
Before the guidance of the first class
・Posted:
Details will be posted on “Notification” (Academic affairs information on liberal arts and sciences) in KULASIS in mid-September.
・Application method:
This will be explained in the “Notification” on KULASIS
・Selection method:
If the number of students who wish to take the class exceeds the course limit, a lottery will be held. The

Continue to Fundamental Chemical Experiments-E2(3)↓↓↓

Fundamental Chemical Experiments-E2(3)

results will be announced after the guidance session.

・Notice: Unlike the other class designated courses, students can register the "Fundamental Chemical Experiments" course even if it is not the day/period of their class designated course. However, this shall not apply in the case when the class is oversubscribed.

Lecture code: N384001

Course number	U-LAS13 10030 LE60		
Course title (and course title in English)	Outline of Chemistry I(Its History and Fundamentals)-E2 Outline of Chemistry I(Its History and Fundamentals)-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,GAO, Si

Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

All matter in the nature world is composed of one or more substances called elements. Human beings use variety kinds of matter to create materials that can be used for certain purpose. This course intends to give an introduction to the first and second year students on the fundamental elements and matter in the nature world, as well as the man-made materials composed of those elements, such as metals, ceramics and polymers which are quite important to modern society.

[Course objectives]

Students are expected to learn the basic knowledge of elements, matter in the nature world. Moreover, they will learn various kinds of materials that can be seen in our daily life and realize how important they are to the modern society.

[Course schedule and contents)]

Week 1: Atom and elements
Basic concept of atoms is introduced in this part. Such as atomic number, atomic weight, atomic size, etc.
Week 2: Periodical table of the elements
In this part we will learn what periodical table is and how to use it to derive relationships between various elements properties.
Week 3-12: From elements to matters and materials
In this part we will firstly introduce the important elements and the matter composed of them. After that, materials composed of those elements, which are being used in our modern society are to be introduced. For example, iron (Fe) and carbon (C) in steels, aluminum (Al) and magnesium (Mg) in aluminum alloys; copper (Cu) in electrical conductor, Gadolinium (Gd) in magnetic material, Lithium (Li) in battery, Si and semiconductor materials are to be introduced. Oxygen (O) Nitrogen (N) and carbon (C) in ceramics, carbon (C) and hydrogen (H) in polymers will also be introduced. In addition, the relationship between the structure, processing and the properties of the above mentioned materials will to be introduced, which is the core of materials science.
Week 13-14: How to identify and analyze the elements and materials?
In this part we will introduce the characterization techniques, such as spectroscopy and electron microscopy, by which we can identify the elements or visualize the atoms and microstructures of the materials.
Week 16: Feedback.

Continue to Outline of Chemistry I(Its History and Fundamentals)-E2(2)↓↓↓

Outline of Chemistry I(Its History and Fundamentals)-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Attendance and class participation[70%]
Short reports [30%]

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Theodore Gray 『The Elements 』（Encyclopaedia Britannica）ISBN:1615354328

[Study outside of class (preparation and review)]

Students are required to read assigned materials (distributed by the teacher) before the class for preparation and write short reports after class for review. The necessary time for those would be around 1.5 hours for each class.

[Other information (office hours, etc.)]

Lecture code: N391001

Course number	U-LAS13 10037 LE60		
Course title (and course title in English)	Outline of Chemistry II(Its History & Fundamentals)-E2 Outline of Chemistry II(Its History & Fundamentals)-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,Yi Wei

Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2

Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

Chemistry as the central science provides a framework for understanding the world around us. It is the study of matter and the changes that matter undergoes. This course intends to give an introduction to the first- and second-year students on the fundamental understanding of the classification, states and properties of matter, and the process, equilibrium, and energy of chemical reaction. The general concepts, laws and principles of chemistry will be introduced, and the application of the knowledge in solving practical problem will also be trained.

[Course objectives]

Students are expected to learn the basic concepts, laws and principles of chemistry, and understand the general physical and chemical properties of matters. Moreover, they will learn various applications of materials and chemical reactions in real world.

[Course schedule and contents)]

The number of lectures are shown in 【】.
1.Introduction and orientation of Chemistry【1】
Basic concepts of chemistry; description and classification of matter.
2.Properties and behavior of gases【2】
elements and compounds; pressure, temperature, volume and amount; ideal gas and real gas.
3.Liquids, and solutions【2】
Intermolecular forces; changes of state; properties of liquid and solution.
4.Solids and modern materials【3】
Crystal structure and defects; bonding and energy band; semiconductors and superconductors.
5.Chemical reactions【2】
Reaction types; energy and work; chemical thermodynamics, reaction direction and degree; chemical kinetics, reaction rate.
6.Chemical equilibrium【3】
Equilibrium constant and shift; physical and chemical equilibrium; acid-bases equilibrium; redox reactions and electrochemistry.
7.Material synthesis and characterization【1】
Solid state synthesis; measurement and characterization techniques.
8.Feedback【1】

Continue to Outline of Chemistry II(Its History & Fundamentals)-E2(2)↓↓↓

Outline of Chemistry II(Its History & Fundamentals)-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Attendance and class participation [70%], Short reports [30%]

[Textbooks]

Handouts will be provided as necessary

[References, etc.]

（**Reference book**）
Raymond Chang, Jason Overby 『General Chemistry, The Essential Concepts』（McGraw-Hill, 2011）ISBN:978.0.07.337563.2

[Study outside of class (preparation and review)]

Students are required to read assigned materials before the class. Preparation before class helps to follow and understand well. Very short reports writing after class would take your around 1 hour.

[Other information (office hours, etc.)]

Lecture code: N385001

Course number	U-LAS13 10031 LE60		
Course title (and course title in English)	Chemistry for non-science majors I-E2 Chemistry for non-science majors I-E2	Instructor's name, job title, and department of affiliation	Institute for Chemical Research Senior Lecturer,PINCELLA，Francesca
Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.4	Target year	All students	Eligible students	For liberal arts students

[Overview and purpose of the course]

As scientist Justus von Liebig used to say "everything is chemistry", therefore a basic understanding of chemistry is indispensable to interact with what surrounds us and to successfully navigate our daily lives. In this module, we will focus on a basic question: what is everything around us made up of?
In addition to learning the fundamentals of the atomic and molecular structure, the students will be introduced to one of the most important tools of the modern scientist, the scientific method. Furthermore, each topic will be followed by a brief discussion on its relevance in our everyday lives.
This course will embrace a "concept development study" where every chemical concept will be developed from the observation and analysis of experimental results followed by critical reasoning. The students are encouraged to actively participate in class and re-discover chemistry.

[Course objectives]

This course has multiple goals: most importantly, the students will gain a basic knowledge of important chemical concepts. Secondly, the students will become acquainted with the scientific method and the basic vocabulary of chemistry, with the aim to improve their ability to interpret and discern the reliability of the scientific news and information we gather in our daily lives. Thirdly, the "concept development study" approach will foster the students' critical thinking and creativity.

[Course schedule and contents)]

This course consists of 14 lectures, and one feedback class.
1. What is chemistry? Why is it important? A basic introduction to the vocabulary of chemistry and the scientific method. (1 week)
2. Atomic weight and empirical formulas: Proust's law of definite proportions, law of combining volumes and Avogadro's hypothesis (3 weeks)
3. The atomic structure: early atomistic theories, Rutherford, Bohr and Schrödinger. (3 weeks)
4. Review of basic chemical concepts and mid-term exam (1 week)
5. The periodic table of elements: Mendeleev's observations and the periodic law. Properties of the elements. (2 weeks)
6. The molecular structure: isomers, chemical bonds, valence bond theory, molecular orbital theory, resonance structures and chirality. (4 weeks)
7. Feedback（1 week）

At the end of each lesson, an "everyday chemistry" topic related to the main topic of the lesson will be introduced. Some of these topics are: natural versus synthetic compounds, sun and sunscreen, cosmetics,

Continue to Chemistry for non-science majors I-E2(2)↓↓↓

Chemistry for non-science majors I-E2(2)

chemistry of baking, milk, butter and ice-cream, fireworks, and the periodic table of smartphone elements.

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on attendance, active class participation (quizzes and exercises in class) and assignments (30%), mid-term exam (30%), and final take-home exam (40%).

[Textbooks]

Not used

[References, etc.]

（Reference book）
John S. Hutchinson 『Concept Development Studies in Chemistry』（OpenStax CNX）（http://cnx.org/contents/2f58c37f-a92d-490c-8d8d-fa590f8934cf@5.6）
Raymond Chang; Jason Overby 『Chemistry』（McGraw-Hill US Higher Ed ISE）ISBN:9781260289022

[Study outside of class (preparation and review)]

The students are encouraged to continuously revise the vocabulary and concepts introduced in previous classes. The students should submit the assignments regularly to confirm their progress and understanding.

[Other information (office hours, etc.)]

Office hours: online or in person meetings with the instructor can be requested (appointment by email or on PandA)

Lecture code: N386001

Course number	U-LAS13 10032 LE60		
Course title (and course title in English)	Chemistry for non-science majors II-E2 Chemistry for non-science majors II-E2	Instructor's name, job title, and department of affiliation	Institute for Chemical Research Senior Lecturer,PINCELLA, Francesca
Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.4	Target year	All students	Eligible students	For liberal arts students

[Overview and purpose of the course]

Everything that surrounds us is "chemistry", therefore a basic understanding of chemistry is the key to navigate our daily lives. In this course, we will focus on the basic questions: why and how does matter transform?
This course will cover the states of matter and their transformations, chemical reactions and their equilibria. The students will also be introduced to one of the most important tools of the modern scientist, the scientific method. Furthermore, each topic will be followed by a brief discussion on its relevance in our everyday lives. This course will embrace a "concept development study" where every chemical concept will be developed from the observation and analysis of experimental results followed by critical reasoning (from observation of the phenomenon to its explanation). The students are encouraged to actively participate in class and re-discover chemistry.

[Course objectives]

This course has multiple goals: most importantly, the students will gain a basic knowledge of important chemical concepts. Secondly, the students will become acquainted with the scientific method and the basic vocabulary of chemistry, with the aim to improve their ability to interpret and discern the reliability of the scientific news and information we gather in our daily lives. Thirdly, the "concept development study" approach will foster the students' critical thinking and creativity.

[Course schedule and contents)]

This course consists of 14 lectures, and one feedback class.
1. What is chemistry? Why is it important? Understanding the basics of the chemical language and the scientific method. (1 week)
2. Ideal gases: Boyle's law, Charles' law, ideal gas law and Dalton's law of partial pressures. Kinetic theory of gases. (3 weeks)
3. Chemical reactions and their equilibria: stoichiometry, equilibrium constants, the law of mass action, Le Châtelier's principle. (3 weeks)
4. Review of basic chemical concepts and mid-term exam (1 week)
5. Acid-base equilibrium: Arrhenius acid, Brønsted and Lowry acids, and Lewis acids. (1 week)
6. Reaction rates (1 week)
7. Phase transitions: melting, evaporation, sublimation and phase diagrams. Thermodynamic description of phase transitions and phase equilibria. State functions and the laws of thermodynamics. (4 weeks)
8. Feedback（1 week）

Continue to Chemistry for non-science majors II-E2(2)↓↓↓

Chemistry for non-science majors II-E2(2)

At the end of each lesson, an "everyday chemistry" topic related to the main topic of the lesson will be introduced. Some of these topics are: the chemistry of scuba diving, hypoxia and carbon monoxide poisoning, flowers as natural pH indicators, the atmospheres of the solar system, and the chemistry of food going bad. Guest lecture by Prof. Forte, Erika (Institute for Research in Humanities): "Science of the Song Dynasty".

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on attendance, active class participation (quizzes and exercises in class) and assignments (30%), mid-term exam (30%), and final take-home exam (40%).

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
John S. Hutchinson 『Concept Development Studies in Chemistry』（OpenStax CNX）（http://cnx.org/contents/2f58c37f-a92d-490c-8d8d-fa590f8934cf@5.6）
Raymond Chang; Jason Overby 『Chemistry』（McGraw-Hill US Higher Ed ISE）ISBN:9781260289022

[Study outside of class (preparation and review)]

The students are encouraged to continuously revise the vocabulary and concepts introduced in previous classes. The students should submit the assignments regularly to confirm their progress and understanding.

[Other information (office hours, etc.)]

Office hours: online or in person meetings with the instructor can be requested (appointment by email or on PandA)

Lecture code: N362001

Course number	U-LAS13 10019 LE60		
Course title (and course title in English)	Everyday Life Chemistry-E2 Everyday Life Chemistry-E2	Instructor's name, job title, and department of affiliation	Institute for Chemical Research Senior Lecturer,Amelie Perron

Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.4	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course is intended for Japanese and international students registered in liberal arts or science. It is designed to provide a basic understanding of the chemistry behind daily life.

[Course objectives]

After this class, you will be able to explain the chemistry behind the aroma of bacon, your morning coffee, why butter is solid, low-calorie foods, trans fats, chocolate crystals, snake venoms, no-tear shampoo and why toothpaste makes your orange juice taste bad.

[Course schedule and contents)]

The following topics will be covered:

Week 1: A Day without Chemistry
Week 2: Taste Chemistry and Science of Spiciness
Week 3: Sugar and Artificial Sweeteners
Week 4: What is Fat?
Week 5: How do we Smell?
Week 6: Caffeine and Alcohol
Week 7: Chemistry of the Macaroni Salad
Week 8: Forensic Science and Chemistry
Week 9: Chemistry of Love, Pheromones and Chocolate
Week 10: Chemistry of Pain Killers and Poisons
Week 11: Soap and Shampoo Chemistry
Week 12: Chemistry of Colors
Week 13: Group Presentations (Part I)
Week 14: Group Presentations (Part II)
Week 15: No Examination
Week 16: Feedback

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (30%), quizzes during classes (50%) and a 10 min group presentation (20%).

Continue to Everyday Life Chemistry-E2(2)↓↓↓

Everyday Life Chemistry-E2(2)

[Textbooks]

Not used

[References, etc.]

(**Reference book**)
Handouts will be provided to the students at the beginning of each class.

[Study outside of class (preparation and review)]

Students should review the course materials after each class. Students will also be asked to prepare a short group presentation at the end of the semester.

[Other information (office hours, etc.)]

Teaching Approach:

Short animation videos followed by throughout explanation of key concepts mixed with open discussions with the students based on quizzes and activities.

Lecture code: N387001

Course number	U-LAS13 10033 LE60		
Course title (and course title in English)	Chemistry on Natural and Human Environments-E2 Chemistry on Natural and Human Environments-E2	Instructor's name, job title, and department of affiliation	Institute for Chemical Research Senior Lecturer,PINCELLA，Francesca

Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2

Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.4	Target year	All students	Eligible students	For liberal arts students

[Overview and purpose of the course]

This course is intended to provide a basic understanding of the chemistry of nature and the environment. This course will offer an overview of how elements and materials distribute, cycle, and change in nature, and how they are affected by artificial factors. This course will enable students to understand the "global environment", the "local environment", and related environmental issues, and also gives them an opportunity to consider how to improve their daily interactions with the environment.

[Course objectives]

In this course students will familiarize themselves with the basic concepts of environmental chemistry, especially in relation to the human interaction with nature and the dramatic effects of our actions on the environment. The students will be invited to reflect on their own interactions with the environment and the consequences of pollution and over-exploitation of natural resources.

[Course schedule and contents)]

This course consists of 14 lectures, and one feedback class.

1. What is nature and the environment?
2. Basic toolkit for environmental chemistry (2 weeks)
3. Chemistry of radioactive materials
4. Nuclear fission and fusion
5. Chemistry of stratosphere and troposphere
6. Water chemistry: fresh water and sea water, microplastic pollution
7. Chemistry of the soil: domestic garbage, toxic waste, heavy metals, and soil remediation
8. "Forever chemicals", pesticides, fertilizers, and eutrophication
9. Acid rain and air pollution
10. Destruction of the ozone layer and Freon
11. Global warming and fossil fuels (2 weeks)
12. Renewable energy
13. Feedback

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on attendance, active class participation (10%), individual and group assignments (50%), and final take-home exam (40%).

Continue to Chemistry on Natural and Human Environments-E2(2)↓↓↓

Chemistry on Natural and Human Environments-E2(2)

[Textbooks]

Not used

[References, etc.]

（Reference book）

C. Baird; M. Cann 『Environmental Chemistry』（Freeman）ISBN:978-1-4292-7704-4

G.W. vanLoon; S.J. Duffy 『Environmental Chemistry: a global perspective』（Oxford University press）ISBN:9780198749974

J.E. Andrews; P. Brimblecombe; T.D. Jickells; P.S. Liss; B.J. Reid 『An introduction to Environmental Chemistry』（Blackwell Publishing）ISBN:9780632059058

R.M. Harrison 『Understanding our Environment: an Introduction to Environmental Chemistry and Pollution』（Royal Society of Chemistry）ISBN:0854045848

R.M. Harrison; S.J. de Mora 『Introductory chemistry for the environmental sciences』（Cambridge University Press）ISBN:0521256739

[Study outside of class (preparation and review)]

Students are encouraged to revise the class material regularly and submit assignments on time.

[Other information (office hours, etc.)]

Office hours: online or in person meetings with the instructor can be requested (appointment by email or on PandA)

Lecture code: N367001

Course number	U-LAS13 10022 LE60		
Course title (and course title in English)	Chemistry of Sustainable Energy-E2 Chemistry of Sustainable Energy-E2	Instructor's name, job title, and department of affiliation	Institute of Advanced Energy Senior Lecturer,ARIVAZHAGAN RAJENDRAN
Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.3	Target year	All students	Eligible students	For science students

[Overview and purpose of the course]

We learn about the basics and application of "sustainable energy" which can provide inexhaustible energy-supply without releasing the greenhouse gases to the atmosphere, from a chemical point of view. The lecture covers the following contents of solar, wind, geothermal, and biomass energies, photo-catalyst and environmental clean-up, and materials for sustainable energy. The aim of this lecture is to acquire the basic knowledge about materials related to renewable energy and also to understand the mechanism of energy conversion.

[Course objectives]

The aim of this class is to understand the basic principles of chemistry of sustainable energy.

[Course schedule and contents)]

1. What is sustainable energy?
2. Solar energy: Inorganic solar cells
3. Solar energy: Organic solar cells
4. Solar energy: Dye-sensitized and quantum dot solar cells
5. Wind energy: Types of wind turbines
6. Wind energy: How wind turbines work?
7. Geothermal energy: Direct use of geothermal energy
8. Geothermal energy: Geothermal power generation
9. Biomass energy: Thermochemical conversion
10. Biomass energy: Biochemical conversion
11. Photo-catalyst: Air purification and sterilization
12. Photo-catalyst: Water purification
13. Materials: Structure and thermal insulation
14. Materials: Polymers and sustainable energy
15. Assignment which is considered as a term examination
16. Feedback

[Course requirements]

None

[Evaluation methods and policy]

Results will be evaluated by the submission of homework written in English (30%), attendance and discipline (20%), and assignment which is considered as a term examination (50%).

Continue to Chemistry of Sustainable Energy-E2(2)↓↓↓

Chemistry of Sustainable Energy-E2(2)

[Textbooks]

Nancy E. Carpenter 『Chemistry of Sustainable Energy』 (CRC Press) ISBN:978-1-4665-7532-5

[References, etc.]

(Reference book)

Introduced during class

[Study outside of class (preparation and review)]

I recommend that the students should review the points to be learned.

[Other information (office hours, etc.)]

Office hours are set at 15:00-17:00 in every Friday.

Lecture code: N377001

Course number	U-LAS13 10025 LE60		
Course title (and course title in English)	Revisiting Basic Organic Chemistry I-E2 Revisiting Basic Organic Chemistry I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,LANDENBERGER, Kira Beth

Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.4	Target year	Mainly 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This course provides an opportunity for students to revisit material covered in the first semester of basic organic chemistry using English. The two purposes of this course are to ensure that students have a firm foundation in basic organic chemistry and to learn to proficiently apply these concepts in English. This course is beneficial for students who have already taken the first semester of basic organic chemistry or who have an interest in learning organic chemistry in English.

[Course objectives]

This course aims to help students have good understanding of basic organic chemistry, particularly in regards to the fundamentals of chemical bonding, acid and base chemistry, stereochemistry, alkanes, alkenes, alkynes and select organic reactions.

[Course schedule and contents)]

The course is planned to cover the following topics:

*Introduction to organic chemistry and review of atoms, electrons, orbitals and bonding
*Introduction to hydrocarbons (alkanes, cycloalkanes, alkenes, and alkynes), saturation, isomerism, conformation and stereochemistry, functional groups and naming of organic molecules
*Resonance, intermolecular interactions and introduction to acids and bases in organic chemistry and their reactions
*Introduction to organic reactions

It is expected that each topic will be covered in approximately 2 to 5 sessions based upon the needs of the class. The schedule can be subject to change.

A feedback session will take place one week after the final exam.

[Course requirements]

None

Continue to Revisiting Basic Organic Chemistry I-E2(2)↓↓↓

Revisiting Basic Organic Chemistry I-E2(2)

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (20%), homework (10%), quizzes (30%), and a final exam (40%).

[Textbooks]

William H. Brown, Brent L. Iverson, Eric. V. Anslyn, Christopher S. Foote, and Sheila A. Iverson 『Organic Chemistry (8th or 9th editions)』（Cengage Learning, 2023）ISBN:978-0-357-45186-1（This textbook is the main textbook used for the class. It is strongly recommended but not required.）
John McMurry 『Organic Chemistry with Biological Applications (2nd or 3rd editions)』（Cengage Learning）ISBN:9781285842912（This book was used in past courses and can provide a useful reference. It is NOT mandatory.）

[Study outside of class (preparation and review)]

Students should complete assigned homework and turn it in by the due date (usually one week later). Assignments will be given on and submitted using PandA unless otherwise noted.

[Other information (office hours, etc.)]

Office hours are welcome and available by appointment.

Lecture code: N378001

Course number	U-LAS13 10026 LE60				
Course title (and course title in English)	Revisiting Basic Organic Chemistry II-E2 Revisiting Basic Organic Chemistry II-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,LANDENBERGER, Kira Beth		
Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.4	Target year	Mainly 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This course provides an opportunity for students to revisit material covered in the second semester of basic organic chemistry using English. The two purposes of this course are to ensure that students have a firm foundation in basic organic chemistry and to learn to proficiently apply these concepts in English. This course is beneficial for students who have already taken the second semester of basic organic chemistry or who have an interest in learning organic chemistry in English.

[Course objectives]

This course aims to help students have a good understanding of basic organic chemistry, particularly in regards to basic organic reactions of alkenes and alkynes, and nucleophilic substitution or elimination reactions.

[Course schedule and contents)]

The course is planned to cover the following topics:

*Introduction to the course and a brief review of chirality and stereochemistry
*Reactions of alkenes and alkynes
*Haloalkanes, halogenation and radical reactions
*Nucleophilic substitution reactions and beta-elimination reactions

Each topic will be covered in approximately 2 to 6 weeks based upon the needs of the class.

Note: the course contents can be subject to change based on the needs of the class

A feedback session will take place one week after the final exam.

[Course requirements]

None

Continue to Revisiting Basic Organic Chemistry II-E2(2)↓↓↓

Revisiting Basic Organic Chemistry II-E2(2)

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (20%), homework (10%), quizzes (30%), and a final exam (40%).

[Textbooks]

William H. Brown, Brent L. Iverson, Eric V. Anslyn, Christopher S. Foote, Sheila A. Iverson 『Organic Chemistry (8th or 9th editions)』（Cengage Learning, 2023）ISBN:978-0-357-45186-1（This textbook is the main textbook used for the class. It is strongly recommended but not required.）
John McMurry 『Organic Chemistry with Biological Applications (2nd or 3rd editions) 』（Cengage Learning）ISBN:9781285842912（This textbook was used in past courses and is still a useful reference. It is not required for this course.）

[Study outside of class (preparation and review)]

Students should complete assigned homework and turn it in by the due date (usually one week later). Assignments are given and submitted using PandA unless otherwise notified.

[Other information (office hours, etc.)]

Office hours are welcome and available by appointment.

Lecture code: N382001

Course number	U-LAS13 10029 LE60		
Course title (and course title in English)	Revisiting Basic Physical Chemistry (quantum theory)-E2 Revisiting Basic Physical Chemistry (quantum theory)-E2	Instructor's name, job title, and department of affiliation	Kyoto University Not fixed

Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.3	Target year	Mainly 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

The objective of the course is to strengthen the knowledge in quantum theory and to understand how it can explain the behavior of atoms and molecules.

[Course objectives]

- Understand the basic concepts of quantum theory
- Review the atomic structure of hydrogen and other elements
- Review the chemical bond and its interactions with molecules

[Course schedule and contents)]

Part I: Introduction to Quantum Theory (Class 1 - 4)
The main topics include wave motion and light, energy quantization, the Bohr model, wave-particle duality, the Schrodinger Equation, and particles in boxes.

Part II: Atomic structure (Class 5 - 9)
The main topics include the Hydrogen atom, sizes and shapes of orbitals, Shell model, electron configuration, periodic properties an electronic structure.

Part III: Molecular structure (Class 10 - 14)
The main topics include chemical bond, molecular orbital theory, diatomic molecules, valence bond theory, and orbital hybridization.

Feedback (Class15): There will be feedback session to cover any doubts or questions related to what you study in this course.

[Course requirements]

None

[Evaluation methods and policy]

The grade will be evaluated as follows: final exam (40%), quizzes at the end of each part (20%), assignments (40%).

[Textbooks]

David W. Oxtoby , H. P. Gillis, Laurie J. Butler 『Principles of Modern Chemistry. 8th edition, 2015』（Brooks/Cole Pub Co.）ISBN:1305079116

Continue to Revisiting Basic Physical Chemistry (quantum theory)-E2(2)↓↓↓

Other versions are acceptable. However, students must be responsible for checking the differences between editions.

[References, etc.]

（**Reference book**）
If necessary, the instructor will provide extra material during the class.

[Study outside of class (preparation and review)]

Students are required to study the class contents in advance. It is desired that students check additional study sources (books, internet).
Quizzes will be done during class. Submission of quizzes outside the designated time and date will not be accepted.
The assignments must be submitted on PandA as PDF files by the due date. No late assignment turn-in will be accepted.

[Other information (office hours, etc.)]

Instructor: Jesus Rafael Alcantara Avila (e-mail: jrafael@cheme.kyoto-u.ac.jp)
Office hour: (Katsura Campus, A4-222, appointment by e-mail)

Lecture code: N390001

Course number	U-LAS13 10036 LE60		
Course title (and course title in English)	Thermodynamics in Everyday Life-E2 Thermodynamics in Everyday Life-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,THUERMER, Stephan

Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2

Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.3	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

In this lecture you will learn about the fundamental ideas of thermodynamics in an understandable and fun way. If you are going to study natural sciences, especially physics or chemistry, you will come across these ideas again and again. Chemical reactions in nature, industrial processes, and of course all processes in your daily life are dependent on energy. As it turns out, energy comes in many different forms, and its flow and transformation follows fundamental laws, which we want to study in this course.

[Course objectives]

Students will gain the following form this lecture:
- Interest and fun to learn more about how things work in daily life and technical processes.
- An intuitive understanding of thermodynamic laws, which is fundamental to further studies of physics and chemistry.
- The ability to understand scientific terminologies and express their own ideas of natural sciences in English.

[Course schedule and contents)]

The course will cover the following topics in a total of 15 lectures / weeks (not including the final examination). The course schedule is subject to change depending on the student's understanding.
1) The big picture: Introduction to thermodynamic systems and their states. (2 weeks)
 We learn how processes in nature are controlled by a few simple properties, like pressure, temperature and volume.
2) Everything in balance: Equilibrium thermodynamics. (2 weeks)
 We think about different types of equilibria and their usefulness in describing processes.
3) It gets hot: Temperature and its scales. (2 weeks)
 We ask "What is temperature?" and answer this question from various viewpoints.
4) Order and disorder: Phases, the phase diagram, and mixtures. (4 weeks)
 We discuss the changes substances undergo when varying temperature, pressure and volume.
5) One-way flow: Forms of energy, energy conservation and transformation. (2 weeks)
 We learn about different forms of energy, laws for energy flow and their application in daily life.
6) Making energy do the work: Energy conservation in cyclic processes. (2 weeks)
 Finally we apply our knowledge of energy conservation to machines which transport heat or convert energy.
<<Final Examination>>
8) Feedback session (1 week):
 After the final examination we will discuss the answers of the exam questions and resolve any open questions.

Continue to Thermodynamics in Everyday Life-E2(2)↓↓↓

Thermodynamics in Everyday Life-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Preparing the homework (40%)
Two short test during the lecture (20%)
Final examination (40%)

[Textbooks]

Not used
No textbook is used. Lecture notes will be provided during class.

[References, etc.]

(**Reference book**)
Peter Atkins, Julio de Paula 『Physical Chemistry』 (Oxford University Press) ISBN:9780199697403 ((Topics from Part 1 - Thermodynamics) Always a good book to have for learning concepts in physical chemistry)
Peter Atkins 『The Laws of Thermodynamics: A Very Short Introduction』 (Oxford University Press) ISBN:9780199572199 (A short and easy to understand book about general concepts)
Yunus Cengel, Michael Boles 『Thermodynamics: An engineering approach』 (McGraw-Hill Education) ISBN:9780073398174 (Good for learning about thermodynamics with real-world examples and applications)

Georg Job, Regina Rueffler 『Physical Chemistry from a Different Angle』 (Springer) ISBN:978-3-319-15666-8 (A good book for getting an intuitive introduction into thermodynamics)

[Study outside of class (preparation and review)]

Students are expected to review the lecture handouts after each class and look up unknown English terms themselves. Homework assignments need to be prepared before the next lecture. It is also encouraged to refer to additional sources of information (books, websites) for the specific topics. If something is unclear or difficult, the instructor can be asked at any time.

[Other information (office hours, etc.)]

The lectures will be held in English, but some supporting material and explanations are also given in Japanese. Students are welcome to ask questions in English or Japanese during and after the class. Office hours are flexible. Appointments can be made directly or via email.

Lecture code: N394001

Course number	U-LAS13 10040 LE60		
Course title (and course title in English)	Analytical Chemistry and Forensic Science-E2 Analytical Chemistry and Forensic Science-E2	Instructor's name, job title, and department of affiliation	Institute for Chemical Research Senior Lecturer,MURDEY，Richard James
Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.5	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This course introduces key concepts and methods in analytical chemistry using practical examples from forensic science. Lectures are based on case studies and feature mock crime scene investigations. Students will learn how to detect and identify substances like drugs, poisons, explosives, blood, and DNA. Many analytical methods are covered including gas chromatography (GC), mass spectrometry (MS), high-performance liquid chromatography (HPLC), thin layer chromatography (TLC), immunoassays, atomic absorption/atomic emission (AA/AE), inductively coupled plasma emission (ICP/AES) and mass spectrometry (ICP/MS), scanning electron microscopy (SEM), Fourier transform infrared spectrometry (FTIR), ultraviolet/visible spectrometry (UV/Vis), and electrophoresis. Concepts such as chain of custody and quality assurance / quality control are presented.

[Course objectives]

This course provides a basic understanding of the methods and techniques used in analytical chemistry.

[Course schedule and contents)]

1. Introduction to forensic science
2. Drug identification
3. Confirmatory methods for drug identification
4. Toxicology
5. Quality control
6. Drug screening
7. Sample preparation for biological specimens
8. Serology
9. Blood enzymes and proteins
10. DNA analysis
11. Trace evidence (gunshot residue, explosives)
12. Paint, hair, and fiber analysis
13. Arson
14. [exam period]
15. Feedback

Continue to Analytical Chemistry and Forensic Science-E2(2)↓↓↓

[Course requirements]

None

[Evaluation methods and policy]

Each lecture will introduce a short homework assignment related to the topic covered. These assignments count for 70% of the final grade, and class participation counts for the remaining 30%. There is no final exam.

[Textbooks]

Not used

[References, etc.]

（**Reference book**）

Gary D. Christian, Purnendu K. Dasgupta, Kevin A. Schug 『Analytical Chemistry』
Kelly M. Elkins 『Introduction to Forensic Chemistry』
Mat H. Ho 『Analytical Methods in Forensic Chemistry』
These textbooks may be helpful as references or for self-study.

[Study outside of class (preparation and review)]

Weekly assignments reinforce key concepts introduced in each lecture.

[Other information (office hours, etc.)]

Lecture code: N393001

Course number	U-LAS13 10039 LE60		
Course title (and course title in English)	Introduction to the Chemistry of Materials-E2 Introduction to the Chemistry of Materials-E2	Instructor's name, job title, and department of affiliation	Institute for Chemical Research Senior Lecturer,MURDEY，Richard James

Group	Natural Sciences	Field(Classification)	Chemistry(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2

Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.4	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

All our familiar objects - our cars, clothes, computers, and homes - are made out of materials. This course covers the essential chemistry behind common materials like metals, polymers, and ceramics. The lectures include key concepts in materials chemistry, including chemical bonding, crystal structures, and phase diagrams. You will learn to distinguish the physical properties of conductors, semiconductors, and insulators, and become familiar with the structure and synthesis of polymers and ceramics. The last part of the course provides an overview of modern functional materials such as ferroelectrics, nanomaterials, and composites.

[Course objectives]

This course provides students with an introduction to the chemical and physical properties of materials and their applications in technology.

[Course schedule and contents)]

1. Classification of matter
2. Historical overview
3. Bonds
4. Metals and conductivity
5. Ceramics and glasses
6 Polymers
7. Dyes and paints
8. Composites
9. Semiconductors
10. Superconductors
11. Ferroelectrics
12. Photonic materials
13. Nanomaterials
14. Bioinspired materials
15. [no class]
16. Feedback

Continue to Introduction to the Chemistry of Materials-E2(2)↓↓↓

Introduction to the Chemistry of Materials-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Each lecture will introduce a short homework assignment related to the topic covered. These assignments count for 70% of the final grade. Attendance and class participation count for 30%.

[Textbooks]

Not used

[References, etc.]

（**Reference book**）

Harry R. Allcock 『Introduction to Materials Chemistry』

Robert J. Naumann 『Physics and Chemistry of Materials』

These textbooks may be useful as a reference or for self-study.

[Study outside of class (preparation and review)]

Weekly assignments are given to reinforce the main ideas presented in the lectures.

[Other information (office hours, etc.)]

Lecture code: N363001

Course number	U-LAS13 20004 LE60		
Course title (and course title in English)	Introduction to Inorganic Chemistry A-E2 Introduction to Inorganic Chemistry A-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,Cedric Tassel

Group	Natural Sciences	Field(Classification)	Chemistry(Development)

Language of instruction	English	Old group	Group B	Number of credits	2

Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.3	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

These lectures will introduce students to the fundamentals of inorganic chemistry. Atoms, molecules and solids surround us and this lecture will aim at providing students with the tools to better understand their structures, energetics and properties. This course is designed for both Japanese and International students.

[Course objectives]

(1) To understand the basic structure of atoms as a function of their position in the periodic table. (2)To be able to draw simple molecular structures and orbital diagrams to understand their properties and reactivity.
(3) To be able to visualize and comprehend the basic crystal structures of solids and their related stability and properties.

[Course schedule and contents)]

The course will cover the following topics, and each of them is read in 1 or 2 weeks

(1) The structure of hydrogen
(2) The structure of many-electron atoms
(3) Lewis structures
(4) Valence bond theory
(5) Molecular orbital theory
(6) Bond properties
(7) The structure of solids and packing of spheres
(8) The structure of metals, alloys and intermetallic compounds
(9) Ionic bonding and ionic solids
(10) Electronic structures and properties of inorganic solids

Total 14 classes and 1 Feedback

[Course requirements]

None

Continue to Introduction to Inorganic Chemistry A-E2(2)↓↓↓

Introduction to Inorganic Chemistry A-E2(2)

[Evaluation methods and policy]

Evaluation will be based on attendance and participation (10%), homework (40%) and final examination (50%).

[Textbooks]

Weller, Overton, Rourke, Armstrong 『Inorganic Chemistry』 （Oxford University Press） ISBN:978-0-19-964182-6

[References, etc.]

（Reference book）
Introduced during class
Will be announced during the lecture

（Related URL）
(Will be announced during the lecture)

[Study outside of class (preparation and review)]

Students are required to do their homeworks and when trouble is encountered during homework, please consult the various recommended textbooks or please ask me.

[Other information (office hours, etc.)]

Office hour: Anytime by email and appointments should be made via email.

Lecture code: N364001

Course number	U-LAS13 20006 LE60		
Course title (and course title in English)	Introduction to Inorganic Chemistry B-E2 Introduction to Inorganic Chemistry B-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,Cedric Tassel
Group	Natural Sciences	Field(Classification)	Chemistry(Development)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.3	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

These lectures will introduce students to the fundamentals of inorganic chemistry. This series of lectures will aim at giving students a basic comprehension of chemical reactions (acid-base and redox) as well as the structure of inorganic substances, their properties and their applications in our daily lives. This course is designed for both Japanese and International students.

[Course objectives]

(1) To understand the theories of acid-base and redox reactions. (2) To be able to analyze the symmetry of complex molecules and their related properties. (3) To understand the fundamental theories and their applications.

[Course schedule and contents)]

The course will cover the following topics, and each of them is read in 1 or 2 weeks

(1) Brønsted acids and bases
(2) Lewis acids and bases
(3) Oxidation and reduction
(4) Representation of potentials and applications
(5) Molecular symmetry and coordination compounds
(6) Electronic structure of d-metal complexes: crystal-field theory and ligand-field theory
(7) Properties of d-metal complexes
(8) Introduction to the characterization techniques in inorganic chemistry
(9) Material chemistry
(10) Catalysis

Total 14 classes and 1 Feedback

[Course requirements]

None

Continue to Introduction to Inorganic Chemistry B-E2(2)↓↓↓

Introduction to Inorganic Chemistry B-E2(2)

[Evaluation methods and policy]

Evaluation will be based on attendance and participation (10%), homework (40%) and final examination (50%).

[Textbooks]

Weller, Overton, Rourke, Armstrong 『Inorganic Chemistry』（Oxford University Press）ISBN:978-0-19-964182-6

[References, etc.]

（Reference book）

Introduced during class
Will be announced during the lecture

（Related URL）

(Will be announced during the lecture)

[Study outside of class (preparation and review)]

Students are required to do their homeworks and when trouble is encountered during homework, please ask me.

[Other information (office hours, etc.)]

Office hour: Anytime by email and appointments should be made via email.

Lecture code: N361001

Course number	U-LAS13 20013 LE60		
Course title (and course title in English)	Organic Chemistry of Life-E2 Organic Chemistry of Life-E2	Instructor's name, job title, and department of affiliation	Institute for Chemical Research Senior Lecturer,Amelie Perron

Group	Natural Sciences	Field(Classification)	Chemistry(Development)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.4	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This course is intended for Japanese and international students registered in science majors who are interested in generating their own ideas through creative thinking. It is particularly suited for students interested in pursuing graduate studies in chemistry, life sciences, medicine, pharmaceutical sciences, or agriculture.

Short video lectures are viewed by students at home before the class session, while in-class time is devoted to activities, brainstorming, or projects.

[Course objectives]

This course covers revolutionary ideas from scientists that originated from the integration of chemistry and biology with a main focus on strategies for idea generation.

By the end of this course, you should be able to come up with your own ideas using various creative thinking strategies.

[Course schedule and contents)]

The following topics will be covered online or in the classroom:

Week 1: Why is Creativity Important?
Week 2: Creating Drug Constellations with Chemical Structures
Week 3: Building of a DNA Double Helix Structure
Week 4: Innovative Applications Derived from DNA/RNA
Week 5: Parallel Thinking with the 6 Thinking Hats Technique
Week 6: Creation of a New Product using the Idea Generator Tool
Week 7: Idea Generation based on Amino Acids and Proteins
Week 8: Ideas for Genetically Modified Organisms
Week 9: Fluorescence for Tracking Biology (Part 1)
Week 10: Fluorescence for Tracking Biology (Part 2)
Week 11: SCAMPER Method for Creating Revolutionizing Ideas
Week 12: Ideas for Fooling Sugars and Fats
Week 13: Creative Ways for Fighting Cancer and Viruses
Week 14: JeoPARODY - Wrapping up the Semester
Week 15: No Examination
Week 16: Feedback

Continue to Organic Chemistry of Life-E2(2)↓↓↓

Organic Chemistry of Life-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation is based on attendance and active participation (20%), idea generation (50%), and activities (30%).

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Links to online videos will be provided through PandA.

[Study outside of class (preparation and review)]

Students have to watch online videos (about 30 minutes per week) before attending the classes. Classroom activities will be based on the content of the online lectures.

[Other information (office hours, etc.)]

Lecture code: N372001

Course number	U-LAS13 20014 LE60						
Course title (and course title in English)	Introduction to Surface Chemistry-E2 Introduction to surface chemistry-E2			Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,THUERMER, Stephan		
Group	Natural Sciences			Field(Classification)	Chemistry(Development)		
Language of instruction	English	Old group	Group B	Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester		
Days and periods	Mon.3	Target year	Mainly 2nd year students	Eligible students	For science students		

[Overview and purpose of the course]

In this lecture we will learn about surface processes, which is an important topic in physics, chemistry and engineering. Surfaces are much more important than you would think: Rusting of metals (corrosion), sticking of your shoes or glue (adhesion and friction), washing your hands (surfactants), colorful paints (coatings) are all phenomena happening at some surface. In this course, we will learn how the special properties of surfaces makes all this possible and how chemists in science and industry try to control these properties.

[Course objectives]

Students will gain the following from this lecture:
- Interest and fun to learn more about how things work in daily life
- An understanding of basic concepts of surface physics and surface chemistry
- The ability to connect knowledge to observed natural phenomena and industrial applications
- The ability to understand scientific terminologies and express their own ideas of natural sciences in English.

[Course schedule and contents)]

The course will cover the following topics in a total of 15 lectures / weeks (not including the final examination). The course schedule is subject to change depending on the student's understanding.

1) A cut through everything (2 weeks):
  We will learn what surfaces and interfaces are, their properties and their importance for our daily life.
2) Sticking together (2 weeks):
  We introduce surface energy and see how this leads to sticking and water repelling behavior.
3) How not to slip (1 week):
  We learn about surface structure, and get an understanding of how friction between surfaces works.
4) Gear breakdown (2 weeks):
  We get to know how friction leads to damage and how friction can be reduced.
5) Fogging up of glasses (2 weeks):
  We discuss about adsorption of atoms and molecules on surfaces.
6) Exhaust transformation (2 weeks):
  Chemical reactions on surfaces and catalysis will be discussed.
7) Sticky gas (3 weeks):
  Finally, we see how adsorption of gas can be quantified and measured, and how this is used practically.

<<Final Examination>>

8) Feedback session (1 week):
  After the final examination we will discuss the answers of the exam questions and resolve any open

Continue to Introduction to Surface Chemistry-E2(2)↓↓↓

questions.

[Course requirements]

None

[Evaluation methods and policy]

Preparing the homework (40%)
Two short test during the lecture (20%)
Final examination (40%)

[Textbooks]

Not used
No textbook is used. Some handouts will be provided during class.

[References, etc.]

（**Reference book**）

Hans-Juergen Butt, Karlheinz Graf, Michael Kappl 『Physics and Chemistry of Interfaces』（Wiley-VCH） ISBN:9783527412167（This book covers all topics of this course and much more）

Drew Myers 『Surfaces, Interfaces, and Colloids: Principles and Applications, 2nd Edition』（Wiley-VCH） ISBN:9780471330608（Covers most topics about surfaces and interfaces, be it solid, liquid or other surfaces）

Elaine M. McCash 『Surface Chemistry』（Oxford University Press）ISBN:9780198503286（Introductory text about solid surfaces）

[Study outside of class (preparation and review)]

Students are expected to review the lecture handouts after each class and look up unknown English terms themselves. Homework assignments need to be prepared before the next lecture. It is also encouraged to refer to additional sources of information (books, websites) for the specific topics. If something is unclear or difficult, the instructor can be asked at any time.

[Other information (office hours, etc.)]

The lectures will be held in English, but some supporting material and explanations are also given in Japanese. Students are welcome to ask questions in English or Japanese during and after the class. Office hours are flexible. Appointments can be made directly or via email.

Lecture code: N937001

Course number	U-LAS14 10011 LE69		
Course title (and course title in English)	Introduction to Biology and Life Science-E2 Introduction to Biology and Life Science-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Program-Specific Senior Lecturer,BRANDANI, Giovanni・Bruno

Group	Natural Sciences	Field(Classification)	Biology(Introduction)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course is designed to provide an introduction to the vast field of biology to undergraduate students coming from all backgrounds, even without prior knowledge of biology. I will cover a wide range of topics, starting from the structure and function of biomolecules, passing through the organization of cells and the key principles governing life, and finally concluding with evolution and the diversity of life on Earth. The use of case studies will allow students to learn how past discoveries shaped our current views of biology.

[Course objectives]

Students will be able to explain how organisms continuously transform energy and matter to grow and maintain their internal order, to recognize structure-function relations over the many levels of biological organization, to understand the mechanisms underlying the expression and transmission of genetic information, and to illustrate how evolution explains both the unity and the diversity of life.

[Course schedule and contents)]

Schedule:
1. Introduction to the course and introduction to chemistry
2. Biomolecules
3. Cell structure and cell division
4. Membrane transport and neurons
5. Metabolism
6. Inheritance
7. DNA structure and replication
8. Gene transcription and translation
9. Gene regulation and development
10. Viruses and the immune system
11. Darwin and the tree of life
12. Mechanisms of evolution
13. The history of life on Earth
14. Extra biology topic
15. Final exam
16. Feedback

Continue to Introduction to Biology and Life Science-E2(2)↓↓↓

Introduction to Biology and Life Science-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Class attendance and active participation (25%), short weekly tests (25%), final exam (50%)

[Textbooks]

Urry, Cain, Wasserman, Minorsky, Reece. 『Campbell Biology』 (Pearson) ISBN:9781292170435

[Study outside of class (preparation and review)]

Students are encouraged to take notes during class and to review them afterwards. As part of the final evaluation (25%), there will be short weekly online tests conducted using the PandA learning support service.

[Other information (office hours, etc.)]

Please feel free to contact me by email at brandani@biophys.kyoto-u.ac.jp any time

Lecture code: N937002

Course number	U-LAS14 10011 LE69				
Course title (and course title in English)	Introduction to Biology and Life Science -E2 Introduction to Biology and Life Science-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Program-Specific Senior Lecturer,BRANDANI, Giovanni・Bruno		
Group	Natural Sciences	Field(Classification)	Biology(Introduction)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course is designed to provide an introduction to the vast field of biology to undergraduate students coming from all backgrounds, even without prior knowledge of biology. I will cover a wide range of topics, starting from the structure and function of biomolecules, passing through the organization of cells and the key principles governing life, and finally concluding with evolution and the history of life on Earth. The use of case studies will allow students to learn how past discoveries shaped our current views of biology.

[Course objectives]

Students will be able to explain how organisms continuously transform energy and matter to grow and maintain their internal order, to recognize structure-function relations over the many levels of biological organization, to understand the mechanisms underlying the expression and transmission of genetic information and to illustrate how evolution explains both the unity and the diversity of life.

[Course schedule and contents)]

Schedule:
1. Introduction to the course and introduction to chemistry
2. Biomolecules
3. Cell structure and cell division
4. Membrane transport and neurons
5. Metabolism
6. Inheritance
7. DNA structure and replication
8. Gene transcription and translation
9. Gene regulation and development
10. Viruses and the immune system
11. Darwin and the tree of life
12. Mechanisms of evolution
13. The history of life on Earth
14. Extra biology topic
15. Final exam
16. Feedback

Continue to Introduction to Biology and Life Science-E2(2)↓↓↓

Introduction to Biology and Life Science-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Class attendance and active participation (25%), short weekly tests (25%), final exam (50%)

[Textbooks]

Urry, Cain, Wasserman, Minorsky, Reece. 『Campbell Biology』 (Pearson) ISBN:9781292170435

[Study outside of class (preparation and review)]

Students are encouraged to take notes during class and to review them afterwards. As part of the final evaluation (25%), there will be short weekly online tests conducted using the PandA learning support service.

[Other information (office hours, etc.)]

Please feel free to contact me by email any time at brandani@biophys.kyoto-u.ac.jp

Lecture code: N938001

Course number	U-LAS14 10012 LE69		
Course title (and course title in English)	Fundamentals of Organismal and Population Biology-E2 Fundamentals of Organismal and Population Biology-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,BARNETT, Craig Antony

Group	Natural Sciences	Field(Classification)	Biology(Introduction)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

In the history of the earth (4.6 billion years), life has diversified from simple unicellular organisms into a myriad of different organisms including human beings since it appeared 3.8 billion years ago. This course will explain how living creatures have diversified from these simple origins. We will also examine the biology of individual organisms and explain the formation of ecological communities and ecosystems. This class discusses basic principles of biology and is suitable for students who have not previously studied biology.

[Course objectives]

An introductory course that mainly deals the evolution of biological diversity, the biology of individuals and groups. Having completed the course, students will have a basic understanding of the evolution of biological diversity and the mechanisms by which diverse species coexist.

[Course schedule and contents)]

The following subjects will be held for 2-5 weeks each. The items in [] are the main items.
(1) The history of life
We will systematically examine the origin and evolutionary history of life on Earth, and the systematic evolution and diversification of organisms. The latest knowledge about the classification system is also introduced. [The origin of life, prokaryotes, eukaryotes, intracellular symbiosis].
(2) Animal behavior and physiology
We will examine the diverse adaptive animal behavior patterns and physiological characteristics of organisms in temporally and spatially variable environments. [Adaptation, sexual selection, homology, the evolution of altruistic behavior, homeothermic animals, variable temperature animals, temperature acclimation, and homeostasis].
(3) Ecology of groups and communities
Ecology and evolution of organisms the adaptation of organisms to the environment is explained based on genetic and evolutionary mechanisms. We will explore the ecology of populations, communities, the structure and function of ecosystems, ecological niches, and the basis and function of biodiversity. [Genetic systems, evolutionary mechanisms, natural selection, adaptation, life history, individual group dynamics, interspecies relationship, biological communities, food webs, biome, ecosystem function, biodiversity].
(4) Human characteristics and evolution
Explain the biological characteristics of primates (including humans) using comparisons of their forms, behaviors, and ecology. [Evolutionary history, distribution, tree adaptation, grasping ability, vision, food habits, brain size, sex differences, social structure, bipedalism, canine retraction, tool use, division of labor,

Continue to Fundamentals of Organismal and Population Biology-E2(2)↓↓↓

and the genetic diversity in modern people].

[Course requirements]

It is not necessary to have completed high school biology, but it would be an advantage.

[Evaluation methods and policy]

The course will be assessed by end of semester test.

[Textbooks]

No textbook

[Study outside of class (preparation and review)]

To achieve the course goals, students should review the course materials and the recommended readings after each class. The time necessary for review should be in the range of 2-3 hours per week. If you have any questions, please ask the instructor.

[Other information (office hours, etc.)]

No formal office hours, the instructor is available by appointment to meet with students.

Lecture code: N923001

Course number	U-LAS14 10008 LE68		
Course title (and course title in English)	Fundamentals of Cell and Molecular Biology-E2 Fundamentals of Cell and Molecular Biology-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,TAKENAKA, Mizuki

Group	Natural Sciences	Field(Classification)	Biology(Introduction)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

The purpose of this course is to provide fundamentals of current biology, in particular focused on micro-level biology below the cell level with an "Essential cell biology", which is a university level standard textbook. Students will learn the functions of characteristic molecules of life such as DNA, RNA and proteins in the cell. Furthermore, how structural features of these molecules contribute their respective functions will be discussed. This course will also cover the relevance between the functions of these biological molecules and various life phenomena at the cell or individual organism level.

[Course objectives]

This course will provide a fundamental understanding of molecular and cell biology.
Students will be able to explain how the cell is organized and how it functions in English.

[Course schedule and contents)]

1. Cells: The Fundamental Units of Life
2. Chemical Components of Cells
3. Protein Structure and Function
4. DNA Replication, Repair, and Recombination
5. From DNA to Protein: How Cells Read the Genome
6. How Genes and Genomes Evolve
7. Membrane Structure
8. Transport Across Cell Membranes
9. Energy Generation in Mitochondria and Chloroplasts
10. Intracellular Compartments and Protein Transport
11. Cell Signaling and Cytoskeleton
12. The Cell Division Cycle
13. Sexual Reproduction and the Power of Genetics
14. Cellular Communities: Tissues, Stem Cells, and Cancer
15. A final written exam
16. An Oral exam and feedback

Continue to Fundamentals of Cell and Molecular Biology-E2(2)↓↓↓

Fundamentals of Cell and Molecular Biology-E2(2)

[Course requirements]

This course is open to all students, BUT a basic knowledge on biology is highly recommended.

[Evaluation methods and policy]

Class attendance and active participation (20%), weekly small tests (30%), a final written exam (25%) and an oral exam (25%).

[Textbooks]

Alberts Bray et al. 『Essential Cell Biology』 （W W Norton & Co Inc）ISBN:9780393680362
Summary of the lecture contents will be provided at the class.

[Study outside of class (preparation and review)]

Reading the textbook before the lecture will help the students to understand the lecture.
Students should review the textbook after the lecture and answer the questions provided.

[Other information (office hours, etc.)]

Contact: mizuki.takenaka@pmg.bot.kyoto-u.ac.jp
Any questions and requests are welcome by prior arrangements via E-mail.

Lecture code: N924001

Course number	U-LAS14 10009 LE68				
Course title (and course title in English)	Introduction to Plant Science-E2 Introduction to Plant Science-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,TAKENAKA, Mizuki		
Group	Natural Sciences	Field(Classification)	Biology(Introduction)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Fri.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

In this lecture series, the basics of the survival strategy of plants will be learned at the cellular and molecular level. Despite that the achievement of plant science are very frequently described in high school textbooks, university students have very few opportunities to study them unless they specifically learn plant physiology. In this classes, the contents of plant science, which are mentioned only widely and shallowly at high school level will be provided more deeply with the latest knowledge.

[Course objectives]

To understand the fundamentals of plant physiology
To understand how plants use light-energy.
To understand the signal transduction in plants.
To understand the basics of plant development and reproduction

[Course schedule and contents)]

1)Plant and cell architecture
2)Genome structure and gene expression
3)Water in plants
4)Mineral Nutrition
5)Photosynthesis
6)Cel wall
7)Signal transduction
8)Embryogenesis
9)Seed dormancy germination and seedling
10)Vegetative growth and organogenesis
11)Flower controlling,
12)Gametophytes pollination , seeds, and fruits
13)Plant senescence and cell death
14)Biotic and Abiotic interaction
15)A final written exam
16)An oral exam and feedback

Continue to Introduction to Plant Science-E2(2)↓↓↓

Introduction to Plant Science-E2(2)

[Course requirements]

This course is open to all students, BUT a basic knowledge on biology is highly recommended.

[Evaluation methods and policy]

Class attendance and active participation (20%), weekly small tests (30%) an oral exam (25%) and a final written exam (25%)

[Textbooks]

Lincoln Taiz et al. 『Plant Physiology and Development, Sixth Edition』 （Sinauer） ISBN:9781605353531

[References, etc.]

（**Reference book**）
Summary of the lecture contents will be provided at the class.

[Study outside of class (preparation and review)]

Reading the textbook before the lecture will help the students to understand the lecture.
Students should review the textbook after the lecture.

[Other information (office hours, etc.)]

Contact: mizuki.takenaka@pmg.bot.kyoto-u.ac.jp
Any questions and requests are welcome by prior arrangements via E-mail.

Lecture code: N941001

Course number	U-LAS14 10013 LE68		
Course title (and course title in English)	Basic Biology and Metabolism-E2 Basic Biology and Metabolism-E2	Instructor's name, job title, and department of affiliation	Graduate School of Pharmaceutical Sciences Program-Specific Associate Professor,CAMPBELL, Douglas Simon

Group	Natural Sciences	Field(Classification)	Biology(Introduction)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Cells are fundamental units that make up living things or exist on their own as organisms such as bacteria. In this course we will explore what cells are, their structure, chemical components and the basics of cell functions.
This course is designed to provide the fundamentals of cell biology that are required by anyone to understand both the biomedical and the broader biological issues that affect our lives. Since Cell Biology is a very broad topic, students will have the opportunity to investigate areas of their own specific interests via presentation assignments such as via news or journal articles covering Cell Biology.
Students are encouraged to continue taking "Introduction to Molecular Cell Biology-E2 (1st semester)" as a follow-up to this course.

[Course objectives]

Students will acquire a basic understanding of cell structure and function.
Students should be able to appreciate basic biology and in particular the importance of cell structure and function and their relationship with the organism as a whole.
Students should be able to understand and discuss various aspects of Bioscience in English.

[Course schedule and contents)]

1. Introduction to the course and Cell Biology
2. Cells, the Fundamental Units of Life
3. Chemical Components of Cells 1
4. Chemical Components of Cells 2
5. Energy, Catalysis and Biosynthesis 1
6. Energy, Catalysis and Biosynthesis 2
7. Protein Structure and Function 1
8. Midterm Exam / Protein Structure and Function 2
9. Protein Structure and Function 3
10. DNA and Chromosomes
11. DNA Replication and Repair
12. How Cells Read the Genome: From DNA to Protein 1
13. How Cells Read the Genome: From DNA to Protein 2
14. Biotechnology And genomics
15. Final exam
16. Feedback

Continue to Basic Biology and Metabolism-E2(2)↓↓↓

Basic Biology and Metabolism-E2(2)

[Course requirements]

Students should have a general interest and curiosity about the study Molecular Cell Biology. As this is an introductory course prior knowledge of the topic is not necessary

[Evaluation methods and policy]

Class Presentation assignments 20%
Midterm exam 20%
Final examination 60%
The exact proportion will depend on the number of assignments in the course, these may be in place of a midterm exam

[Textbooks]

“Essential Cell Biology” 5th edition (2019) by Alberts et al., W.W. Norton and Company, New York ISBN 9780393679533
OpenStax Biology 2e freely available to download at the URL below.

（Related URL）

https://openstax.org/details/books/biology-2e

[Study outside of class (preparation and review)]

Review from the textbook, previous lecture content and preparation for assignments to be presented in class.

[Other information (office hours, etc.)]

The contents of the syllabus are a guide to the content of the course, the exact content may change. Input from students is very welcome to suggest aspects to cover in the course. I am always happy to discuss with prospective students or students via email and meet with prior appointment.

Lecture code: N492001

Course number	U-LAS14 20029 LE68				
Course title (and course title in English)	Principles of Genetics-E2 Principles of Genetics-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Medicine Professor,Shohab YOUSSEFIAN		
Group	Natural Sciences	**Field(Classification)**	Biology(Issues)		
Language of instruction	English	**Old group**	Group B	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Tue.2	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For science students

[Overview and purpose of the course]

Genetics is the science of heredity and seeks to explain variation between related organisms at the genetic and molecular levels. All aspects of life are affected by the expression of genes and, as our knowledge of genomes and genes increases, we will begin to apply classical and molecular genetic information to various microbial, plant, animal and medical studies. In turn, such studies will help us understand how normal developmental events are regulated by genes, and how mutations and aberrations in genes and chromosomes can lead to various genetic diseases.

The course thus begins by considering the basic concepts of inheritance, i.e. how Mendelian traits are passed to the next generation; it will then outline our current understanding of chromosomes, DNA and genes and their regulation, and will finally examine how such genes can control normal developmental events in organisms, whereas aberrant control of genes can lead to developmental failure and cancer.

[Course objectives]

To acquire a basic understanding of the principles of classical and molecular genetics and their relevance and application to modern biological sciences, especially development and cancer.

[Course schedule and contents)]

Main Topics:
1. Development of modern genetics
2. Cells and cell division
3. Mendelian inheritance of traits
4. Extensions of Mendelian genetics
5. Chromosomes and chromosome aberrations
6. Genomes, DNA structure and replication
7. Gene expression and regulation
8. DNA mutations and repair
9. Developmental genetics I
10. Developmental genetics II
11. Cancer genetics I
12. Cancer genetics II
13. Final Exam
14. Feedback

Please note that these 12 lecture subjects will cover the complete 14 lecture course of the series.

Continue to Principles of Genetics-E2(2)↓↓↓

Principles of Genetics-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (~25 %), quizzes (~30 %), other assignments (5 %), and a final assignment/examination (~40 %).

[Textbooks]

Not used
Full handouts will be provided

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

The general structure and format of this lecture course will be in the form of FLIP lectures. Here, on-demand Videos and Handouts for each lecture will be uploaded on PandA one week before each class so that students have time to go through them carefully. These videos will include full explanations of the materials as well as other visual tools such as animations and videos that will help better explain the concepts. Then, during each weekly class, we will discuss the concepts presented in the videos, with each student explaining their answers to various thought-provoking questions, thereby developing deeper insights into the materials. On-line Forums will be opened after the class to allow students to discuss areas that are still unclear or to upload videos that better explain certain issues. Quizzes throughout the semester will challenge the understanding and learning of the various concepts.

[Other information (office hours, etc.)]

Lecture code: N491001

Course number	U-LAS14 20038 LE68		
Course title (and course title in English)	Introduction to Molecular Biotechnology-E2 Introduction to Molecular Biotechnology-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Professor,Shohab YOUSSEFIAN

Group	Natural Sciences	Field(Classification)	Biology(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.3	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

Molecular Biotechnology is an exciting, evolving and interdisciplinary area of science that is expected to impact not only on the way we live but human life itself. It is being used to produce chemicals, medicines and other essential products in recombinant bacterial, plant and animal cells; to create transgenic plants that synthesize novel therapeutics or are resistant to various stresses, and transgenic animals with increased productivity; and is even being applied to modify humans through gene therapy and regenerative medicine.
To fully understand these methodologies and their potentials, we will start the course by outlining the current understanding of genomes and genes and their regulation, then focus on the concepts behind basic laboratory techniques routinely used to isolate and analyze DNA and proteins, examine how these principles and methodologies are used to generate transgenic organisms, and finally discuss the benefits and hazards of such transgenic applications.

[Course objectives]

To appreciate the tremendous potential of molecular biotechnology through a solid understanding of its basic principles, techniques and current applications, and so be able to address, from a fully informed point of view, the moral and bioethical issues that arise from the use of such breakthrough technologies.

[Course schedule and contents)]

Main Topics:
1. Introduction; overview, concepts, development and future
2. Genome organization, DNA and genes
3. Gene expression and regulation
4. Principles and techniques of recombinant DNA technology
5. Molecular techniques for gene identification
6. Molecular techniques of gene analysis
7. Recombinant proteins: synthesis and analysis
8. Methods and applications in microbial molecular biotechnology
9. Methods and applications in plant molecular biotechnology I and II
10. Methods and applications in animal, human and medical biotechnology I and II
11. Social and ethical issues of molecular biotechnology
12. Final examination
13. Feedback

Please note that these 11 lecture subjects will cover the complete 14 lecture course of the series.

Continue to Introduction to Molecular Biotechnology-E2(2)↓↓↓

Introduction to Molecular Biotechnology-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (~25 %), quizzes (~30 %), other assignments (5 %), and a final assignment/examination (~40 %).

[Textbooks]

Full handouts and videos will be distributed in class

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

The general structure and format of this lecture course will be in the form of FLIP lectures. Here, on-demand Videos and Handouts for each lecture will be uploaded on PandA one week before each class so that students have time to go through them carefully. These videos will include full explanations of the materials as well as other visual tools such as animations and videos that will help better explain the concepts. Then, during each weekly class, we will discuss the concepts presented in the videos, with each student explaining their answers to various thought-provoking questions, thereby developing deeper insights into the materials. On-line Forums will be opened after the class to allow students to discuss areas that are still unclear or to upload videos that better explain certain issues. Quizzes throughout the semester will challenge the understanding and learning of the various concepts.

[Other information (office hours, etc.)]

Lecture code: N490001

Course number	U-LAS14 20037 LE68		
Course title (and course title in English)	Introduction to Biochemistry-E2 Introduction to Biochemistry-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Professor,Shohab YOUSSEFIAN

Group	Natural Sciences	Field(Classification)	Biology(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.2	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This introductory course focuses on the basic concepts of biochemistry. It begins from the molecular design of life and considers its major players; nucleic acids as the genetic material, and then proteins, enzymes, carbohydrates, lipids and cell membranes. Based on these preliminary concepts, the course then continues to consider the basic processes involved in metabolism and energy generation in living organisms.

[Course objectives]

The course provides an understanding of the underlying concepts and principles of the biochemical and molecular processes that control all life. Such understanding will enable students not only to better appreciate the complexities of diverse biological and physiological systems but to use these basic concepts in their everyday lives and as a foundation for many other fields of study.

[Course schedule and contents)]

1. Introduction to biochemistry, an evolving science
2. Genomes, DNA and DNA replication
3. Genes and gene expression
4. Protein composition and structure
5. Exploring DNA and genes
6. Exploring proteins
7. Introduction to enzymes
8. Carbohydrates
9. Lipids and cell membranes
10. Introduction to metabolism
11. Glycolysis
12. Citric acid cycle
13. Oxidative phosphorylation
14. Final examination
15. Feedback discussions

Please note that these 13 lecture subjects will cover the complete 14 lecture course of the series.

Continue to Introduction to Biochemistry-E2(2)↓↓↓

Introduction to Biochemistry-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (~25 %), quizzes (~30 %), other assignments (5 %), and a final assignment/examination (~40 %).

[Textbooks]

Berg, Tymoczko and Stryer 『Biochemistry 7th edition, International 2012』（W. H. Freeman and Co. ）
ISBN:978-1-4292-7635-1（Few copies are available in the Medical School Library）

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

The general structure and format of this lecture course will be in the form of FLIP lectures. Here, on-demand Videos and Handouts for each lecture will be uploaded on PandA one week before each class so that students have time to go through them carefully. These videos will include full explanations of the materials as well as other visual tools such as animations and videos that will help better explain the concepts. Then, during each weekly class, we will discuss the concepts presented in the videos, with each student explaining their answers to various thought-provoking questions, thereby developing deeper insights into the materials. On-line Forums will be opened after the class to allow students to discuss areas that are still unclear or to upload videos that better explain certain issues. Quizzes throughout the semester will challenge the understanding and learning of the various concepts.

[Other information (office hours, etc.)]

Lecture code: N490002

Course number	U-LAS14 20037 LE68						
Course title (and course title in English)	Introduction to Biochemistry-E2 Introduction to Biochemistry-E2			Instructor's name, job title, and department of affiliation	Graduate School of Medicine Senior Lecturer,Marco,Marques Candeias		
Group	Natural Sciences			Field(Classification)	Biology(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester		
Days and periods	Tue.2	Target year	Mainly 1st & 2nd year students	Eligible students	For science students		

[Overview and purpose of the course]

This introductory course focuses on the basic concepts of biochemistry. It begins from the molecular design of life and considers its major players; DNA as the genetic material, and then RNA, proteins, carbohydrates and lipids. Based on these preliminary concepts, the course then continues to consider the basic processes involved in metabolism and energy generation in living organisms.

[Course objectives]

The course provides an understanding of the underlying concepts and principles of the biochemical and molecular processes that control all life. Such understanding will enable students not only to better appreciate the complexities of diverse biological and physiological systems but to use these basic concepts in their everyday lives and as a foundation for many other fields of study.

[Course schedule and contents)]

Main Topics:
1. Introduction to biochemistry, an evolving science
2. Genomes, DNA and DNA replication
3. Genes and gene expression
4. RNA: Life's Indispensable Molecule
5. Protein composition and structure
6. Exploring DNA and RNA
7. Exploring proteins
8. Introduction to enzymes
9. Carbohydrates
10. Lipids and cell membranes
11. Introduction to metabolism
12. Glycolysis
13. Citric acid cycle
14. Oxidative phosphorylation
15. Final examination
16. Feedback discussions

(the above subjects will be taught in 14 classes + examination + feedback)

Continue to Introduction to Biochemistry-E2(2)↓↓↓

Introduction to Biochemistry-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (~20 %), mid-course tests (~30 %) and a final examination (~50 %)

[Textbooks]

Alberts; Walter; etc 『Molecular Biology of the Cell』 （Garland Science） ISBN:978-0815344537
Denise R. Ferrier 『Biochemistry (Lippincott's Illustrated Reviews Series)』 （Lippincott Williams & Wilkins） ISBN:978-1496344496

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

*Full lecture slides and additional original video clips will be provided before each lecture. It is expected that students will have read and watched through the slides and clips at least once before each lecture to familiarize themselves with the contents. During the lecture, active discussion and participation (e.g. by a series of Q&A) will ensure a greater understanding of the basic concepts. Finally, a private review of the slides immediately after the lecture will ensure a full and solid understanding of the lecture concepts.
*The course is associated with a series of small-group, weekly seminars that will help students obtain a deeper understanding of the basic concepts

[Other information (office hours, etc.)]

*The course is presented as a series of engaging and active lectures with presentations, original videos and discussion.
*We run an open door policy; questions and discussions will be happily addressed anytime, even outside the official office hour.

Lecture code: N490003

Course number	U-LAS14 20037 LE68		
Course title (and course title in English)	Introduction to Biochemistry-E2 Introduction to Biochemistry-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Professor,Shohab YOUSSEFIAN

Group	Natural Sciences	Field(Classification)	Biology(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.3	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This introductory course focuses on the basic concepts of biochemistry. It begins from the molecular design of life and considers its major players; nucleic acids as the genetic material, and then proteins, enzymes, carbohydrates, lipids and cell membranes. Based on these preliminary concepts, the course then continues to consider the basic processes involved in metabolism and energy generation in living organisms.

[Course objectives]

The course provides an understanding of the underlying concepts and principles of the biochemical and molecular processes that control all life. Such understanding will enable students not only to better appreciate the complexities of diverse biological and physiological systems but to use these basic concepts in their everyday lives and as a foundation for many other fields of study.

[Course schedule and contents)]

Main Topics:
1. Introduction to biochemistry, an evolving science
2. Genomes, DNA and DNA replication
3. Genes and gene expression
4. Protein composition and structure
5. Exploring DNA and genes
6. Exploring proteins
7. Introduction to enzymes
8. Carbohydrates
9. Lipids and cell membranes
10. Introduction to metabolism
11. Glycolysis
12. Citric acid cycle
13. Oxidative phosphorylation
14. Final examination
15. Feedback discussions

Please note that these 13 lecture subjects will cover the complete 14 lecture course of the series.

Continue to Introduction to Biochemistry-E2(2)↓↓↓

Introduction to Biochemistry-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (~25 %), quizzes (~30 %), other assignments (5 %), and a final assignment/examination (~40 %).

[Textbooks]

Berg, Tymoczko and Stryer 『Biochemistry 7th edition, International 2012』（W. H. Freeman and Co. ）
ISBN:978-1-4292-7635-1（A few newer versions are available in the Medical School Library）

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

The general structure and format of this lecture course will be in the form of FLIP lectures. Here, on-demand Videos and Handouts for each lecture will be uploaded on PandA one week before each class so that students have time to go through them carefully. These videos will include full explanations of the materials as well as other visual tools such as animations and videos that will help better explain the concepts. Then, during each weekly class, we will discuss the concepts presented in the videos, with each student explaining their answers to various thought-provoking questions, thereby developing deeper insights into the materials. On-line Forums will be opened after the class to allow students to discuss areas that are still unclear or to upload videos that better explain certain issues. Quizzes throughout the semester will challenge the understanding and learning of the various concepts.

[Other information (office hours, etc.)]

Lecture code: N490004

Course number	U-LAS14 20037 LE68		
Course title (and course title in English)	Introduction to Biochemistry-E2 Introduction to Biochemistry-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Senior Lecturer,Marco,Marques Candeias

Group	Natural Sciences	Field(Classification)	Biology(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.3	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This introductory course focuses on the basic concepts of biochemistry. It begins from the molecular design of life and considers its major players; DNA as the genetic material, and then RNA, proteins, carbohydrates and lipids. Based on these preliminary concepts, the course then continues to consider the basic processes involved in metabolism and energy generation in living organisms.

[Course objectives]

The course provides an understanding of the underlying concepts and principles of the biochemical and molecular processes that control all life. Such understanding will enable students not only to better appreciate the complexities of diverse biological and physiological systems but to use these basic concepts in their everyday lives and as a foundation for many other fields of study.

[Course schedule and contents)]

Main Topics:
1. Introduction to biochemistry, an evolving science
2. Genomes, DNA and DNA replication
3. Genes and gene expression
4. RNA: Life's Indispensable Molecule
5. Protein composition and structure
6. Exploring DNA and RNA
7. Exploring proteins
8. Introduction to enzymes
9. Carbohydrates
10. Lipids and cell membranes
11. Introduction to metabolism
12. Glycolysis
13. Citric acid cycle
14. Oxidative phosphorylation
15. Final examination
16. Feedback discussions

(the above subjects will be taught in 14 classes + examination + feedback)

Continue to Introduction to Biochemistry-E2(2)↓↓↓

Introduction to Biochemistry-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (~20 %), mid-course tests (~30 %) and a final examination (~50 %)

[Textbooks]

Alberts; Walter; etc 『Molecular Biology of the Cell』（Garland Science）ISBN:978-0815344537
Denise R. Ferrier 『Biochemistry (Lippincott's Illustrated Reviews Series)』（Lippincott Williams & Wilkins）ISBN:978-1496344496

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

*Full lecture slides and additional original video clips will be provided before each lecture. It is expected that students will have read and watched through the slides and clips at least once before each lecture to familiarize themselves with the contents. During the lecture, active discussion and participation (e.g. by a series of Q&A) will ensure a greater understanding of the basic concepts. Finally, a private review of the slides immediately after the lecture will ensure a full and solid understanding of the lecture concepts.
*The course is associated with a series of small-group, weekly seminars that will help students obtain a deeper understanding of the basic concepts

[Other information (office hours, etc.)]

*The course is presented as a series of engaging and active lectures with presentations, original videos and discussion.
*We run an open door policy; questions and discussions will be happily addressed anytime, even outside the official office hour.

Lecture code: N494001

Course number	U-LAS14 20052 LE68		
Course title (and course title in English)	Introductory Plant Ecology-E2 Introductory Plant Ecology-E2	Instructor's name, job title, and department of affiliation	Graduate School of Agriculture Associate Professor,Garry John PILLER

Group	Natural Sciences	Field(Classification)	Biology(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.3	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

Plant ecology underpins many scientific disciplines, including ecosystem rehabilitation, conservation and management biology, and research on climate change impacts. This course will introduce students to the principles of plant ecology. The focus will be on the factors that influence plant distribution and abundance: light, water, nutrients, growth patterns, plant and animal interactions, and disturbances. In addition, current ecological issues such as climate change and exotic species invasions will be examined.

[Course objectives]

Upon successful completion of this course students will be able to:
* Explain the fundamental processes that influence species' distribution and abundance
* Discuss interactions between plants and the environment, as well as with other organisms
* Apply ecological principles to environmental issues
* Access and critically analyze basic research pertaining to plant ecology

[Course schedule and contents)]

Course Schedule
1. Introduction to Plant Ecology
2. Light
3. Water Relations
4. Soils & Nutrition
5. Evolutionary Processes
6. Population Structure
7. Growth & Reproduction
8. Community Patterns
9. Competition
10. Herbivory & Plant-Pathogen Interactions
11. Disturbance & Fire
12. Succession
13. Communities in Landscapes
14. Global Change: Humans & Plants
15. End of Term Exam
16. Feedback

Continue to Introductory Plant Ecology-E2(2)↓↓↓

Introductory Plant Ecology-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Grading: Pre-class submission of questions related to listening exercise (20%), writing exercises based on assigned pre-class reading materials (30%), in-class group presentation (20%) on a topic in the field of plant ecology, and an end of term exam (30%).

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Handouts will be given out in class, as well as emailed to the students.

[Study outside of class (preparation and review)]

Students should read or listen to the required pre-class materials and submit any required assignment before the class, and come to class ready to participate in class activities.Typically, this will entail listening to a short video or podcast (10 min. or less), as well as reading a 2 or 3 page handout and be prepared to write answers to 1 or 2 questions about the reading material in the following class (15 to 20 minutes provided in class).

[Other information (office hours, etc.)]

Open door policy during office hours, and anytime by email.

Lecture code: N495001

Course number	U-LAS14 20053 LE68		
Course title (and course title in English)	Principles of Horticulture-E2 Principles of Horticulture-E2	Instructor's name, job title, and department of affiliation	Graduate School of Agriculture Associate Professor,Garry John PILLER

Group	Natural Sciences	Field(Classification)	Biology(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.3	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This course is a broad introduction to the science and technology underlying the use and production of horticultural crops (fruits, vegetables, flowers, and landscape plants). It includes the structure; growth, development and manipulation of horticultural plants; environmental influences; the basic principles of propagation, outdoor and greenhouse production; and pest control.

[Course objectives]

Upon successful completion of this course students will:
・ Be able to use basic horticultural vocabulary to describe and define horticultural management activities.
・ Demonstrate a working knowledge of growth and development patterns of horticultural crops, and responses to environmental variables.
・ Be able to access and understand basic research on horticultural crops.

[Course schedule and contents)]

Course Schedule
1. Introduction/ History
2. Plant Structure & Genotype
3. Flowers & Fruits
4. Propagation
5. Light
6. Temperature
7. Water
8. Soils & Soil Management
9. Mineral Nutrition
10. Plant Hormones
11. Directing Plant Growth
12. Pest & Disease Management
13. Greenhouse Production
14. Post Harvest Handling
15. End Exam
16. Feedback

Continue to Principles of Horticulture-E2(2)↓↓↓

Principles of Horticulture-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Grading: Listening quizzes (20%), weekly writing exercises based on assigned pre-class reading materials (30%), in-class presentation (20%), and final exam (30%).

[Textbooks]

Not used

[References, etc.]

(Reference book)
Handouts and supplemental readings will be distributed electronically and/or as a hard copy in class.

[Study outside of class (preparation and review)]

Students should read or listen to the required pre-class materials and submit any required assignment before the class, and come to class ready to participate in class activities.Typically, this will entail listening to a short video or podcast (10 min. or less), as well as reading a 2 or 3 page handout and be prepared to write answers to 1 or 2 questions about the reading material in the following class (15 to 20 minutes provided in class).

[Other information (office hours, etc.)]

Open door policy during office hours, and anytime by email.

Lecture code: N496001

Course number	U-LAS14 20021 LE68		
Course title (and course title in English)	Conservation Biology-E2 Conservation Biology-E2	**Instructor's name, job title, and department of affiliation**	Wildlife Research Center Associate Professor,Andrew MacIntosh
Group	Natural Sciences	**Field(Classification)**	Biology(Issues)

Language of instruction	English	**Old group**	Group B	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Mon.3	**Target year**	All students	**Eligible students**	For science students

[Overview and purpose of the course]

With the onrushing of human development at the expense of the Earth's natural resources, we have now entered a new geological epoch: the ‘Anthropocene’. The human footprint on the Earth has never been greater and it is said that the world's biodiversity is now in the midst of a ‘sixth mass extinction’. This is where the relatively new science of conservation biology comes in. In this course, students learn about threats to biodiversity, loss of ecosystem services, extinction, and the importance of conserving nature, from individual species to entire ecosystems.

[Course objectives]

In this course, students will learn to:
- appreciate and measure life's biodiversity at all its levels, from genetic diversity to species diversity to ecosystem diversity
- assess how human activities contribute to biodiversity loss and what can be done to prevent it
- weigh the costs and benefits of exploiting natural resources while considering social, economic, political and ecological factors simultaneously
- appreciate the importance of nature and natural reserves from various perspectives from ecosystem functions to human health and well-being
- consider and engage in the design of conservation strategies to reduce threats to biodiversity

[Course schedule and contents)]

The course material is structured into four units, as described below. Each topic within these units will occupy approximately one class session.

Unit 1 - introducing conservation biology
1. what is conservation biology
2. biodiversity: what is it and how is measured
3. ecosystem services: the value of biodiversity
4. the biodiversity crisis and biological extinctions

Unit 2 - threats to biodiversity
5. habitat loss, degradation and fragmentation
6. over-harvesting and human use of natural products
7. invasive species
8. climate change

Continue to Conservation Biology-E2(2)↓↓↓

Conservation Biology-E2(2)

Unit 3 - conservation strategies and action
9. endangered species protection
10. protected and unprotected conservation areas
11. sustainable development
12. public outreach and education

Unit 4 - the future of conservation
13. conservation perspectives and priorities
14. student project presentations

[Course requirements]

None

[Evaluation methods and policy]

course participation - 10%
student projects (report and presentation) - 30%
midterm exam - 30%
final exam - 30%

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）
Richard B. Primack and Anna A. Sher 『An Introduction to Conservation Biology』（Sinauer Associates, Inc. 2016）ISBN:9781605354736（Recommended, not required. Material in textbook enhances learning.）
Sodhi N, Ehrlich PR 『Conservation Biology for All』（Oxford University Press, 2010）ISBN: 9780199554232（Recommended, not required. Material in textbook enhances learning. Free e-Book!）

[Study outside of class (preparation and review)]

This course will use Kyoto University's online Learning Management System (LMS) PandA. Please get familiar with the system before starting the course. There will be required content in PandA during the course, including additional videos and readings and ongoing asynchronous discussion in the forums. For the course project, students are expected to conduct research or survey the literature and write a report, and/or design and report on their own small conservation project, as well as produce a presentation from this project to be given in the final class.

[Other information (office hours, etc.)]

There are no office hours for this course, but the instructor is always open to communicating digitally in whatever medium works best; email, online meetings (Zoom), the discussion forums in PandA, etc. Appointments can be made before/after class as well, if needed.

Lecture code: N498001

Course number	U-LAS14 20022 LE68		
Course title (and course title in English)	Animal Behavior-E2 Animal Behavior-E2	Instructor's name, job title, and department of affiliation	Wildlife Research Center Associate Professor,Andrew MacIntosh

Group	Natural Sciences	Field(Classification)	Biology(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.4	Target year	All students	Eligible students	For science students

[Overview and purpose of the course]

Why do animals do as they do? Why do we humans do as we do? This course is aimed at answering these questions from the perspective of Darwinian evolution. Using 'Tinbergen's 4 questions', this course leads students to discover what lies at the root of the diversity of animal behavior that we observe today, how we study the mechanisms and functions of behavior, and why studying animals has a lot to teach us about the evolution of behavior in humans.

[Course objectives]

In this course, students will learn to:
- apply the scientific method to questions about animal behavior for an evidence-based perspective
- use comparative data and use it to better answer specific questions about the natural world
- understand that animal (including human) behavior, like all products of biology, is shaped by evolution
- apply and appreciate methods of behavioral assessment (observation, experimentation, analysis) to learn about mechanisms of and variability in animal behavior

[Course schedule and contents)]

This course will follow the schedule as follows. In principle, each topic within each part reflects one class, but the order and spacing of topics may be moved depending on the flow of the course or the occurrence of specific events related to the course material.

1. introducing animal behavior
2. the 'who, what, when, where and why' of behavior
3. measuring behavior
4. neurobiology and endocrinology of behavior
5.'nature via nurture' - behavioral genetics
6. animal learning
7. animal cognition
8. 'where are we going?' - movement & navigation
9. 'eat or be eaten' - foraging & self-defense
10. communication and signaling
11. sex & mating systems
12. parental investment
13. social behavior & social systems

Continue to Animal Behavior-E2(2)↓↓↓

*The course will follow a flipped learning model that blends classroom time and on-demand video lectures.

**Note that there will be a midterm exam held during the 7th or 8th week of class, depending on course progress and suitability. Details will be announced well in advance during class and on PandA.

***Note that students will most likely get hands-on practical training observing and recording animal behavior. This will be done either via a field practicum at Arashiyama Monkey Park or Kyoto City Zoo, or using Live Cams set up in wildlife areas or zoological parks. Details will be announced and discussed in class and via PandA.

[Course requirements]

None

[Evaluation methods and policy]

・30% midterm exam
・30% final exam
・30% term paper
・10% course participation

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）
Michael D. Breed and Janice Moore (2016) 『Animal Behavior, third Edition』（Elsevier, 2022）ISBN: 978-0128195581（Recommended, not required. Material in textbook enhances learning.）
Dustin R. Rubenstein, John Alcock 『Animal Behavior, eleventh edition』（Oxford University Press, 2019）ISBN:9781605355481（Recommended, not required. Material in textbook enhances learning.）
students are provided with information to access any additional readings related to course material

[Study outside of class (preparation and review)]

This course will use Kyoto University's online Learning Management System (LMS) PandA. Please get familiar with the system before starting the course. Students will be required to engage with various digital contents during the course, including on-demand video lectures (YouTube), additional videos and readings (PandA), as well as ongoing discussion in the forums (PandA). For the term paper, students are expected to conduct literature research and write a report, as well as review a small number of reports from fellow classmates as part of the assignment (Peer Review).

Students should also be prepared to attend a field practicum at Arashiyama Monkey Park or Kyoto City Zoo, or to conduct observations using live camera feeds while practicing behavioral data collection methods (activities to be determined and introduced in class).

The course will follow the format of flipped education, in which lectures are viewed on-demand outside of class time (YouTube), and class time is used for thinking, solving content-related problems, asking questions, having discussions and doing other lecture-related activities.

[Other information (office hours, etc.)]

There are no office hours for this course, but the instructor is always open to communicating digitally in

Continue to Animal Behavior-E2(3)↓↓↓

Animal Behavior-E2(3)

whatever medium works best; email, online meetings (Zoom), discussion forums in PandA, etc.
Appointments can be made before/after class as well, if needed.

Lecture code: N497001

Course number	U-LAS14 20020 LE68		
Course title (and course title in English)	Comparative Cognition-E2 Comparative Cognition-E2	Instructor's name, job title, and department of affiliation	Wildlife Research Center Associate Professor,Andrew MacIntosh

Group	Natural Sciences	Field(Classification)	Biology(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.3	Target year	All students	Eligible students	For science students

[Overview and purpose of the course]

Comparative cognition offers a ride through the mental capacities of animals as simple as the humble bumblebee and as complex as our own closest relative, the chimpanzee. In our quest to understand the origins of the human mind, we cannot forget that like all organisms on earth, we are but a small part of the great evolutionary tree of life. In this course, students learn about animal cognition through the lens of behavior, ecology and evolution. Students learn about how and why animals use cognition to help them navigate their physical and social worlds, and how and why they learn and remember things about their environments. The course has a strong emphasis on evolutionary theory, as well as the cognitive experiments that have allowed scientists to discover what we now know about the animal mind.

[Course objectives]

In this course, students will learn to:
- apply the scientific method to questions about cognition and behavior
- distinguish between evidence-based statements about what animals are thinking and mere anthropomorphic descriptions
- appreciate that human cognition is the product of a long evolutionary process, just as it is in all other species
- understand that cognition has both general (connected) and modular components that help animals solve the problems that are important to them

[Course schedule and contents)]

This course will be conducted in 5 parts, as described below. In principle, each topic within each part reflects one class, but the order and spacing of topics may be moved depending on the flow of the course or the occurrence of specific events related to the course material.

Part 1 - the science of comparative cognition
1. introducing cognition, evolution and behavior
2. the comparative method and the evolution of the animal brain
3. evolutionary and ecological pressures driving cognition

Part 2 - basic cognitive processes
4. sensing, perceiving and attending to the world
5-6. connecting the dots through learning & memory

Part 3 - finding our way in the physical world

Continue to Comparative Cognition-E2(2)↓↓↓

7. spatial cognition
8. telling time & counting
9. foraging, planning & using tools

Part 4 - finding our way in the social world
11. communication & language
12. social cognition and social competence
13. social learning and animal culture

Part 5 - putting it all together
14. understanding ourselves, Darwin's 'degree not kind', ethics of cognitive knowledge

*Note that this course is conducted using the flipped learning format, where students watch video lectures on demand (YouTube) before each class session, and then use class time to dive deeper into the course material. Be prepared to use class time for discussion, Q&A, and other content-related activities.

**Note that there will be a midterm examination held during the 7th or 8th week of class, depending on course progress and suitability, as well as the final exam at the end. Details will be announced well in advance during class and via PandA/KULASIS.

[Course requirements]

None

[Evaluation methods and policy]

course participation - 10%
course report - 30%
midterm exam - 30%
final exam - 30%

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）
Sara J. Shettleworth 『Cognition, Evolution, Behavior』（Oxford University Press, 2010）ISBN:978-0-19-531984-2（Recommended, not required. Material in textbook enhances learning.）
Mary C. Olmstead, Valerie A. Kuhlmeier 『Comparative Cognition』（Cambridge University Press, 2015）ISBN:978-1-107-01116-8（Recommended, not required. Material in textbook enhances learning.）
Clive D. L. Wynne, Monique A. R. Udell 『Animal Cognition: Evolution, Behavior & Cognition』（Red Glove Press, 2021）ISBN:978-1-137-61126-0（Recommended, not required. Material in textbook enhances learning.）

[Study outside of class (preparation and review)]

This course will use Kyoto University's online Learning Management System (LMS) PandA. Please get familiar with the system before starting the course. Lectures will be provided as on-demand videos (YouTube) and must be watched before each class session. There will also be required content in PandA during the course, including additional videos and readings and ongoing asynchronous discussion in the forums. For the term paper, students are expected to conduct literature research and write a report, as well as

Continue to Comparative Cognition-E2(3)↓↓↓

Comparative Cognition-E2(3)

review a small number of reports from fellow classmates as part of the assignment (Peer Review).

The course will follow the format of flipped education, in which lectures are viewed on-demand outside of class time, and class time is used for thinking, solving content-related problems, asking questions, engaging in discussions and doing other lecture-related activities.

[Other information (office hours, etc.)]

There are no office hours for this course, but the instructor is always open to communicating digitally in whatever medium works best; email, online meetings, the chat room or discussion forums in PandA, etc. In addition, appointments may be made before/after class if needed.

Lecture code: N499001

Course number	U-LAS14 20023 LE68				
Course title (and course title in English)	Zoo Biology-E2 Zoo Biology-E2	Instructor's name, job title, and department of affiliation	Wildlife Research Center Associate Professor,Andrew MacIntosh		
Group	Natural Sciences	Field(Classification)	Biology(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Hours	30	Class style	Lecture	Year/semesters	2023・Intensive, Second semester
Days and periods	Intensive November～December,2~3-days over two weekends(date to be decided later)	Target year	All students	Eligible students	For science students

[Overview and purpose of the course]

Zoos and aquariums are a window into nature and the exotic lives of animals. Everyone has been to a zoo and wondered at the animals on display, but what are zoos really about? What goes on behind the scenes? What role does a modern zoo play in our society, and how has this changed throughout history? This course is designed to answer just these questions. Along the way, you'll learn about the modern missions of zoos, biological research conducted at zoos, animal behavior and welfare, public outreach and education, and especially the conservation of endangered species.

[Course objectives]

In this course, students will learn to:
- appreciate and understand the role of zoos in modern society
- think critically about issues concerning zoos and aquariums and balance the costs and benefits of keeping animals in captivity, particularly as they relate to conservation of endangered species
- appreciate the diversity of biological research being conducted at modern zoos, and how it contributes to science and society
- assess the 'quality of life' of the animals they encounter at zoos and aquariums, and appreciate the diverse set of animal care and welfare challenges facing these institutions

[Course schedule and contents)]

This is an intensive lecture scheduled for one weekend (Saturday AND Sunday) in late November or early December (dates pending), with a one-day practical course held at Kyoto City Zoo.

The course is organized into the following units:

1. history, philosophy and modern missions of zoos
2. science at the zoo: basic research, biodiversity conservation, and environmental education
3. zoo ethics: animal behavior, welfare, enrichment and animal rights
4. zoo practical course

Continue to Zoo Biology-E2(2)↓↓↓

Zoo Biology-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

class participation - 20%
daily quiz - 20%
course report - 30%
final exam - 30%

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）

Paul A. Rees 『An introduction to zoo biology and management』（Wiley-Blackwell）ISBN: 9781405193498（Recommended, not required. Material in textbook enhances learning.）
John E. Fa, Stephan M. Funk, Donnamarie O'Connell 『Zoo Conservation Biology』（Cambridge University Press）ISBN:9780511993435（Recommended, not required. Material in textbook enhances learning. Free e-Book!）
Geoff Hosey 『Zoo animals: behaviour, management, and welfare』（Oxford University Press）ISBN: 9780199693528（Recommended, not required. Material in textbook enhances learning.）
Alexandra Zimmermann, Matthew Hatchwell, Lesley A. Dickie, Chris West 『Zoos in the 21st Century: Catalysts for Conservation?』（Cambridge University Press）ISBN:9780521618588（Recommended, not required. Material in textbook enhances learning.）
While there is no required textbook for this course, students are encouraged to sample from the reference materials listed, which form the basis for the lectures in the course. Any of these would be an excellent choice to learn about the subject.

[Study outside of class (preparation and review)]

The instructor will provide instructions for how to prepare for this course once students have registered. There will be some preparatory reading and thinking, mainly to encourage students to engage with the course material in advance and be prepared to engage actively in class activities. A report must be submitted following the course that will require additional research.

[Other information (office hours, etc.)]

This course has a 25-student maximum registration limit to facilitate group discussion and exercises during the zoo practicum. This course includes a mandatory visit to Kyoto City Zoo, in addition to the two-day intensive lectures at the main campus. Students must be able to cover their own zoo admission fees (if necessary) and transportation to the site, and should ensure they have the necessary insurance.

Students are required to participate in class discussion, present ideas, and are strongly encouraged to ask a lot of questions!

The instructor can be contacted using your digital platform of choice: email, discussion forums in PandA, online meeting (Zoom), etc. Appointments can also be made to meet either before or after class time, as needed.

Lecture code: N911001

Course number	U-LAS14 20035 LE68				
Course title (and course title in English)	Basic Biology-E2 Basic Biology-E2	Instructor's name, job title, and department of affiliation	Graduate School of Biostudies Associate Professor,GUY, Adam Tsuda		
Group	Natural Sciences	Field(Classification)	Biology(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.3	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This class will provide a basic introduction to molecular and cell biology, in English. The class is open to 1st and 2nd year students, and will assume some prior familiarity with elementary chemistry and biology, although students from other majors are welcome to attend. The objective for the class is to introduce students to core concepts in biology, the scientific study of living organisms. We will pay attention to some of the similarities in different organisms as well as some of the obvious differences, not only between organisms but between cell types, and at the molecular level of protein functions.

[Course objectives]

Students will gain familiarity with the fundamentals of biology, starting with the most basic concepts, considering the chemistry of carbon and water, and the energy processes and the macromolecules that define life.
Students will then begin to learn about the cell, and how cellular function depends on complex interactions between proteins, nucleic acids, lipids, and carbohydrates, acting alone, in complexes, or in larger structures such as organelles. Students should begin to appreciate how fundamental processes are conserved over evolutionary time, and also how they vary in different species: the unity and diversity of life.

[Course schedule and contents)]

1. Introductory Lecture
2. The Role of Chemistry in Biology
3. Biological Macromolecules I
4. Biological Macromolecules II
5. Energy and Life
6. Cell Structure and Function
7. Lipids and Membranes
8. Cell Respiration
9. Cell Division
10. Central Dogma I
11. Central Dogma II
12. DNA Technology
13. Diversity & Classification of Life
14. Introduction to Evolutionary Biology
15. Final Exam
16. Feedback Class

Continue to Basic Biology-E2(2)↓↓↓

Basic Biology-E2(2)

[Course requirements]

This class is open to all 1st and 2nd year science students, but it requires some basic (high school-level) knowledge of chemistry and biology.

[Evaluation methods and policy]

Lectures will encourage student participation. There will be in-class quizzes and then a final exam to assess comprehension of the concepts of basic biology taught in this course. Evaluation: attendance and student participation: 20%; quizzes: 30%; final exam: 50%.

[Textbooks]

Not used
Lecture handouts will be provided for each class.

[References, etc.]

（**Reference book**）
Wasserman, Minorsky, Cain, Urry, Waterman, Stanley & Reece 『Campbell Biology』（Pearson）ISBN: 9780134082318（Most of the content of this course is covered in this textbook）

[Study outside of class (preparation and review)]

Students may need 2-3 hours per week to review the lecture material and look up any background information as necessary. Some students may know the subject already, but need to learn the English vocabulary; others may need to learn both Biology and English.

[Other information (office hours, etc.)]

In principle, anytime. Please contact the instructor by e-mail if you have any questions. For consultations about course-related matters outside class hours, please make an appointment directly or by e-mail.

Lecture code: N912001

Course number	U-LAS14 20036 LE68				
Course title (and course title in English)	Basic Genetic Engineering-E2 Basic Genetic Engineering-E2	Instructor's name, job title, and department of affiliation	Graduate School of Biostudies Associate Professor,GUY, Adam Tsuda		
Group	Natural Sciences	Field(Classification)	Biology(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.2	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

The objective of this course is to gain a familiarity with the methods, resources, and molecular tools used in genetic engineering. Using an active learning approach, we will cover basic cloning strategies, expression systems and applications that are widely used in labs today. The course is intended for 1st and 2nd year students to provide an introduction to genetic engineering, which will serve as a foundation for more advanced studies.

[Course objectives]

Students will acquire familiarity with DNA cloning, PCR, CRISPR-Cas9, epitope tags, gene knockouts, gene silencing, and other important techniques. Although this is not a "wet" lab, we will learn by actually designing genetic engineering projects. Depending on enrollment, we may work in small groups or individually to plan a genetic engineering project, step by step.

[Course schedule and contents)]

Lecture topics are flexible, and will address the specific requirements of specific projects chosen by students. I will combine short mini-lectures with in-class work so that students can actively learn how to use some of the design tools and strategies for genetic engineering. The latter half of the course is mostly devoted to small group discussions and one-on-one work with the instructor.

1. Introductory Lecture. What can genetic engineering do for us? Some discussion of Bioethics. Student survey.
2. Basics of Genetic Engineering: Plasmids, Vectors, Restriction Enzymes, Transformation
3. Mammalian Vectors; Transformation vs Transfection; PCR in theory and practice. Bioinformatics tools available (in class, possible projects will be discussed, and students will start choosing their projects, working alone or in small teams if enrollment is large).
4. More on restriction enzymes; Gel Electrophoresis. Reverse transcriptase-PCR. (one-on-one discussion about student projects)
5. Introduction to CRISPR-Cas9; more Bioethics; Genetically Modified Organisms as food. Sources of DNA for your project.
6. ApE walkthrough. CRISPR-Cas9 walkthrough using CHOPCHOP.
7. Epitope, fluorescent and affinity tags: finding your transgene proteins. Germline knockout advice. Transgenic method for plants: Ti plasmids.
7. Further CRISPR-Cas9 advice.
8. Lecture topic tailored to specific projects (one-on-one discussion)

Continue to Basic Genetic Engineering-E2(2)↓↓↓

Basic Genetic Engineering-E2(2)

9. Lecture topic tailored to specific projects (one-on-one discussion)
10. Lecture topic tailored to specific projects (one-on-one discussion)
11. Lecture topic tailored to specific projects (one-on-one discussion)
12. Lecture topic tailored to specific projects (one-on-one discussion)
13. Lecture topic tailored to specific projects (one-on-one discussion)
14. Oral presentation practice and preparation.
15. Final Exam (group or individual oral presentations)
16. Feedback Class

[Course requirements]

The course is designed for 1st and 2nd year students, from all science backgrounds. Genetic engineering is conceptually not difficult, but the vocabulary is technical. Students must bring a laptop or pad with WiFi connection so that they can work in class.

[Evaluation methods and policy]

Final grades will be based on a quiz (10%), a final exam in the form of a short oral presentation (30%), and attendance and participation (60%).

[Textbooks]

Not used
Printed handouts for each class are provided to students, and I will teach you how to use many online resources and freeware to work with DNA sequences, vectors, cloning, and designing gRNA for CRISPR-Cas9.

[References, etc.]

（Reference book）
Introduced during class

[Study outside of class (preparation and review)]

As we get into individual or team projects, some outside reading or planning will be necessary, 1-2 hours per week. Depending on individual student background knowledge, I may recommend some online reading/educational videos to aid their learning, or provide printouts of research artices and reviews tailored to each student's project.
In this course, much of the students' preparation work for class will be looking technical terms up or searching online databases.
Students will need to spend some additional time preparing for their oral presentation on final exam day.

[Other information (office hours, etc.)]

In principle, anytime. Please contact the instructor by e-mail if you have any questions. For consultations about course-related matters outside class hours, please make an appointment directly or by e-mail.

Lecture code: N901001

Course number	U-LAS14 20034 LE68		
Course title (and course title in English)	Introduction to Genetics and Evolution-E2 Introduction to Genetics and Evolution-E2	Instructor's name, job title, and department of affiliation	Graduate School of Biostudies Associate Professor,GUY, Adam Tsuda

Group	Natural Sciences	Field(Classification)	Biology(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.3	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This class will provide an introduction to genetics and evolution, starting with the most fundamental topics. What are chromosomes? What is the genetic code? Students will learn some of the basics about DNA, the genetic material, and the Central Dogma of Molecular Biology. Then we will progress to specific topics such as mitosis and meiosis, genetic variation, and cancer and other genetic diseases in humans.
The latter half of the course is devoted to topics in evolution, the "unifying theory of biology". We will cover the basic concept of common descent with modification, and discuss the meaning of terms such as natural selection and fitness. We will learn about subjects like the classification of life, the genetics of evolution, conflict and cooperation, sex and reproductive success, and finish with some social and historical considerations of evolutionary theory and society. Students will come to appreciate that by understanding genetics and evolution, we can explain the apparent paradox of the great diversity and unity found in living things.

[Course objectives]

Students will become familiar with molecular biology, classical genetics, central dogma, genetic diseases, genetic engineering and genetically modified organisms, and learn some basic principles of evolution including natural selection, adaptation, fitness, and the last universal common ancestor.

[Course schedule and contents)]

1. Introduction
2. The Structure of DNA and Chromosomes
3. Coding and noncoding RNA
4. Gene Expression
5. Mitosis and Meiosis
6. Genetic Variation
7. Cancer and Genetic Diseases in Humans
8. Introduction to Evolutionary Biology
9. The Tree of Life: Classification and Phylogeny
10. Genes and Evolution
11. Conflict and Cooperation
12. Sex and Reproductive Success
13. A Brief History of Life on Earth
14. Evolution, Science and Society
15. Final Exam

Continue to Introduction to Genetics and Evolution-E2(2)↓↓↓

Introduction to Genetics and Evolution-E2(2)

16. Feedback Class

[Course requirements]

This is an introductory course. There are no requirements but knowledge of basic biology is highly recommended. The course will be taught in English. Some students may have some knowledge of biology but maybe not in English language. Other students may have good English skills, but will have to learn some technical terms used in the study of genetics and evolution.

[Evaluation methods and policy]

Lectures will encourage student participation. There will be a final exam and some in-class quizzes to assess comprehension of the subjects taught. Final grades are assessed by: attendance and student participation: 20%; quizzes: 30%; final exam: 50%.

[Textbooks]

Not used
Lecture handouts will be provided for each class.

[References, etc.]

（**Reference book**）
Futuyma & Kirkpatrick 『Evolution』 （Sinauer）ISBN:9781605356051

[Study outside of class (preparation and review)]

Students may need 2-3 hours per week to review the lecture material and look up any background information as necessary. Some students may know the subject already, but need to learn the English vocabulary; others may need to learn both Biology and English.

[Other information (office hours, etc.)]

In principle, anytime. Please contact the instructor by e-mail if you have any questions. For consultations about course-related matters outside class hours, please make an appointment directly or by e-mail.

Lecture code: N913001

Course number	U-LAS14 20043 LE68		
Course title (and course title in English)	Introduction to Behavioral Neuroscience A-E2 Introduction to Behavioral Neuroscience A-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,VEALE, Richard Edmund

Group	Natural Sciences	Field(Classification)	Biology(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.5	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Behavioral Neuroscience investigates the neural basis of behavior. Part A of this course will provide an introduction to basic neuroanatomy, neural functioning, neuroscience methods, perception, attention, and movement. The course will employ an integrative approach by discussing both research results obtained with brain imaging in humans and experiments in animal models.

[Course objectives]

- To understand how our brain processes information.
- To understand the methods used to investigate the brain and behavior.
- To be able to critically evaluate research findings in behavioral neuroscience reported in the public and scientific media.

[Course schedule and contents)]

1) Introduction to Behavioral Neuroscience
2) Coarse anatomy of the nervous system
3) Cells in the nervous system
4) Neural information processing
5) Neurotransmitters, drugs, and hormones
6) Demonstration of Electroencephalography
7) Methods in Behavioral Neuroscience
8) Vision
9) Audition
10) Touch and pain
11) Integrating the senses
12) Attention
13) Voluntary body movement
14) Movement planning
15) Feedback (Please arrange by email)

Continue to Introduction to Behavioral Neuroscience A-E2(2)↓↓↓

[Course requirements]

Basic knowledge of high-school level biology is recommended. The course will continue in the following semester with "Introduction to Behavioral Neuroscience B".

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (30 points), short student presentation or report (20 points), and 10 random in-class open-note quizzes(50 points), the lowest of which is not counted. Students who are absent more than five times will not be credited.

[Textbooks]

Bear, Connors, Paradiso 『Neuroscience: Exploring the brain』 （Lippincott） ISBN:1451109547（textbook not mandatory, lecture notes will be provided）

[References, etc.]

（**Reference book**）
Kandel, Schwartz, et al. 『Principles of Neural Science』 （McGraw-Hill） ISBN:0071390111（textbook with more detailed information, not mandatory）

[Study outside of class (preparation and review)]

To achieve the course goals students should review the course materials plus optionally the according chapters in the recommended text books after each class. The time necessary for review should be in the range of 2-3 hours per class.

[Other information (office hours, etc.)]

No fixed office hours, but students are welcome to arrange appointments by email.

Lecture code: N914001

Course number	U-LAS14 20044 LE68				
Course title (and course title in English)	Introduction to Behavioral Neuroscience B-E2 Introduction to Behavioral Neuroscience B-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,VEALE, Richard Edmund		
Group	Natural Sciences	Field(Classification)	Biology(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Fri.5	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Behavioral Neuroscience investigates the neural basis of behavior. Part B of this course will provide an introduction to higher brain functions, such as motivation, learning, memory, communication and language. The course will employ an integrative approach by discussing both research results obtained with brain imaging in humans and experiments in animal models.

[Course objectives]

- To understand how our brain generates complex behavior.
- To understand how we can apply basic research in behavioral neuroscience to our everyday life.
- To be able to critically evaluate research findings in behavioral neuroscience reported in the public and scientific media.

[Course schedule and contents)]

1) Introduction to higher brain functions
2) Motivation
3) Learning
4) Memory
5) Spatial memory and navigation
6) Executive functions and planning
7) Emotions
8) Reproductive behavior
9) Communication and language
10) Human language and language disorders
11) Social interaction
12) Evolution and development of behavior
13) Neurological and psychiatric disorders
14) Behavioral treatment strategies
15) Feedback (arrange by email)

Continue to Introduction to Behavioral Neuroscience B-E2(2)↓↓↓

Introduction to Behavioral Neuroscience B-E2(2)

[Course requirements]

Introduction to Behavioral Neuroscience A is recommended (but not mandatory), because it provides the fundamental knowledge for this course.

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (30 points), short student presentation or report (20 points), and 10 in-class short open-note tests (50 points), the lowest of which will be dropped. The short tests and report will test whether students have achieved the course goals. Students who are absent more than five times will not be credited.

[Textbooks]

Bear, Connors, Paradiso 『Neuroscience: Exploring the brain』（Lippincott）ISBN:1451109547（textbook not mandatory, lecture notes will be provided）

[References, etc.]

（**Reference book**）

Kandel, Schwartz, et al. 『Principles of Neural Science』（McGraw-Hill）ISBN:0071390111（textbook with more detailed information, not mandatory）

[Study outside of class (preparation and review)]

To achieve the course goals students should review the course materials plus optionally the according chapters in the recommended text books after each class. The time necessary for review should be in the range of 2-3 hours per class.

[Other information (office hours, etc.)]

No fixed office hours, but students are welcome to arrange appointments by email.

Lecture code: N932001

Course number	U-LAS14 20064 LE68		
Course title (and course title in English)	Introduction to Molecular Cell Biology-E2 Introduction to Molecular Cell Biology-E2	Instructor's name, job title, and department of affiliation	Graduate School of Pharmaceutical Sciences Program-Specific Associate Professor,CAMPBELL, Douglas Simon

Group	Natural Sciences	Field(Classification)	Biology(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2

Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Cells are fundamental units that make up living things or exist on their own as organisms such as bacteria. In this course we will explore what cells are, their structure, chemical components and the basics of cell functions.
This course is designed to provide the fundamentals of cell biology that are required by anyone to understand both the biomedical and the broader biological issues that affect our lives.
It is better that students have taken "Basic Biology and Metabolism（2nd semester)" or an equivalent class prior this one.

[Course objectives]

Students will acquire a basic understanding of cell structure and function and its relevance to humans and Biomedical and Biotechnological applications.
Students should be able to appreciate basic biology and in particular the importance of cell structure and function and their relationship with the organism as a whole.
Students should be able to understand and discuss various aspects of Bioscience in English.

Since the topics of "Molecular Cell Biology" can be very broad and not possible to cover all, students will have the opportunity to learn about topics which they are specifically interested in. This will take the form of preparation and presentation of assignments based on news or journal articles of topics of their own interest.

[Course schedule and contents)]

1. Course Introduction, Overview of Cell Biology
2. Control of Gene Expression 1
3. Control of Gene Expression 2
4. Cell Membranes
5. How Cells Obtain Energy from food
6. Energy Generation in Mitochondria and Chloroplasts
7. Cell Signalling
8. Midterm Exam / How Cells Divide: The Cell-Division Cycle 1
9. How Cells Divide: The Cell-Division Cycle 2
10. Cell Communities, Tissues, Stem Cells and Cancer 1
11. Cell Communities, Tissues, Stem Cell and Cancer 2
12. Viruses and their Interactions with Cells
13. The Nervous System 1

Continue to Introduction to Molecular Cell Biology-E2(2)↓↓↓

Introduction to Molecular Cell Biology-E2(2)

14. The Nervous system 2
15. Final Exam
16. Feedback

[Course requirements]

Students should have a general interest and curiosity about the study Cell Biology. It is better that students have taken "Basic Biology and Metabolism（2nd semester)" or an equivalent class prior this one.

[Evaluation methods and policy]

Class presentation assignments 20%.
Midterm examination 20%
Final examination 60%.
The exact balance will depend on the number of presentation assignments in the course, which may take the place of a midterm exam.

[Textbooks]

Alberts B et al. 『Essential Cell Biology 5th edition』（W. H. Norton）ISBN:9780393679533
OpenStax Biology 2e freely available to download at the URL below

（Related URL）

https://openstax.org/details/books/biology-2e

[Study outside of class (preparation and review)]

Review of the textbook prior to class, previous lecture materials and preparation for in class presentation assignments.

[Other information (office hours, etc.)]

The contents of the syllabus are a guide to the content of the course, the exact content may change. Input from students is very welcome to suggest aspects Cell Biology to cover in the course. I am always happy to discuss with prospective students or students via email and meet with prior appointment.

Lecture code: N940001

Course number	U-LAS14 20071 LE68				
Course title (and course title in English)	Introduction to Biosciences-E2 Introduction to Biosciences-E2	Instructor's name, job title, and department of affiliation	Graduate School of Pharmaceutical Sciences Program-Specific Associate Professor,CAMPBELL, Douglas Simon		
Group	Natural Sciences	Field(Classification)	Biology(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

The study of life i.e. Biology or Bioscience is the study of living organisms which is divided into many specialised fields that cover their form (morphology), function (physiology), structure (anatomy), behavior, origin (evolution), distribution, and their interactions with the environment (Ecology).
“Introduction to Bioscience” will introduce students to these fields covering a wide-range of Bioscience and their importance and implications for humans.

[Course objectives]

Students should be able to appreciate the diversity of Bioscience and the importance an understanding of its knowledge can have on our daily lives.
Students should be able to understand and discuss various aspects of Bioscience in English.
Students should be able to read, understand and think critically about Bioscience and how the media, such as in news reports, newspaper articles etc cover aspects of Bioscience and its relevance to our lives.

As the range of topics covered by "Bioscience" is vast and cannot all be covered during the course, students will have the opportunity for learning about areas specific to their own interests via preparation for class presentation assignments on topics they are interested in via news and journal articles covering Bioscience.

[Course schedule and contents)]

1. Course introduction, Chemistry of life
2. Cell structure
3. Genetics
4. Cell Reproduction and Communication
5. Metabolism and Cellular Respiration
6. Animal Form and Function
7. Mid-term exam / The Nervous system 1
8. The Nervous system 2
9. Biological Rhythms
10. Viruses
11. Plant Biology
12. Biotechnology and Genomics
13. Ecology
14. Evolution
15. Final Exam

Continue to Introduction to Biosciences-E2(2)↓↓↓

Introduction to Biosciences-E2(2)

16. Feedback

[Course requirements]

Students should have a general interest and curiosity about the study of life. As this is an introductory course no prior experience is necessary.

[Evaluation methods and policy]

Class presentation assignments 20%.
Midterm exam, 20%.
Final examination 60%.
The exact balance will be determined by the number of presentation assignments, which may be counted in place of a midterm exam.

[Textbooks]

OpenStax Biology 2e freely available to download at the URL below.
“Essential Cell Biology” 5th edition (2019) by Alberts et al., W.W. Norton and Company, New York ISBN 9780393679533 may be useful for the Cell Biology aspects of the course though it is not essential to buy the book if you do not already have it.

[References, etc.]

(Reference book)

Openstaax Biology available online.

(Related URL)

https://openstax.org/details/books/biology-2e

[Study outside of class (preparation and review)]

Review from the textbook, previous lecture material and preparation of assignments to be presented in class.

[Other information (office hours, etc.)]

The contents of the syllabus are a guide to the content of the course, the exact content may change. Input from students is very welcome to suggest aspects Bioscience to cover in the course.
I am always happy to discuss with prospective students or students via email and meet with prior appointment.

Lecture code: N928001

Course number	U-LAS14 20060 SE68		
Course title (and course title in English)	Introduction to Biological Data Analysis -E2 Introduction to Biological Data Analysis-E2	Instructor's name, job title, and department of affiliation	Graduate School of Pharmaceutical Sciences Program-Specific Associate Professor,Martin Robert

Group	Natural Sciences	Field(Classification)	Biology(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・First semester
Days and periods	Tue.2	Target year	All students	Eligible students	For science students

[Overview and purpose of the course]

Biology has become a data rich science. Once lagging behind physicists for many years, biologists are now accumulating large amounts of quantitative data from DNA and protein sequence (genome projects) to large scale analysis of the expression of proteins and metabolites and their interactions. Consequently, numerous databases and resources have emerged to organize, distribute, and make possible the analysis of this huge amount of data.

In this course students will learn about common types of biological data that are rapidly accumulating and the related databases. They will learn to use some powerful online databases and tools that do not necessarily require programming skills. Students will use those tools to analyze DNA and protein sequences, visualize the outcome of large-scale experiments and biological networks, and learn how they can be used to derived knowledge and understanding about the system under study.

[Course objectives]

By the end of this course participants should be able to:
- Understand and explain some of the common types of quantitative biological data
- Find and analyze DNA or protein sequences using different databases, repositories, and tools
- Exploit linked resources to expand knowledge across data types and resources
- Explore the genome and metabolic network of model organisms
- Analyze data from a model organism of choice to answer particular biological questions
- Gain better understanding of a biological systems through data analysis and interpretation

[Course schedule and contents)]

The following topics and their feedback will be covered over the course of 14 classes, not necessarily in that order:

Week 1 Guidance
Week 2-3 Biochemistry and biomolecules review
Week 4-5 Genomics and proteomics methods and data
Week 6 PubMed review and sequence databases
Week 7-8 Introduction to sequence analysis using BLAST
Week 9 The UniProt database (features, tools, analysis)
Week 10 The KEGG database (features, tools, analysis)
Week 11-12 The Biocyc and Ecocyc databases (features, tools, analysis)

Continue to Introduction to Biological Data Analysis-E2(2)↓↓↓

Introduction to Biological Data Analysis-E2(2)

Week 13 Introduction to biological network analysis
Week 14 Project presentation
Week 16 Feedback

[Course requirements]

The course is targeted to beginners. A basic familiarity with biomolecules and cell biology is desirable but not essential. Students should bring a computer to class to complete in-class exercises and tutorials as well as homework assignments.

[Evaluation methods and policy]

20% Class attendance and participation
60% In-class exercises and homework assignments
20% Project

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Reference material and resources will be derived from various sources that will be announced in class.

[Study outside of class (preparation and review)]

Out of class activities will mainly be for assigned readings and homework assignments and for working on a project. Students should expect to spend about 1-2 hours per week preparing for the class and completing assignments.

[Other information (office hours, etc.)]

Announced during class.

Lecture code: N927001

Course number	U-LAS14 20061 SE68		
Course title (and course title in English)	Introduction to Computational Molecular Biology-E2 Introduction to Computational Molecular Biology-E2	Instructor's name, job title, and department of affiliation	Graduate School of Pharmaceutical Sciences Program-Specific Associate Professor,Martin Robert

Group	Natural Sciences	Field(Classification)	Biology(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・Second semester
Days and periods	Wed.4	Target year	All students	Eligible students	For science students

[Overview and purpose of the course]

The last two decades have seen the rapid expansion of quantitative data in biology. Large-scale experimental approaches now provide quantitative information about biomolecules at an unprecedented pace and scale. Along with these advances, computational tools have become essential to deal with the huge amount of data and to better understand complex and dynamical living systems.

The main objective of the course is to learn some of the basic principles of computational biology and bioinformatics, from the molecular perspective.

[Course objectives]

At the end of this course students should:
- Appreciate and be able to describe different types of molecular cellular components
- Understand and solve sequence matching problems and perform sequence analysis and interpretation
- Use and understand computational tools widely used by research scientists
- Understand and be able to analyze basic molecular network structures and their properties
- Solve problems of molecular analysis using computational tools
- Appreciate and utilize the power of computational modeling to study and better understand complex biological systems

[Course schedule and contents)]

The following topics will be covered over the course of 14 classes, not necessarily in that order:

Week 1 Guidance
Week 2 Basic concepts in computational molecular biology
Week 3 Review of biomolecule structure and properties
Week 4 Introduction to biological databases
Week 5-6 DNA and protein sequence analysis
Week 7-8 Protein analysis (structure and biochemical properties)
Week 9 Sequence alignment
Week 10 Patterns in data
Week 11-12 Molecular networks: principles and analysis
Week 13 Reaction-diffusion systems and spatiotemporal patterns
Week 14 Computational and metabolic models of cells or organisms
Week 15 Final examination

Continue to Introduction to Computational Molecular Biology-E2(2)↓↓↓

Week 16 Feedback

[Course requirements]

Students will need a computer to complete in-class exercises and homework assignments.

The course is meant for beginners, but students are expected to have a basic familiarity with biomolecules, cell biology, and the use of computers.

[Evaluation methods and policy]

20% Class attendance/participation
40% In-class exercises and homework assignments
20% Project and presentation
20% Final examination

[Textbooks]

Kelley, Scott T. and Didulo, Dennis 『Computational biology: a hypertextbook 』 (ASM Press, Wiley 2018)

The textbook listed above will be the main resource for the course but students are not required to buy it. Kyoto University Library has some digital license available.

[References, etc.]

(Reference book)
Additional material and articles will be provided in class.

[Study outside of class (preparation and review)]

Out of class activities will mainly be for assigned readings and homework assignments and for working on a project. Students should expect to spend about 1-2 hours per week preparing for the class and completing assignments.

[Other information (office hours, etc.)]

Announced in class.

Lecture code: N904001

Course number	U-LAS14 20049 LE68				
Course title (and course title in English)	Chromosome Biology-E2 Chromosome Biology-E2	Instructor's name, job title, and department of affiliation	Graduate School of Biostudies Associate Professor,CARLTON, Peter		
Group	Natural Sciences	Field(Classification)	Biology(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.5	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

DNA contains all the information needed to build complex organisms from a single cell. Inside cells, DNA is packaged into discrete bodies called chromosomes. Since chromosomes are carriers of information, but are also large structures that must interact with the cell, they are at the center of connections between many diverse biological fields: genetics, cell biology, and bioinformatics.

This class will give students a basic introduction to the fascinating world of chromosome biology. Among other areas, students will gain an understanding of:

- what chromosomes are
- how DNA is packaged inside them
- how chromosomes replicate and divide
- how problems with chromosomes can lead to disease.

This introductory class is also intended to give students a foundation for further studies of genetics and genomics.

Additionally, this class will be taught in English, providing students a chance to master English reading comprehension of common biological concepts.

[Course objectives]

-To understand the central importance of chromosomes in biology
-To explain the levels of chromosome organization, from the structure of DNA to large-scale folding of chromosomes
-To understand how chromosomes are transmitted from one generation to the next, i.e., the fundamentals of genetics and heredity
-To understand how problems with chromosome maintenance can lead to disease
-To understand how researchers can visualize, isolate, and study chromosomes

[Course schedule and contents)]

1. Overview of the course; human chromosomes and chromosome disorders
- we will understand how many chromosomes humans typically have, and what kind of disorders occur from having a different number of chromosomes.

Continue to Chromosome Biology-E2(2)↓↓↓

Chromosome Biology-E2(2)

2. Small-scale structure of chromosomes: DNA and nucleosomes
- we will learn about the physical properties of the DNA double helix, and how it associates with proteins called histones.

3. Large-scale structure of chromosomes, chromosome condensation and cohesion
- we will understand how DNA is packaged inside the nucleus by active reorganization of higher-order structure, and how chromosomes condense in preparation for division.

4. How chromosomes behave during cell division
- we will learn more about cell division from the chromosome perspective, and understand how chromosomes are accurately partitioned between daughter cells.

5. Chromosomes and the cell nucleus
- we will explore the organelle called the nucleus, present in every eukaryote. We will understand the structure of the nuclear envelope and nuclear pores, and learn how DNA is organized inside the nucleus during interphase.

6. Sex chromosomes
- we will learn about the many different ways in which chromosomes can determine sexual development, and understand the problems presented by having different types of chromosomes among members of the same species, and how these problems are solved.

7. Meiosis introduction: how sex creates diversity
- we will learn about the special cell division called meiosis, which creates haploid gametes (sperm, eggs, pollen, spores, etc) from diploid germ cells.

8. Meiosis part 2: Control of chromosome pairing
- we will understand how difficult the problem of homologous chromosome pairing during meiosis is, and some molecular mechanisms that organisms use to make the problem easier.

9. Meiosis part 3: Meiotic recombination
- we will understand how DNA molecules are cut and re-joined to create new chromosomes from the original parent chromosomes, and why this is essential to the meiotic cell divisions.

10. Chromosome evolution
- we will study examples of how chromosomes have changed over time, in both the human lineage as well as in nematode worms, and understand the importance of chromosome number for speciation

11. Chromosomes and genome sequence
- we will examine the genome sequence of several organisms and see directly the relationship between DNA and chromosomes

12. Chromosome structure from sequence data
- we will examine the methods called "HiC" and "DamID" to understand how sequencing of large numbers of DNA molecules from cells can help us understand the structure of chromosomes

13. Chromosome diversity: a survey of unusual and fascinating chromosome variations

Continue to Chromosome Biology-E2(3)↓↓↓

Chromosome Biology-E2(3)

- we will examine a diverse sampling of organisms to see how many different ways there are of packaging DNA into chromosomes

14. The current frontier of chromosome biology
- we will look at recent advances in our understanding of chromosomes from results that have appeared in the literature over the past 6 months

15. Feedback (review of the final exam, Q&A session)

[Course requirements]

The course is open to all students, but a background in biology is highly recommended.

[Evaluation methods and policy]

Grading will be based on three areas: active participation, quizzes, and a final exam.

"Active participation" will be measured by: class attendance, asking questions/giving comments on PandA (as a rule, each student should ask at least 1 question/give one comment on PandA for each class), and answering questions during in-person classes.

Quizzes: short homework assignments. 3 will be given in total, at week 4, 8, and 12 of the class.

The final exam will be a 3-page exam with short answers, multiple choice questions, and a short English writing assignment.

Each area will contribute 1/3rd of the total grade.

[Textbooks]

Not used

[Study outside of class (preparation and review)]

For some students, the material will be familiar, but the English vocabulary will be new. For other students, both the content and the vocabulary will be new; for these students, this class may require extensive out-of-class study.

[Other information (office hours, etc.)]

Office hours will be 1 hour once per week on Fridays. Schedule to be announced on the first day of class.

Lecture code: N907001

Course number	U-LAS14 20050 LE68		
Course title (and course title in English)	Practical Computing for Biologists-E2 Practical Computing for Biologists-E2	Instructor's name, job title, and department of affiliation	Graduate School of Biostudies Associate Professor,CARLTON, Peter

Group	Natural Sciences	Field(Classification)	Biology(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.5	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

This class will introduce students to basic but powerful computational tools that are increasingly becoming an essential part of biological research. We will learn how to navigate a command line environment in a UNIX computer system, explore some useful open source software for DNA and protein analysis, and learn the basics of Python programming for analyzing biological sequence and images.

Each class will start with a background lecture and proceed to hands-on guidance. The ultimate aim of the class is to provide an introduction that will facilitate your further exploration of computational biology.

[Course objectives]

-To discover current bioinformatics and biological image analysis software
-To be able to design analyze DNA sequences using open online software
-To learn general principles of programming using the Python language
-To develop a foundation for further exploration of the exciting world of bioinformatics

[Course schedule and contents)]

1. Overview of the course. How are computers used in biology?
2. Getting the computer to do stuff: introduction to the "Shell" (terminal)
3. Introduction to manipulating text files and how DNA sequences are stored as text files
4. The EMBOSS molecular biology suite: Searching protein and DNA sequences for features
5. Searching for sequences within the human genome and proteome
6. Detailed work with DNA sequences: introduction to Benchling and DNA cloning (making a new DNA sequence from existing ones)
7. Beginning programming with Python, a general computer language that can be adapted for biology
8. Expanding Python with modules
9. Searching DNA sequences with Python
11. Plotting data with Python
12. Imaging for biologists: Image fundamentals (pixels, intensity, scaling) using Fiji
13. Measuring 2D and 3D objects in images
14. Review of the entire class
15. Feedback (test review and Q&A session)

[Course requirements]

A laptop computer with a wireless internet connection is highly recommended for this class.

Continue to Practical Computing for Biologists-E2(2)↓↓↓

Practical Computing for Biologists-E2(2)

Windows users should install the program "Cygwin" (from http://www.cygwin.com) to provide a shell environment; Mac and UNIX users can use the built-in terminal program.

All students should also install "Anaconda" from http://www.anaconda.com to provide a Python environment.

Provisions can be made for students who do not have their own laptop.

[Evaluation methods and policy]

Grading will be based on three areas: active participation, quizzes, and a final exam.

"Active participation" will be measured by: class attendance, asking questions/giving comments on PandA (as a rule, each student should ask at least 1 question/give one comment on PandA for each class), and answering questions during in-person classes.

Quizzes: short homework assignments. 3 will be given in total, at week 4, 8, and 12 of the class.

The final exam will be a 3-page exam with short answers, multiple choice questions, and a short English writing assignment.

Each area will contribute 1/3rd of the total grade.

[Textbooks]

Haddock and Dunn 『Practical Computing for Biologists』 （Sinauer Associates）ISBN:978-0-87893-391-4 （Textbook purchase is suggested but optional. See also the companion website at http://practicalcomputing.org）

[Study outside of class (preparation and review)]

Students will have to understand technical vocabulary in English. This may require studying and research outside of class hours.

[Other information (office hours, etc.)]

Office hours will be 1 hour once per week, schedule to be announced on the first day of class.

Lecture code: N925001

Course number	U-LAS14 20066 SE68						
Course title (and course title in English)	Biological Sciences through Scientific Articles I-E2 Biological Sciences through Scientific Articles I-E2			Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,TAKENAKA, Mizuki		
Group	Natural Sciences	Field(Classification)	Biology(Issues)				
Language of instruction	English	Old group	Group B	Number of credits	2		
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・First semester		
Days and periods	Tue.5	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors		

[Overview and purpose of the course]

In this seminar course, we will read various biological reviews, articles, and essays in turn in English. Students will be expected to deeply understand their contents. Supporting information like a scientific background, histories or experimental methods will be provided as needed. If necessary, short complementary comments in Japanese will be also available. Lesson materials used for the seminar course will be different from the second term.

[Course objectives]

Students will learn how to read scientific reviews, essays, and articles.
To grasp the essence of the article and summarize it efficiently.
To find interesting points in scientific articles.
To find complementary articles if necessary.
To read articles critically and purposefully.

[Course schedule and contents)]

1) In the first week, I will give an instruction of the seminar course. I will discuss an article to show the style of presentation. Then each week, several biological articles (especially from plant science) to be prepared for a later week will be presented to one of the students, who can make the choice based on his or her preference.

2)-14) Each student prepares a presentation about the article with support of me if necessary and presents it at the seminar in turn. Other students are expected actively to join the discussion. Complementary information for the article will be provided as needed.

15) I will provide a course summary for the feedback session.

[Course requirements]

This course is open to all students, BUT a basic knowledge on biology is recommended.

[Evaluation methods and policy]

Class attendance and active participation (70%), presentation following questions and answer session (30%).

[Textbooks]

Instructed during class
Several recently published biological articles (especially on plant biology and molecular biology) will be provided as candidates at the first lesson. Students will choose one of them and in turn give a presentation on

Continue to Biological Sciences through Scientific Articles I-E2(2)↓↓↓

it at the class.

[Study outside of class (preparation and review)]

Students should read the provided article in advance.

[Other information (office hours, etc.)]

Contact: mizuki.takenaka@pmg.bot.kyoto-u.ac.jp
Any questions and requests are welcome by prior arrangements via E-mail.

Lecture code: N926001

Course number	U-LAS14 20059 SE68				
Course title (and course title in English)	Biological Sciences through Scientific Articles II-E2 Biological Sciences through Scientific Articles II-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,TAKENAKA, Mizuki		
Group	Natural Sciences	Field(Classification)	Biology(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・Second semester
Days and periods	Tue.5	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

In this seminar course, we will read various biological reviews, articles, and essays in turn in English. Students will be expected to deeply understand their contents. Supporting information like a scientific background, histories or experimental methods will be provided as needed. If necessary, short complementary comments in Japanese will be also available. Lesson materials used for the seminar course will be different from the first term.

[Course objectives]

Students will learn how to read scientific reviews, essays, and articles.
To grasp the essence of the article and summarize it efficiently.
To find interesting points in scientific articles.
To find complementary articles if necessary.
To read articles critically and purposefully.

[Course schedule and contents)]

1) In the first week, I will give an instruction of the seminar course. I will discuss an article to show the style of presentation. Then each week, several biological articles (especially from plant science) to be prepared for a later week will be presented to one of the students, who can make the choice based on his or her preference.

2)-14) Each student prepares a presentation about the article with support of me if necessary and presents it at the seminar in turn. Other students are expected actively to join the discussion. Complementary information for the article will be provided as needed.

15) I will provide a course summary for the feedback session.

[Course requirements]

This course is open to all students, BUT a basic knowledge on biology is recommended.

[Evaluation methods and policy]

Class attendance and active participation (70%), presentation following questions and answer session (30%).

[Textbooks]

Instructed during class
Several recently published biological articles (especially on plant biology and molecular biology) will be provided as candidates at the first lesson. Students will choose one of them and in turn give a presentation on

Continue to Biological Sciences through Scientific Articles II-E2(2)↓↓↓

it at the class.

[Study outside of class (preparation and review)]

Students should read the provided article in advance.

[Other information (office hours, etc.)]

Contact: mizuki.takenaka@pmg.bot.kyoto-u.ac.jp
Any questions and requests are welcome by prior arrangements via E-mail.

Lecture code: N929001

Course number	U-LAS14 20065 LE68		
Course title (and course title in English)	Introduction to Plant Physiology-E2 Introduction to Plant Physiology-E2	Instructor's name, job title, and department of affiliation	Graduate School of Agriculture Professor,Daniel Epron

Group	Natural Sciences	Field(Classification)	Biology(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

Land plants adapt to the environment and at the same time have developed distinctive structures and functions that have great influence on the environment as well. In this lecture we outline the physiological, morphological and anatomical characteristics that are the basis of the growth and survival of plants. We will discuss how these attributes are integrated and coordinated at the whole plant level to better understand the ecology of species both in their natural range and when used in agriculture and forestry. This course broadly introduces the physiological functions of plants in an ecological perspective.

[Course objectives]

Upon successful completion of this course, students will be able to understand the physiological processes underlying plant growth and development, how environmental factors influence these processes, and how knowledge of plant physiology is useful for crop, grassland and forest management.

[Course schedule and contents)]

Course schedule:
1. Introduction to plant physiology in an ecological perspective
2. Leaf photosynthesis: adaptation to sun and shade
3. Carbon assimilation and temperature
4. C3 and C4 plants in an evolutionary perspective
5. Respiration and carbon use efficiency
6. Effects of environmental factors on plant respiration
7. Growth and allocation
8. Storage of carbohydrates
9. Long distance transport of carbohydrates
10. Mineral uptake and translocation
11. Nutrient productivity and nutrient use efficiency
12. Water in cells, plants and soils
13. Water transport in plants
14. Control of plant water loss
15. End of Term Exam
16. Feedback

Continue to Introduction to Plant Physiology-E2(2)↓↓↓

Introduction to Plant Physiology-E2(2)

[Course requirements]

Beneficial but not mandatory: basic knowledges in biology (high school)

[Evaluation methods and policy]

Grading: Quizzes or questions based on previous class contents (after each class on PandA, 50%), end of term exam (50%).
In no case will English language proficiency be a criterion for evaluating students. Tests and exams are designed to allow short answers.
Class attendance is expected: students who are absent more than three times without sound reasons (documented unavoidable absence) will not be credited.

[Textbooks]

Lecture notes and slides will be provided before each class (uploaded on PandA).

[References, etc.]

（**Reference book**）
W Larcher 『Physiological Plant Ecology』 （Springer）ISBN:ISBN 978-3-540-43516-7（Recommended books and website to deepen the course content (not mandatory)）
H Lambers, FS Chapin, TL Pons 『Plant Physiological Ecology』 （Springer）ISBN:ISBN 978-0-387-78340-6（Recommended books and website to deepen the course content (not mandatory)）
R Munns, S Schmidt, C Beveridge 『Plants in Action: a resource for teachers and students of plant science』（http://plantsinaction.science.uq.edu.au/） （Recommended books and website to deepen the course content (not mandatory)）

[Study outside of class (preparation and review)]

Students are expected to review the course content of previous classes and to read the materials distributed before each class (about two hours between two classes).

[Other information (office hours, etc.)]

Students are encouraged to ask questions and to make comments during the class.
Students are welcome to arrange appointments by email, even outside the official office hour, for questions and discussion.

Lecture code: N939001

Course number	U-LAS14 20070 LE68				
Course title (and course title in English)	Introduction to Ecology and Evolution-E2 Introduction to Ecology and Evolution-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,BARNETT, Craig Antony		
Group	Natural Sciences	Field(Classification)	Biology(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

Evolution deals with the processes which led to the diversity of species and the relationships among them while ecology attempts to understand this species diversity and the interactions among them. These two aspects of biology are closely related. In this course we will examine how evolution and ecology interact with one another in order to understand biological diversity. We will also examine some more applied aspects of ecology such as the human impacts on ecosystems (e.g., climate change and conservation).

[Course objectives]

This course deals with ecology and evolution and how these topics interact in order to produce biodiversity. We will deal with key problems such as the evolution of life-histories, the evolution of sex through to speciation, extinction, and macroecology. We will also examine some more applied aspects of ecology and evolution such as examining human impacts on species, ecological communities, and the ecosystem.

[Course schedule and contents)]

The following subjects will be held for 3-5 weeks each.
(1) Adaptation and fitness
We will examine adaptation and the process that leads to adaptation in organisms and how we practically measure fitness in animals. For example, we will examine topics such as the evolution of life histories and how these are optimized to different ecological conditions and the evolution of sexual reproduction and its advantages over asexual reproduction.
(2) Ecology
We will examine what makes some kinds of organisms species-rich and other kinds of organisms species poor. We will also emphasize the importance on ecological interactions in ecology and how they may influence the ecology of and evolution of other species. We will also examine some relationships between biodiversity and different geographic regions (such as latitude) and island biogeography. This will allow us to better understand questions such as why there are more species in the tropics and why bigger islands have more species present on them than small islands. We will also examine how ecological factors may influence speciation.
(3) Evolution
We will closely examine of the birth of species (speciation), multiplication of species (radiation), and death of species (extinction) and the ecological factors that influence these processes. We will also examine how species diversity has changed over time and why some groups of organisms seem to be more successful than other groups.
(4) Human impacts

Continue to Introduction to Ecology and Evolution-E2(2)↓↓↓

Introduction to Ecology and Evolution-E2(2)

We will examine the impacts that humans are exerting on the ecology and evolution of individual species, communities, as well as global issues related to humans impacts on the ecosystem. We will examine a number of examples that demonstrate human impacts on ecology and evolution including the effects of human harvesting on organisms (e.g., trophy hunting, commercial exploitation), ecology in cities, and the effects of global climate change on the ecology and conservation of organisms.

[Course requirements]

It is not necessary to have completed high school biology, but it would be an advantage.

[Evaluation methods and policy]

Assessment will be made on the basis of an end of semester test.

[Textbooks]

Not used
Handouts to be given in class.

[References, etc.]

（**Reference book**）
Mayhew, P. 『Discovering evolutionary ecology: bringing together ecology and evolution.』（Oxford University Press）ISBN:978-0-19-852528-8（2006）

[Study outside of class (preparation and review)]

To achieve the course goals, students should review the course materials and the recommended readings after each class. The time necessary for review should be in the range of 2-3 hours per week. If you have any questions, please ask the instructor.

[Other information (office hours, etc.)]

No formal office hours, the instructor is available by appointment to meet with students.

Lecture code: N943001

Course number	U-LAS14 20073 LE68				
Course title (and course title in English)	Microorganisms in our Lives-E2 Microorganisms in our Lives-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Associate Professor,KIM MINSOO		
Group	Natural Sciences	Field(Classification)	Biology(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

Microbiology is the study of microorganisms, such as bacteria, viruses, fungi, and protozoa, which are usually too small to be seen by the naked eye. They are necessary for making various products, such as bread, cheese, beer, and antibiotics, and for numerous biotechnological processes. Of course, microorganisms also cause diseases and impact our everyday lives.
The first four lectures of this course provide an introduction to microbiology and consider microbial diversity, metabolism, and genetics. Subsequent lectures focus on specialized topics, including vaccines, antibiotics, host defense systems, and microbial infectious diseases.

[Course objectives]

To understand the biological differences between microorganisms, such as bacteria, viruses, parasites, and fungi.
To understand the roles of microbes in infectious diseases.
To gain basic knowledge of the host defense system against microbial diseases.

[Course schedule and contents)]

1. History of microbiology
2. Introduction to microbial diversity
3. Microbial genetics and metabolism
4. General characteristics of bacteria
5. Commensal bacteria and human health
6. Human diseases caused by bacteria
7. Control of microorganisms in the environments
8. Introduction to viruses
9. Evolution of viruses
10. Human diseases caused by virus-1
11. Human diseases caused by virus-2
12. Host defense system to microbes
13. Microbial disease control (vaccines and antibiotics)
14. Food and industrial microbiology
15. Final examination
16. Feedback

Continue to Microorganisms in our Lives-E2(2)↓↓↓

Microorganisms in our Lives-E2(2)

[Course requirements]

The course is open to all students.

[Evaluation methods and policy]

Evaluation will be based on class attendance and participation (40%), homework (20%), and Final exam (40%).

[Textbooks]

Michael T. Madigan, Kelly S. Bender, Daniel H. Buckley, W. Matthew Sattley, David A. Stahl 『Brock biology of Microorganisms』（Pearson ）ISBN:978-1292235103
Joanne Willey, Kathleen Sandman, Dorothy Wood 『Prescott's Microbiology』（McGraw-Hill Higher Education）ISBN:978-1260570021

[References, etc.]

（**Reference book**）
Bruce Alberts et al. 『Molecular Biology of the Cell』（WW Norton）ISBN: 978-0815344643
Introduced during class

[Study outside of class (preparation and review)]

To achieve the course goals, students read the recommended textbooks before the class and review the course handouts.

[Other information (office hours, etc.)]

Please feel free to come to my office at any time

Lecture code: N942001

Course number	U-LAS14 20072 LE68		
Course title (and course title in English)	Introduction to Immunology-E2 :The body's defense system Introduction to Immunology-E2 :The body's defense system	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Associate Professor,KIM MINSOO

Group	Natural Sciences	Field(Classification)	Biology(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

Our body is constantly exposed to foreign microbes, many of which cause infectious diseases. However, our body has an intricate immune system that defends against such infections. Understanding this host immune system gives us greater insights into human diseases and enables us to develop novel therapeutic tools. This course, therefore, focuses on the immune system at the molecular, cellular, and whole-organism levels.
Topics include: cells and tissues of the immune system, lymphocyte development, structure and function of antigens and antibodies, cell biology of antigen processing and presentation, pathogenesis of immunologically-mediated diseases, and disease control. The first four lectures provide a simple introduction to immunology, and subsequent lectures focus on specialized topics that will give a detailed understanding of the immune system.

[Course objectives]

To understand the basic concepts of immune cells and organs.
To understand how our body responds to foreign antigens and self-derived threats.
To become familiar with various research topics in immunology.

[Course schedule and contents)]

1. Introduction to immunology: the body’s defense
2. Elements of the immune system and their roles in defense
3. Introduction to innate immunity: the first lines of defense
4. Overview of adaptive immunity
5. Cells and tissues of the immune system
6. Antibodies and antigens
7. Inflammation and tissue repair
8. Recognition of self and non-self by the innate immune system
9. B cell development and antibody mediated immunity
10. Antigen presentation by T lymphocytes
11. Immunological memory and vaccination
12. Failures of the body’s defenses-Immunodeficiency
13. Disorders in the immune system-Autoimmunity, Allergy
14. Immunity to Tumors
15. Final examination
16. Feedback

Continue to Introduction to Immunology-E2 :The body's defense system(2)↓↓↓

Introduction to Immunology-E2 :The body's defense system(2)

[Course requirements]

The course is open to all students, although a background in cell biology is highly recommended.

[Evaluation methods and policy]

Evaluation will be based on class attendance and participation (40%), homework (20%), and Final exam (40%).

[Textbooks]

Abul K. Abbas, Andrew H. Lichtman, Shiv Pillai 『Cellular and Molecular immunology 10th edition』（Elsevier,2022）ISBN:9780323757485
Kenneth Murphy et al. 『Janeway’s Immunology』（WW Norton）ISBN:9780393884890

[References, etc.]

（**Reference book**）
Jenni Punt et al. 『Kuby Immunology』（WH Freeman）ISBN:978-1319114701
Peter Parham 『The Immune System 5th edition』（WW Norton）ISBN:978-0-393-53335-4
Bruce Alberts et al. 『Molecular Biology of the Cell』（WW Norton）ISBN:978-0815344643
Introduced during class

[Study outside of class (preparation and review)]

To achieve the course goals, students read the recommended textbooks before the class and review the course handouts.

[Other information (office hours, etc.)]

Please feel free to come to my office at any time

Lecture code: N533001

Course number	U-LAS15 10002 LE58				
Course title (and course title in English)	Introduction to Earth Science A Introduction to Earth Science A	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,Zhu Fan		
Group	Natural Sciences	Field(Classification)	Earth Science(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.1	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

Year after year, the effects of climate change (extreme heat waves, rising sea-levels, changes in patterns of precipitation, floods, droughts, intense hurricanes, etc.) are increasingly affecting--directly and indirectly--the physical, social, and psychological health of humans.

As a student of sciences, you will be responsible--at some point of your future professional career, be it in the public or private sector--to device strategies, methods, and/or techniques to mitigate its effects, either globally or locally. But, in order to do so, you first need to understand how our planet works, how its diverse parts are interrelated, and how changes in the working of some of its elements could disrupt complete systems.

This lecture will introduce, therefore, the tools needed to study the Earth as a system, and will focus on three of its main subsystems (Atmosphere, Hydrosphere, and Geosphere) and their interactions in different time scales.

[Course objectives]

At the end of the semester, you should be able to understand the concept of systems, the basics of our planet's energy balance, and also the principles behind of the behavior--as systems and subsystems--of the Atmosphere, the Hydrosphere, and the Geosphere.

[Course schedule and contents)]

This course consists of 15 classes including one feedback class. The Earth System is broadly divided into four subsystems: Atmosphere, Hydrosphere, Geosphere, and Biosphere. There is exchange of both matter and energy within those subsystems, in different time scales. The main contents of this lecture are:

1. Introduction to Earth Systems (2 sessions)
2. Global Energy Balance (3 sessions)
3. Atmosphere (3 sessions)
4. Hydrosphere (3 sessions)
5. Geosphere (3 sessions)
6. Feedback (1 session)

The main contents of each topic will be delivered in two or three lectures each. At the end of the semester we will have one final feedback session (details will be given in class).

Continue to Introduction to Earth Science A(2)↓↓↓

Introduction to Earth Science A(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on quizzes/homework (25%) and reports (75%). This class will have no mid-term or final exam. Submission of a report will be requested after finishing each of the three main topics (atmosphere, hydrosphere, and geosphere). Deadlines will be strictly enforced. Detailed requirements on the reports will be explained during the lectures.

[Textbooks]

Handouts will be provided for each class.

[References, etc.]

（**Reference book**）

Lee R. Kump, James F. Kasting, Robert G. Crane 『The Earth System』 ISBN:9780321597793
Brian J. Skinner, Barbara Murck 『The Blue Planet : An Introduction to Earth System Science』 ISBN: 9780471236436
Frederick K. Lutgens, Edward J. Tarbuck 『The Atmosphere : An Introduction to Meteorology』 ISBN: 9780321756312
Edward J. Tarbuck, Frederick K. Lutgens 『Earth : An Introduction to Physical Geology』 ISBN: 9780321814067
All additional reference books are available at the Library of the School of Global Engineering, in Yoshida Campus, and also at other Kyoto University libraries. Previous editions of the same books can also be used.

[Study outside of class (preparation and review)]

Handouts will be provided at the beginning of each session. You are expected to use them to follow the lectures, to take notes, and as a starting point to further your personal self-learning.

During the semester you will be requested to submit reports answering questions specific to the topic studied in class. Answering them will require doing some additional research on the recommended bibliography or other resources. Full references will be expected.

[Other information (office hours, etc.)]

Office hour information will be provided during the first lecture.

Lecture code: N560001

Course number	U-LAS15 10004 LE58		
Course title (and course title in English)	Introduction to Earth Science B-E2 Introduction to Earth Science B-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Professor,ZWINGMANN, Horst Friedrich August

Group	Natural Sciences	Field(Classification)	Earth Science(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.1	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

The Earth System is divided into four subsystems: atmosphere, hydrosphere, geosphere and biosphere. This lecture focuses on the first three subsystems and introduces their interactions in the different time scales. In particular, this lecture will be outlined interaction and material circulation between these three subsystems, and transition and change in the global environment over the 4.6 billion year history of the Earth.

[Course objectives]

The objective of this course is to develop an understanding of fundamental geological concepts and processes of plate tectonics and its influences on the dynamic Earth. The lectures comprise a general introduction to plate tectonics theory and selected detailed field case studies from Japan and the world.

At the end of the semester, students should be able to understand fundamental geological concepts and processes, within an Earth System context, and how the application of physical, chemical and biological sciences can be applied to solve geological problems.

[Course schedule and contents)]

The Earth System is broadly divided into four subsystems: atmosphere, hydrosphere, geosphere and biosphere. There is exchange of both matter and energy within those subsystems, in different time scales.

The main contents of this lecture are:

1. Interactions and material circulation among these three subsystems of the Earth System
2. Consist of the global environment
   ・Formation of the Earth
   ・Environment of the early Earth
3. The climate change in Earth's history
   ・Ice Age vs. No Ice Age
   ・Glacial/Interglacial periods fluctuations
   ・Climate change after the last glacial period

Course will be offered in the second semester within 14 classes, one examination and one feedback class.

Continue to Introduction to Earth Science B-E2(2)↓↓↓

Introduction to Earth Science B-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Students are able to (1) demonstrate understanding of basic geological processes and relationships at global to local scale including how this knowledge can be applied to issues of relevance to Japan; 2) identify and interpret common geological features and processes within the Earth System context and (3) demonstrate an understanding of the complex Earth System and its processes at a regional and global scale now, in the past, and in the future. The evaluation method comprises (1) an in class assignment (40%) and (2) written examination during the official examination term (60%).

[Textbooks]

Instructed during class
Instruction is given during class.

[References, etc.]

（Reference book）
Introduced during class
Instruction is given during class.

[Study outside of class (preparation and review)]

This course has been designed to allow students to integrate the concepts covered in lectures with own readings. A joint group project is developed by students based on data from a range of sources. Students will be supported throughout the project by discussions with your lecturer and associated students.

[Other information (office hours, etc.)]

to be confirmed

Lecture code: N563001

Course number	U-LAS15 10008 LE58		
Course title (and course title in English)	How the Earth Works I-E2 :Environmental Change How the Earth Works I-E2 :Environmental Change	**Instructor's name, job title, and department of affiliation**	Graduate School of Science Associate Professor,ENESCU, Bogdan Dumitru

Group	Natural Sciences	**Field(Classification)**	Earth Science(Foundations)

Language of instruction	English	**Old group**	Group B	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Wed.4	**Target year**	All students	**Eligible students**	For all majors

[Overview and purpose of the course]

I will outline the environmental changes that have occurred during the Earth history, with a special focus on climate change. The lectures will address the main factors that control the climate, as well as their interaction. We will discuss in particular the human impact on environment and its consequences. To facilitate understanding and encourage active participation during the class, some materials and vocabulary in Japanese will be also provided.

[Course objectives]

The Earth Climate is the result of complex interactions among the components that make up the Earth: the Atmosphere (layer of gases), the Hydrosphere (water), the Lithosphere (or solid Geosphere), and the Biosphere (all living organisms). By learning about these interactions that take place on a variety of time scales, the students will be able to understand why and how the Earth Climate continuously changes.

[Course schedule and contents)]

During its history of 4.6 billion years, the Earth climate changed profoundly. At the scale of hundreds of millions of years, the Earth is now during an "Ice Age" period. However, at a 'closer' look, at the scale of hundreds of thousands of years, we are at present in a period of relative warming known as "interglacial period". From the early part of the 19th century, the human activity started having a pronounced impact on climate, being likely responsible for the current "global warming", due to high emission of greenhouse gases.

Contents (tentative):
- Components of the climate system;
- Current global environment: the Earth's energy balance;
- Origins and evolution of the Atmosphere, Hydrosphere and Continents;
- Climate change factors: the carbon cycle;
- Long-term and short-term climate changes from past to present;
- 20th century warming: fingerprints of human-related global climate change.

There will be 2-3 lectures for each of the topics above. We will conduct in total 15 classes, including the feedback class.

Continue to How the Earth Works I-E2 :Environmental Change(2)↓↓↓

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (30%), class-room exercises (30%) and a final examination (40%).

[Textbooks]

A pack of class materials (mainly PowerPoint files) will be provided to students. The following textbook is recommended, but not required:
Lee R. Kump, James F. Kasting and Robert G. Crane, The Earth System (3rd edition), Prentice Hall, ISBN: 978-0321597793, 2009.

[References, etc.]

（**Reference book**）
John P. Grotzinger and Thomas H. Jordan 『Understanding Earth (7th edition)』（W.H. Freeman and Company）ISBN:978-1-4641-3874-4

[Study outside of class (preparation and review)]

Students will be expected to do readings in preparation for the class. Class-related materials should be downloaded and printed out by students, from a dedicated website, which will be announced at the beginning of the lecture.

[Other information (office hours, etc.)]

Students can meet me during office hours with prior appointment. The number of students who can take this class will be limited to a maximum of 60 students.

Lecture code: N564001

Course number	U-LAS15 10010 LE58				
Course title (and course title in English)	How the Earth Works II-E2 :Earth's History How the Earth Works II-E2 :Earth's History	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,ENESCU, Bogdan Dumitru		
Group	Natural Sciences	Field(Classification)	Earth Science(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

The Earth was born as a "fireball" of mixed molten rock and metal; after subsequent hardening, it was very similar with the other "inner" planets: Mars, Venus and Mercury. However, Life was formed only on planet Earth. Why Earth followed a different destiny from other planets? During this lecture we will follow the history of Earth's evolution, from its formation until present days. To facilitate understanding and encourage active participation during the class, some materials and vocabulary in Japanese will be also provided.

[Course objectives]

The student will familiarize with the most important events in the Earth history and will be able to understand the formation and structure of planet Earth.

[Course schedule and contents)]

- Formation of the Solar System and the Earth;
- Structure of the Earth;
- Beginning of Plate Tectonics;
- Birth and evolution of Life;
- Atmosphere evolution: oxygen and carbon dioxide;
- The supercontinent cycle;
- Continent fragmentation and magmatic activity;
- Macro-evolution of Life and extinction episodes.

For each of the topics above, we plan 1-2 lectures.There will be in total 15 classes, including the feedback class.

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (30%), class-room exercises (30%) and a final examination (40%).

[Textbooks]

A pack of class materials (mainly Power Point/PDF files) will be provided to students. The following textbook is recommended, but not required:
C.H. Langmuir and W. Broecker, How to Build a Habitable Planet: The Story of Earth from Big Bang to

Continue to How the Earth Works II-E2 :Earth's History(2)↓↓↓

How the Earth Works II-E2 :Earth's History(2)

Humankind, Princeton University Press, 2012, ISBN: 9781400841974 (*Japanese edition available).

[References, etc.]

（**Reference book**）
John P. Grotzinger and Thomas H. Jordan 『Understanding Earth (7th edition)』（W.H. Freeman and Company）ISBN:978-1-4641-3874-4

[Study outside of class (preparation and review)]

Students will be expected to do readings in preparation for the class. Class-related materials should be downloaded and printed out by students, from a dedicated website, which will be announced at the beginning of the lecture.

[Other information (office hours, etc.)]

Students can meet me during office hours with prior appointment. The number of students who can take this class will be limited to a maximum of 60 students.

Lecture code: N565001

Course number	U-LAS15 10012 LE56		
Course title (and course title in English)	Introduction to General Astronomy-E2 Introduction to General Astronomy-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Senior Lecturer,LEE, Shiu Hang

Group	Natural Sciences	Field(Classification)	Earth Science(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

The quest to understand our origins, the origins of the universe is probably one of the oldest of human kind. In this course the latest advances in our knowledge of the universe are learned in plain language. The spatial and temporal scales of the universe and the key components (planets, stars, and galaxies, and their structures) are described in detail, and the basic techniques and logic employed in astronomical science are discussed.

[Course objectives]

To obtain an overview understanding of the universe currently obtained by humankind, and to learn the basics of astronomical observations and theories employed in discoveries about the cosmos. Through the above, students will cultivate in themselves an scientific attitude which can be applied in their daily life and future career.

[Course schedule and contents)]

The following topics will be introduced (but not necessarily in this order):
1. Overview of modern astronomy and astrophysics
2. Planets, moons and other objects in the Solar System
3. Formation of planetary systems
4. Observation of exo-planets
5. Our Sun
5. Stars
6. Stellar evolution (low-mass stars and massive stars)
7. Supernova explosions
8. Neutron stars and pulsars
9. Blackholes and general relativity
10. Active galaxies
11. Gamma-ray bursts
12. Cosmological history of the Universe (if time allows)

Each item above will be covered in 1 to 1.5 lectures, except stellar evolution which will be covered in 2 lectures. Including the feedback period, the course will be covered in 15 lectures in total.

Continue to Introduction to General Astronomy-E2(2)↓↓↓

Introduction to General Astronomy-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation based on:
1) Weekly online homework (due every Tuesday), and
2) Class attendance and participation (taken after registration period)

(Details are explained during class)

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）
Freedman, Geller and Kaufmann 『Universe』（W. H. Freeman）ISBN:1319248640（11th edition (2019) (10th edition is also acceptable)）

[Study outside of class (preparation and review)]

Read the lecture notes, online materials and reference book

[Other information (office hours, etc.)]

Students are encouraged to ask questions during the lectures, and are welcome to contact the professor by email outside of class hours. All lecture notes, homework sets and grades will be made available on the course's PandA website.

Lecture code: N566001

Course number	U-LAS15 10014 LE58		
Course title (and course title in English)	Science on Water, Soil and Ecosystems-E2 Science on Water, Soil and Ecosystems-E2	Instructor's name, job title, and department of affiliation	Graduate School of Agriculture Program-Specific Assistant Professor,KOCH, Michael Conrad

Group	Natural Sciences	Field(Classification)	Earth Science(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2

Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Fri.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

Ecosystem science is a vast subject that comprises the study of biotic and abiotic components in an ecosystem and the interactions among them. This course provides an introduction to the science of two major physical components of ecosystems: water and soil. Understanding the earth's structure, the movement and distribution of water and the mechanics of soils can help answer issues related to sustenance of life like the availability of fresh water and food sources, natural and anthropogenic disturbances leading to geo-disasters etc. Study of such interactions between the physical and living environment will help develop tools for the assessment, management and mitigation of environmental impacts.

Based on a scientific perspective, the course will also provide a foundation for the quantification of hydrological and geotechnical data. The contents of this course will aid students interested in a career in diverse fields like environmental sustainability, climate modeling, geology, hydrology, ecology, agriculture, forestry and many more.

[Course objectives]

Upon successful completion of the course, students will be able
(1) to understand and quantify different aspects related to the circulation of water in the environment, (2) to understand the basic mechanics of soil and explain the mechanism of commonly occurring geo-hazards, e.g. landslides, (3) to integrate these concepts along with those of nutrient movement in the ecosystem to develop and manage tools for environmental sustainability.

[Course schedule and contents)]

1. Introduction
2. Precipitation
3. Atmospheric circulation
4. Runoff and streamflow
5. Internal structure of the earth
6. Erosion
7. Groundwater hydraulics
8. Fundamentals of soil mechanics
9. Mechanism of soil failure leading to geohazards
10. Biogeochemical cycles
11. Ecological energetics and biodiversity
12. Environmental sustainability - methods, tools, management (I)

Continue to Science on Water, Soil and Ecosystems-E2(2)↓↓↓

13. Environmental sustainability - methods, tools, management (II)
14. Reserved week for revision
15. Examination
16. Feedback

[Course requirements]

None

[Evaluation methods and policy]

Students' evaluation will be based on
(1) applying knowledge through answering mini-quizzes (20%);
(2) developing scientific communication skills through writing summary reports of book chapters, research papers and oral presentation (30%);
(3) writing a short essay of a case study using critical & problem-solving skills (10%);
(4) final examination (40%)

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）
Davie T 『Fundamentals of hydrology 』（Routledge）ISBN:0-203-93366-4（Not all chapters are covered in the course (ebook available from library)）
Weathers KC, Strayer DL, Likens GE 『Fundamentals of ecosystem science』（Elsevier）ISBN: 978-0-12-088774-3（Not all chapters are covered in the course (available in library)）
Brian J. Skinner, Barbara Murck 『The blue planet: an introduction to earth system science』（Wiley, 2011）ISBN:9781118139721（Not all chapters are covered in the course (available in library)）
Additional reading materials may be introduced in some lectures.

[Study outside of class (preparation and review)]

Students are highly encouraged to develop data collection skills by visiting various sources of study materials such as libraries, online sources, reference books, journals, or articles. The collected materials can enhance students' understanding of the introduced topics and highlight other applications of the concepts to interdisciplinary topics outside the purview of this course.

[Other information (office hours, etc.)]

Prior arrangement is highly necessary, preferably email notice is recommended before any consultation on the subject.

Lecture code: N562001

Course number	U-LAS15 20002 LE58				
Course title (and course title in English)	Field Earth Science-E2 Field Earth Science-E2	Instructor's name, job title, and department of affiliation	Graduate School of Science Professor,ZWINGMANN, Horst Friedrich August		
Group	Natural Sciences	Field(Classification)	Earth Science(Development)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.2	Target year	2nd year students or above	Eligible students	For science students

[Overview and purpose of the course]

Understanding the past earth activities and its geological records provides essential information to predict development and environmental change of the earth. Past earth activities can be investigated through geological field studies. This lecture is designed to understand the role of field work studies based on traditional to modern earth scientific methods.

[Course objectives]

The objective of this course is to develop an understanding of fundamental geological concepts and processes of plate tectonics and its influences on the dynamic Earth. The lectures comprise a general introduction to plate tectonics theory and selected detailed field case studies from Japan and the world.

[Course schedule and contents)]

This lecture is designed to teach the essence of geological field surveys and studies. The main concept of the developing earth is based on the theory of plate tectonics. This lecture demonstrates how geological information obtained by field studies enables earth scientists to establish the plate tectonics theory.
1. General introduction of the significance of the field survey correlated with the plate tectonics theory. (2 times)
2. Understanding time scale which produce various geological phenomenon. (2 times)
3. Introduction of development the geology around Kyoto, accretional complex. (2 times)
4. case studies (8 times)
- Antarctica
- North polar-region
- Himalaya
- Volcanic chains in the circum Pacific region

Course will be offered in the second semester with 14 classes, one examination and one feedback class.

[Course requirements]

None

Continue to Field Earth Science-E2(2)↓↓↓

Field Earth Science-E2(2)

[Evaluation methods and policy]

Students are able to (1) demonstrate knowledge of geological techniques relevant to the plate tectonics theory; and(2) identify and interpret common minerals, rocks, fossils and tectonic structures and interpret their formation; and (3) read and interpret basic geological maps. The evaluation method comprises (1) an in class assignment (40%) and (2) written examination during the official examination term (60%).

[Textbooks]

Instructed during class
Instruction is given during class.

[References, etc.]

(**Reference book**)
Introduced during class
Instruction is given during class.

[Study outside of class (preparation and review)]

This course has been designed to allow students to integrate the concepts covered in lectures with own readings. A joint group project is developed by students based on data from a range of sources. Students will be supported throughout the project by discussions with your lecturer and associated students.

[Other information (office hours, etc.)]

to be confirmed

Lecture code: N537001

Course number	U-LAS15 20007 LE58				
Course title (and course title in English)	Introduction to Engineering Geology Introduction to Engineering Geology	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,Zhu Fan		
Group	Natural Sciences	Field(Classification)	Earth Science(Development)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.5	Target year	Mainly 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

Geology comes from the Greek geo, "Earth", and logos, "discourse". This class provides a basic knowledge of our planet's components (matter, minerals, rocks, etc.) and their main processes (mineral formation, plate tectonics, volcanic activity, earthquakes, etc.) from the viewpoint of engineering.

The correct understanding of the Earth and its many interacting parts, in different physical and time scales, using the basic knowledge and principles of geology, will help us confirm that all important geological factors are adequately considered when designing, constructing, and operating engineering works.

[Course objectives]

By the end of the semester, you should have a basic knowledge of geology, and be able to think about its application when designing, constructing, and operating engineering works, when using natural Earth resources, and when trying to solve geotechnical and geoenvironmental engineering problems.

[Course schedule and contents)]

This course consists of 15 classes including one feedback class.

The main contents of this lecture are:

1. Introduction to Engineering Geology [2 classes]
(Guidance, Introduction, Earth Science, Plate Tectonics)

2. Earth Matter [4 classes]
(Matter and Minerals, Igneous Rocks, Volcanic Activity, Weathering, Sedimentary Rocks, Metamorphism, Metamorphic Rocks)

3. Plate Tectonics and Structural Geology [4 classes]
(Plate Boundaries, Mountains, Earthquakes, Crustal Deformation, Geologic Structures)

4. Geologic Time [1 class]
(Principles of relative dating and numerical dating)

5. Water and Earth Resources [2 classes]
(Groundwater, Energy and Mineral Resources)

Continue to Introduction to Engineering Geology(2)↓↓↓

Introduction to Engineering Geology(2)

6. Achievement confirmation [1 class]

7. Feedback [1 class]

[Course requirements]

None

[Evaluation methods and policy]

Grading will be based on a research report (30%), a final exam (50%), and performance during regular classes (such as quizzes, homework, class participation) (20%). Details will be explained in class.

[Textbooks]

Not used

[References, etc.]

(Reference book)

Edward J. Tarbuck, Frederick K. Lutgens 『Earth - An Introduction to Physical Geology』 ISBN: 9780321814067
Stephen Marshak 『Essentials of Geology』 ISBN:9780393919394
Edward A. Keller 『Introduction to Environmental Geology』 ISBN:9780132251501
Lee R. Kump, James F. Kasting, Robert G. Crane 『The Earth System』 ISBN:9780321597793
Brian J. Skinner, Barbara Murck 『The Blue Planet : An Introduction to Earth System Science』 ISBN: 9780471236436
Kent C. Condie 『Earth as an Evolving Planetary System』 ISBN:9780123852274
All reference books are available at the Library of the School of Global Engineering, at the Main Yoshida Campus Library, and/or at other Kyoto University libraries. Previous editions of the same books can also be used.

[Study outside of class (preparation and review)]

During the first class, you will be provided with a list of study topics, minimum questions to answer, and a list of initial resources to find the corresponding information, for all the scheduled sessions of the semester. You are expected to study these topics on your own and come prepared to the corresponding class. Additionally, submission of a research report will be required for this class. To complete the report, you will need to do additional research on a selected topic after the class.

[Other information (office hours, etc.)]

Office hours will be provided during the first lecture.

Lecture code: N558001

Course number	U-LAS15 20011 LE58		
Course title (and course title in English)	Introduction to Mineral Resources-E2 Introduction to mineral resources-E2	Instructor's name, job title, and department of affiliation	Graduate School of Energy Science Professor,MCLELLAN，Benjamin

Group	Natural Sciences	Field(Classification)	Earth Science(Development)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.1	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

Minerals are important for society to function, but it is useful to know how they are formed, extracted and converted into useful products. This course will introduce students to earth sciences, with a focus on mineral resources, as well as looking at how these resources are converted into useful materials and what wastes are produced in the process. We will focus on how minerals can be considered "critical" to society now and in the future.

[Course objectives]

From this course the students will be expected to know how mineral resources are situated geologically, how they are measured, how mining and minerals processing leads to final products that are used in society and what the implications of the extraction of minerals are for the environment.

[Course schedule and contents)]

This course will cover the following topics:
Week 1 - 4 (Basics of Geology and Earth Sciences with a focus on mineral resources)
1. Introduction to earth sciences and the importance for minerals resources
2. Geology and the lithosphere - geological time and formations
3. Processes of rock and mineral formation
4. Mineralogy

Week 5-14 (Minerals resources and their extraction, transformation into mineral products)
5. Reserves, resources, geological uncertainty and economics
6. Mineral deposits and mining
7. Beneficiation of ore and minerals processing - general considerations
8. Manufacturing mineral products - general considerations
9. Critical minerals methodologies
10. Critical minerals case study 1 - Rare earths / rare metals
11. Critical minerals case study 2 - Base metals
12. Waste, recycling and environmental impacts
13. Social impacts of minerals - Dutch disease and conflict
14. Future mining - what comes next?

Each of the above topics covers 1-2 weeks, with one class per week.
The course overall consists of 14 classes and one feedback session.

Continue to Introduction to Mineral Resources-E2(2)↓↓↓

Introduction to Mineral Resources-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

The course will be assessed based on:
1. participation (30%)
2. small exercises (20%)
3. final presentation (10%)
4. final assignment (40%)

Scores will be given on a scale of 0-100.

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Edward J. Tarbuck, Frederick K. Lutgens, Dennis G Tasa; 2011 『Earth Science (13th Edition)』
Graham R. Thompson, Jon Turk; 2009 『Earth Science and the Environment (4th edition)』
Jeremy.P. Richards, 2009 『Mining, society and a sustainable world』
Georgius Agricola 『De Re Metallica』 （https://www.gutenberg.org/files/38015/38015-h/38015-h.htm）
M. King Hubbert 『Hubbert Curves (Peak Oil)』 （https://web.archive.org/web/20080527233843/http://www.hubbertpeak.com/hubbert/1956/1956.pdf）
Jevons 『The Coal Question 』 （https://oll.libertyfund.org/titles/jevons-the-coal-question）
Gus Gunn 『Critical Metals Handbook』
W.J. Rankin, 2011 『Minerals, metals and sustainability』 （Textbook is not necessary, but is a useful reference and will be referred to in class.）

（**Related URL**）
https://www.iied.org/mining-minerals-sustainable-development-mmsd(Mining, Minerals and Sustainable Development)
https://www.resourcepanel.org/reports/mineral-resource-governance-21st-century(Mineral Resource Governance in the 21st Century)
https://www.undp.org/content/undp/en/home/librarypage/poverty-reduction/Managing-Mining-for-SD.html(Managing Mining for Sustainable Development)

[Study outside of class (preparation and review)]

Class materials will be loaded on PandA and pre-reading may be required.
Final assessment is typically a report, which will require a number of hours for research and writing.

[Other information (office hours, etc.)]

Students should contact the instructor for feedback and other consultation.

Lecture code: N559001

Course number	U-LAS15 20010 LE58		
Course title (and course title in English)	Introduction to Hydrology-E2 Introduction to Hydrology-E2	Instructor's name, job title, and department of affiliation	Disaster Prevention Research Institute Associate Professor,Sameh Kantoush
Group	Natural Sciences	Field(Classification)	Earth Science(Development)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.4	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

Water is considered essential to life and, without a doubt, is vital to our lives. To manage the world's increasingly scarce water resources, we must understand how water moves around the planet and what influences water quality. This course aims to build a basic understanding to study the utilization of natural resources and natural disasters on the earth. Moreover, we will discuss water availability on the planet, basic hydrological phenomena to create water circulation and the water budget. Based on this basic knowledge, all students will study the earth's freshwater system and form a basis for mutual international understanding by comparing Japanese and foreign countries' case studies.

[Course objectives]

The goals are to understand how hydrology and hydrological applications can be used to secure water for people, based on a sound scientific understanding of hydrologic processes and water budget.

Course Outcomes:

By the end of this course, students will:

- Be aware of water resources issues in Japan and global scale.
- Be able to qualitatively and quantitatively describe the main processes in the hydrologic cycle, surface, and groundwater hydrology.
- Be able to analyze hydrographs and understand the measurement of streamflow.

PRACTICAL SKILLS: On completion of this course students should be able to:
- Calculate the water budget of a watershed.
- Calculate average precipitation streamflow.
- Calculate infiltration.
- Estimate evaporation rates and evapotranspiration.
- Define the relationship between rainfall and hydrograph analysis.
- Measure the flow discharge and velocity in the stream.

[Course schedule and contents)]

Week 1: Introduction: Hydrological Cycle and Processes
Week 2-3: Water Budget and cloud formation

Continue to Introduction to Hydrology-E2(2)↓↓↓

Introduction to Hydrology-E2(2)

Week 4: Precipitations Forms, Types, and Measurements
Week 5: Rainfall statistics: Areal Precipitation& Data Analysis
Week 6: Runoff and Hydrographs: Measuring Surface Runoff River
Week 7: Evaporation: Process, Measurement, and Estimation
Week 8-9: Infiltration: Process, Measurement, and Estimation
Week 10-11: Semester Project Presentations
Week1 12: Groundwater Hydrology
Week 13-14: Flooding: Monitoring, Prediction, and Mitigation
Week 15-16: Feedback

[Course requirements]

None

[Evaluation methods and policy]

The student will be assessed in the course based on assignments, quizzes, chapter readings, in-class assessment and active participation (40%), and semester project report and presentation (60%).

[Textbooks]

Instructed during class

[References, etc.]

(Reference book)
Introduced during class

[Study outside of class (preparation and review)]

The instructor will provide additional materials, solved examples, and model answers for assignments.

[Other information (office hours, etc.)]

Class participation and questions are very welcome during the lectures or at the end of the lecture. The schedule of office hours will be announced later. Moreover, if you have extra questions, students may contact me by email.

Lecture code: N561001

Course number	U-LAS15 20009 SE58		
Course title (and course title in English)	Advanced Practice of Earth Science-E2 Advanced Practice of Earth Science-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Science Professor,ZWINGMANN, Horst Friedrich August
Group	Natural Sciences	**Field(Classification)**	Earth Science(Development)

Language of instruction	English	**Old group**	Group B	**Number of credits**	4
Hours	60	**Class style**	Seminar	**Year/semesters**	2023・Intensive, Second semester
Days and periods	Intensive TBD	**Target year**	Mainly 2nd year students	**Eligible students**	For science students

[Overview and purpose of the course]

PLEASE NOTE:Due to ongoing safety issues caused by earthquakes / volcanic eruptions in Kyushu alternative fieldwork areas are explored if required. Depending on the situation, the excursion plan might be changed.

A series of "observations and exercises" will be conducted for individual groups consisting of several attendees. Each attendee is requested to do the observations and exercises during field work and to analyze the obtained data, together with other students. Additional observations and exercises will be planned and conducted where necessary. The course is designed so that each attendee can experience and participate in geological scientific research.

[Course objectives]

PLEASE NOTE: Due to ongoing safety issues caused by earthquakes / volcanic eruptions in Kyushu alternative fieldwork areas are explored if required. Depending on the situation, the excursion plan might be changed.

Collection and interpretation of geological data in the field are fundamental skills for a professional earth scientist. This course develops and extends field skills through a 5-day field trip to Kyushu February 11-15, 2024. The field trip challenges students to collect high quality field data with which to interpret the geological processes over a wide time range in the Beppu and Kuju area, central Kyushu.

At the end of the class, students should be able to understand fundamental geological concepts and processes, within an Earth System context, and how the application of physical, chemical and biological sciences can be applied to solve geological problems.

[Course schedule and contents)]

PLEASE NOTE: Due to ongoing safety issues caused by earthquakes / volcanic eruptions in Kyushu alternative fieldwork areas are explored if required. Depending on the situation, the excursion plan might be changed.

Preparation day tbc in 12/2023: 13:00-16:00: Introduction seminar at Kyoto University Yoshida campus (office 376) prior to the excursion to meet students and provide them with a brief background of the course.

Continue to Advanced Practice of Earth Science-E2(2)↓↓↓

Advanced Practice of Earth Science-E2(2)

Day 1: Sunday February 11, 2024: ~13:00 meet at Beppu Geothermal Research Laboratory, 3088-176, Noguchibaru, Beppu, Oita, 874-0903, Japan. Excursion start : Beppu Graben: visit active fault scarf, geothermal plant and sources of hot springs.

Day 2: Monday February 12, 2024: Aso: visit caldera and erupting volcano, Harajiri waterfall and outcrops of the youngest pyroclastic flow deposits (Aso-4) (Japan Geoparks).

Day 3: Tuesday February 13, 2024: Travel Beppu to Himeshima Island and return: visit ancient volcano, green obsidian, pyroclastic surge deposits, magmatic soda springs and metamorphic rock xenoliths.

Day 4: Wednesday February 14, 2024: Radon measurements along the Horita Fault , Beppu.

Day 5: Thursday February 15, 2024: Reporting and presentation day at Beppu Geothermal centre, summary seminar. Afternoon travel Beppu-Kyoto.

[Course requirements]

Open to all students with science background (2 year) and international students. If more than 10 students apply a lottery will conducted to select participants. All travelling cost from Kyoto to Beppu and return should be paid by attendees. Accommodation in Beppu at the Beppu Geothermal Research Laboratory will be organised by Kyoto University teachers at an estimated cost of ca. 3000 Yen for 5 nights.
All attendees have to join the necessary insurance; e.g., Personal Accident Insurance for Students Pursuing Education and Research (Gakkensai) [学生教育研究災害傷害保険（学研災）]

[Evaluation methods and policy]

Students are able to (1) collect field data and integrate with regional datasets to interpret a complex geological area; (2) critically appraise existing reports with new field data; (3) interpret regional datasets; and (4) present results in a written report and a presentation. The evaluation method comprises (1) participation in field work class (50%) and (2) submission of a written assignment to be completed by March, 01, 2024 (50%). If the situation does not allow a face-to-face field class in February 2024 in Kyushu, a substitution class will be explored with students in December 2023.

※なお、単位認定は翌年度となる可能性がある。進級・卒業判定がかかる学生はこのことに注意すること。

[Textbooks]

Instructed during class

[References, etc.]

（Reference book）
Introduced during class

[Study outside of class (preparation and review)]

This course has been designed to allow students to integrate the concepts covered in lectures with own readings. A joint group project is developed by students based on data from a range of sources. Students will be supported throughout the project by discussions with your lecturer and associated students.

[Other information (office hours, etc.)]

In December 2023 (day tbc in 12/2023 after student list is confirmed) a half day seminar at Kyoto Uni Yoshida campus (office 376) is scheduled prior to the excursion to meet students and provide an introduction

Continue to Advanced Practice of Earth Science-E2(3)↓↓↓

of the field course.

Lecture code: T008001

Course number	U-LAS30 10008 SE11		
Course title (and course title in English)	Practice of Basic Informatics Practice of Basic Informatics	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,Zhu Fan Graduate School of Engineering Assistant Professor,MIYAZAKI YUSUKE

Group	Informatics	Field(Classification)	(Foundations)

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・First semester
Days and periods	Tue.4	Target year	Mainly 1st year students	Eligible students	For science students

[Overview and purpose of the course]

The aim of this class is to learn the basic computing skills needed to operate computer software at Kyoto University. A Linux-based OS (Ubuntu) will be used in virtual computers (VDI) administrated by the Institute for Information Management and Communication (IIMC).

[Course objectives]

At the end of the semester, you should be able to understand the basics of using virtual computers (VDI) at Kyoto University, Linux operation, file management, how to create documents using LaTeX, how to create 2D and 3D graphics using Gnuplot, and the principles of programming in Fortran.

[Course schedule and contents)]

A brief explanation of the main topic will be given at the beginning of each session, and then you will have the rest of the class to practice the acquired skills solving a given problem under the guidance of the instructor.

The following topics will be covered:

1. GUIDANCE: Connecting to VDI. Using a Terminal. Basic operations.
2. UNIX: Introduction to Linux commands. File System.
3. UNIX: Redirections. Pipes. GREP. Scripts.
4. LIBRARY*: Accessing library resources. Searching. Reference Managers.
5. LaTeX: Introduction to LaTeX.
6. LaTeX: Typesetting in LaTeX.
7. LaTeX: Mathematical formulas in LaTeX.
8. REVIEW 1 & EXERCISE: Basic UNIX, LaTex.
9. GNUPLOT: Creating 2D and 3D graphics with Gnuplot.
10. FORTRAN: Introduction to Programming. Intrinsic functions.
11. FORTRAN: Iterations. Conditionals.
12. REVIEW 2 & EXERCISE: Gnuplot, Fortran.
13. EXERCISE: Final Exercise (Part1).
14. EXERCISE: Final Exercise (Part2).
15. FEEDBACK

*The library session may be arranged at a different time slot and details will be announced in advance.

Continue to Practice of Basic Informatics(2)↓↓↓

Practice of Basic Informatics(2)

[Course requirements]

Bring your own device (BYOD)
In this course, you will access a virtual computer (Virtual Desktop Infrastructure VDI) running Ubuntu Linux, using your own personal computer.

[Evaluation methods and policy]

Grading will be based on class participation (20%), weekly exercises (30%), and a final report (50%). This class will have no final exam.
For class participation you will be evaluated on your comments/answers/discussions with instructors, on your collaborative spirit when working in group with other students, and on your suggesting of new ways to understand the topics discussed in class.
For weekly exercises the answers/code/programs you submit will be evaluated. When compilation is necessary, it will be a condition sine qua non to get a passing grade. Comments and commentaries are expected. Particularly interesting solutions to common problems will receive extra points.
For the final report, your capability of using all tools learned in class to solve the proposed problem will be assessed. Comments and commentaries (within the code and in the report) are expected. Late reports will receive negative points. Details will be further explained at the time.
In general, as a minimum requirement to obtain a passing grade in this class, you should be able to comfortably manage files using Linux terminals, create and format simple documents using LaTeX, create and format graphics using Gnuplot, and write simple programs in Fortran.

[Textbooks]

The textbook "Practice of Basic Informatics" will be provided during the first week of classes. You are expected to read the corresponding chapters ahead of each class.

[References, etc.]

（**Reference book**）
Stefan Kottwitz 『LaTeX Beginner's Guide』 ISBN:1847199860
Philipp Janert 『Gnuplot in Action: Understanding Data With Graphs』 ISBN:1933988398
Brian Harn 『Fortran 90 for Scientists & Engineers』 ISBN:0340600349
All additional reference books are available at the Library of the School of Global Engineering, in Yoshida Campus, and also at other Kyoto University libraries.

[Study outside of class (preparation and review)]

You are expected to read the corresponding chapter ahead of each class. A brief explanation of the main topic will be delivered at the beginning of each session, but you are expected to come prepared ahead of time.
You will be given the rest of the class to practice the acquired knowledge by solving a proposed problem under the supervision of the instructor. You will be given several days to submit your answers, so you can keep practicing after the session is over.

[Other information (office hours, etc.)]

This class requires the use of virtual computers (VDI) administrated by the Institute for Information Management and Communication (IIMC), for which a valid account for the Educational Computers System of Kyoto University (ECS-ID) is required. You will receive your corresponding username and password as part of the admission procedures. Please, be sure to bring them along from the first session, or you won't be able to participate in class.
Office hours will be provided during the first day of classes.
Students who take this class are strongly recommended to take "Basic Informatics" and "Computer

Continue to Practice of Basic Informatics(3)↓↓↓

Practice of Basic Informatics(3)

Programming in Global Engineering" the following semester.
Students must complete Information Security e-Learning provided by the Institute for Information Management and Communication(IIMC), Kyoto University including the final test of the course, and confirm its feedback. No class hour is assigned to take this e-learning, and students have to take this e-learning outside the class hours. All the members of the Kyoto University are asked to take this e-learning every year, and hence student in the second grade and above also should complete this e-learning.

Lecture code: T056003

Course number	U-LAS30 10020 SE10		
Course title (and course title in English)	Practice of Basic Informatics-E2 Practice of Basic Informatics-E2	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,ISLAM, A K M Mahfuzul

Group	Informatics	Field(Classification)	(Foundations)

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・First semester
Days and periods	Fri.2	Target year	Mainly 1st year students	Eligible students	For all majors

[Overview and purpose of the course]

The objectives of this course are as follows:

- To teach students to acquire the basic ICT skills needed for academic activities. Students will acquire ICT skills so as to be able to fully utilize the information services provided by the university, to search for the information needed during academic activities, to process data, to write papers, and to present their studies.
- To guide students to be independent ICT users. Students will learn to manage and operate their personal computers and network properly as independent users.
- To help students acquire the capability to learn ICT skills by themselves on an ongoing basis. That is, students will be guided to learn ICT skills not dealt with in this course on their own, as their studies progress.

[Course objectives]

At the end of the semester, students should be able to know the basics of operating systems and in-campus information networks, learn the knowledge of academic information seeking, acquire the skills of data processing, academic writing, and presentation, and understand the basics of programming with practice.

[Course schedule and contents)]

1. Computer basics [2 weeks]
 a) Introduction to this course
 b) Basics of operating systems
2. Basics of information networks [2 weeks]
 a) In-campus information services and networks
 b) Information security and information ethics
3. Academic information seeking [2 weeks]
 a) Academic information and libraries
 b) Skills of information seeking for academic purposes
4. Academic content creation [4 weeks]
 a) Data processing with a Spreadsheet
 b) Academic report writing
 c) Presentation
5. Basics of programming [4 weeks]
 a) Overview of programs and programming
 b) Basic programming exercises
 c) Advanced programming exercises

Continue to Practice of Basic Informatics-E2(2)↓↓↓

Practice of Basic Informatics-E2(2)

6. Review [2 weeks]

[Course requirements]

None

[Evaluation methods and policy]

Grading will be based on the evaluation of submitted reports.

[Textbooks]

H. Kita, Y. Kitamura, and H. Hioki 『The Practice of Basic Informatics 2022』 (Kyoto University) (Slide handouts for additional materials will be delivered)

[References, etc.]

(**Reference book**)
Introduced during class

[Study outside of class (preparation and review)]

Students are expected to read the corresponding materials ahead of each class and practice the acquired knowledge by solving proposed problems during the class. After each class, a student will have a full week to write and submit their reports.

[Other information (office hours, etc.)]

Students must complete Infomation Security e-Learning provided by the Institute for Infomation Management and Communication(IIMC), Kyoto University including the final test of the course, and confirm its feedback. No class hour is assigned to take this e-learning, and students have to take this e-learning outside the class hours. All the members of the Kyoto University are asked to take this e-learning every year, and hence student in the second grade and above also should complete this e-learning.

Lecture code: T056004

Course number	U-LAS30 10020 SE10		
Course title (and course title in English)	Practice of Basic Informatics-E2 Practice of Basic Informatics-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Associate Professor,CHU, Chenhui

Group	Informatics	Field(Classification)	(Foundations)

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・First semester
Days and periods	Tue.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Information Communication Technology (ICT) skills are a necessity for efficient academic studies. This course aims at:
- Teaching students the essential ICT skills needed for academic activities. Students will acquire ICT skills that will let them fully utilize the information services provided by the university: searching for information needed during academic activities, processing data, programming, writing papers, and presenting their studies.
- Allowing students to be independent ICT users. Students will learn to manage and operate their personal computers and network properly as independent users.
- Helping students acquire the capability to learn ICT skills by themselves on an ongoing basis: students will be guided to learn ICT skills not dealt with in this course on their own, as their studies need it.

[Course objectives]

At the end of the semester, students should have a sufficient understanding of the principles of computers, Operating Systems, Networks (esp. the ones available at the university), and academic information seeking. They should also have acquired practical skills in using Spreadsheets, Word Processors, and presentation software for their academic life. Finally, they will understand and practice the basics of programming.

[Course schedule and contents)]

1. Computer basics (1 week)
- Introduction to this course
- Basics of operating systems

2. Basics of information networks (2 weeks)
- In-campus information services and networks
- Information security and information ethics

3. Academic information seeking (1 week)
- Academic information and libraries

4. Skills of information seeking for academic purposes Academic content creation (7 weeks)
- Data processing with a Spreadsheet (2 weeks)
- Academic report writing (2 weeks)
- Presentation and practice (3 weeks)

Continue to Practice of Basic Informatics-E2(2)↓↓↓

Practice of Basic Informatics-E2(2)

5. Basics of programming (3 weeks)
- Overview of programs and programming (1 week)
- Introduction to Jupyter and Python (1 week)
- Arrays and visualization in Python (1 week)

6. Feedback (1 week)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation is based on class participation (15%) and assignments (85%).

[Textbooks]

H. Kita, Y. Kitamura, H. Hioki, H. Sakai, and D. Lin 『The Practice of Basic Informatics 2022』 (Kyoto University)
Textbook will be provided in an online version.

[Study outside of class (preparation and review)]

Students are expected to read the corresponding materials ahead of each class and practice the acquired knowledge by solving proposed problems during the class.

[Other information (office hours, etc.)]

No office hours are specified. However, questions and requests are welcome by email.

Students must complete Information Security e-Learning provided by the Institute for Information Management and Communication (IIMC), Kyoto University, including the final test of the course, and confirm its feedback. No class hour is assigned to take this e-learning, and students have to take this e-learning outside the class hours. All the members of Kyoto University are asked to take this e-learning every year, and hence students in the second grade and above also should complete this e-learning.

Lecture code: T056001

Course number	U-LAS30 10020 SE10				
Course title (and course title in English)	Practice of Basic Informatics-E2 Practice of Basic Informatics-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Associate Professor,HADFI Rafik		
Group	Informatics	Field(Classification)	(Foundations)		
Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・Second semester
Days and periods	Fri.5	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Acquiring Information and Communication Technology (ICT) skills is essential for academic success. This course aims at the following:

- Teaching students basic ICT skills for their academic activities. They will develop such skills to fully utilize the services provided by the university to search for information, process data, write papers, and present their studies.

- Guiding students into becoming independent ICT users that can autonomously learn to manage and operate their personal computers and networks.

- Helping students acquire the capability to continuously learn new ICT skills by themselves and particularly the skills not dealt with in the course.

[Course objectives]

At the end of the semester, students should be able to know the basics of operating systems and information networks. They should also acquire all the skills for academic information retrieval, data processing, writing, and presentation. Finally, students will understand the basics and practices of programming.

[Course schedule and contents)]

Computer basics (1 week)
- Introduction of this course
- Basics of operating systems

Basics of information networks (2 weeks)
- In-campus information services and networks (1 week)
- Information security (1 week)

Academic information seeking (1 week)
- Academic information and libraries
- Skills of information seeking for academic purposes

Academic content creation (6 weeks)
- Data processing with a Spreadsheet (2 weeks)
- Academic report writing (2 weeks)
- Presentation (2 weeks)

Basics of programming (4 weeks)

Continue to Practice of Basic Informatics-E2(2)↓↓↓

Practice of Basic Informatics-E2(2)

- Overview of programs and programming (1 week)
- Basic programming exercises (1 week)
- Advanced programming exercises (2 weeks)

Total：14 classes, 1 feedback session.

[Course requirements]

None

[Evaluation methods and policy]

Grading will be based on the evaluation of submitted reports for each assignment. All assignments will be available via the PandA system.

[Textbooks]

H. Kita, Y. Kitamura, H. Hioki, H. Sakai, and D. Lin. 『The Practice of Basic Informatics 2020』（Kyoto University）
Slides for additional materials will be delivered via the PandA system.

[Study outside of class (preparation and review)]

Students are expected to read the corresponding materials ahead of each class and practice the acquired knowledge by solving proposed problems during the class. After studying each topic, student will have a full week to write and submit their reports.

[Other information (office hours, etc.)]

No office hours are specified. E-mail: rafik.hadfi@i.kyoto-u.ac.jp

Students must complete the Information Security e-Learning provided by the Institute for Information Management and Communication(IIMC), Kyoto University, including the final test of the course, and confirm its feedback. No class hour is assigned to take this e-learning, and students must take this e-learning outside the class hours. All the members of Kyoto University are asked to take this e-learning every year, and hence students in the second grade and above also should complete this e-learning.

Lecture code: T015001

Course number	U-LAS30 10015 LE11　U-LAS30 10015 LE12　U-LAS30 10015 LE10		
Course title (and course title in English)	Basic Informatics Basic Informatics	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,Chang, Kai-Chun
Group	Informatics	Field(Classification)	(Foundations)
Language of instruction	English	Old group	
Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture
Year/semesters	2023・Second semester		
Days and periods	Tue.4	Target year	Mainly 1st year students
Eligible students	For science students		

[Overview and purpose of the course]

This course discusses basic knowledge of information representation, computer hardware and software, Internet technical background, Internet services, algorithm in information processing, and related issues.

[Course objectives]

To understand basic knowledge of information representation, computer hardware and software, Internet technical background, Internet services, algorithm in information processing, and related issues.

[Course schedule and contents)]

0. Introduction [1 week]

1. Representing information as bit patterns [3 weeks]
 1-1. The binary system
 1-2. Representing integers
 1-3. Representing fractions
 1-4. Representing text and other information

2. Computers and their peripherals [3 weeks]
 2-1. Computer architecture
 2-2. CPU and main memory
 2-3. Storage devices
 2.4. Input and output devices

3. Operating system and application software [2 weeks]
 3-1. Operating system architecture
 3-2. Coordinating computer's activities

4. Networking and the Internet [3 weeks]
 4-1. Network fundamentals
 4-2. The Internet
 4-3. Broadband connections
 4-4. Mobile connections

5. Optional topics: HTML and web pages, algorithm and programmings, etc. [2 weeks]

Continue to Basic Informatics(2)↓↓↓

Basic Informatics(2)

6. Feedback [1 week]

[Course requirements]

None

[Evaluation methods and policy]

Quizzes and exercises (40%), final examination (60%)

[Textbooks]

Instructed during class
Handouts distributed in class or uploaded to PandA

[References, etc.]

（Reference book）
Introduced during class

[Study outside of class (preparation and review)]

Students are expected to spend about 1 hour on review. More than half of that time is spent preparing for class and doing assignments.

[Other information (office hours, etc.)]

Any inquiry to the instructor: chang.kaichun.4z{at}kyoto-u.ac.jp. (replace {at} with @)

Lecture code: T051001

Course number	U-LAS30 10016 LE10 U-LAS30 10016 LE11 U-LAS30 10016 LE12		
Course title (and course title in English)	Basic Informatics-E2 Basic Informatics-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Associate Professor,HADFI Rafik

Group	Informatics	Field(Classification)	(Foundations)

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Wed.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Conducting state-of-the-art research across diverse fields of science, technology, and liberal arts demands fundamental computer skills and the ability to effectively process, utilize, and analyze various types of information. This lecture covers the fundamentals of information literacy and utilization, with topics on how to collect, organize, search, manage, analyze, present, and visualize information. In addition, the course will give a thorough overview of essential technologies for extracting and analyzing valuable knowledge and will introduce how to apply these technologies across various research fields.

[Course objectives]

Students will learn the fundamentals of information retrieval, processing, analysis, and presentation. In addition, they will understand when and how to use computational techniques to solve diverse problems.

[Course schedule and contents)]

- Processing and management of information (about 7 classes)
This part covers topics related to the automatic analysis and processing of information, information retrieval (search engines), and storage (relational databases).

- Analysis of information (about 4 classes)
This part covers the methods used for analyzing data, including practical information and data mining techniques (association rules, clustering techniques, decision trees, etc.) and machine learning approaches (supervised and unsupervised learning, etc.).

- Representation of information (about 2 classes)
This part covers topics related to information acquisition by computers (e.g., analog and digital data, multi-media, sampling theorem) and topics related to the representation of information (coding, information amount, entropy, Huffman code, mutual information).

- Information design (about 1 classes)
This part will cover data visualization techniques.

Total：14 classes, 1 feedback session.

Continue to Basic Informatics-E2(2)↓↓↓

Basic Informatics-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Grading will be based on the evaluation of submitted reports for each assignment. All assignments will be available via the PandA system.

[Textbooks]

Not used
All lecture slides will be available via the PandA system.

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Students will review materials after classes based on the lecture slides.

[Other information (office hours, etc.)]

No office hours are specified. E-mail: rafik.hadfi@i.kyoto-u.ac.jp

Lecture code: T051002

Course number	U-LAS30 10016 LE10 U-LAS30 10016 LE11 U-LAS30 10016 LE12				
Course title (and course title in English)	Basic Informatics-E2 Basic Informatics-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Senior Lecturer,EVEN, Jani Juhani luc		
Group	Informatics	Field(Classification)	(Foundations)		
Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.5	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

The transformation from am industrial society to an informational society that started in the seventies means that information has been playing an increasing role in society. Then, the development and adoption of modern communication technologies and internet gave it a central role in the economy. Nowadays, with the widespread use of smartphone and social media, information is part of every aspect of our lives. A huge amount of information at our disposal. As a result, in any career path, one must understand how information is processed by computers and be able to access, analyze, and visualize
information.
This course introduces the fundamentals for understanding how information is processed by computers. We will learn how the collection, organization, and management of a large quantity of information is achieved. Then, we will introduce techniques for searching and analyzing large amount of information. In addition to "classical approaches", recent technologies taking advantages of deep neural network will be presented. Finally, we will introduce ways of presenting and visualizing the information. The students will learn about the necessary technologies to extract knowledge from large amount of information, analyze that information and format the results in an appealing manner for presentation.

[Course objectives]

Students will learn how it is possible to handle large amount of information in an efficient manner. They will also acquire a general knowledge about information processing systems and an understanding of what techniques to use for a given problem.

[Course schedule and contents)]

The course starts with an overview presenting the different topics that will be covered to get a general idea of the content.
Then, the first part will present techniques for automatic information processing and management:
- information processing system
- information storage (relational databases)
- unstructured information (xml)

The next part will focus on accessing information:
- information retrieval and indexing (search engines)
- graph theory (page rank)

The next part we will deal with the representation of information by computers:
- information quantification (entropy)
- information acquisition (sampling and quantization)

Continue to Basic Informatics-E2(2)↓↓↓

Basic Informatics-E2(2)

- information representation (coding)

Then, will introduce techniques for information analysis:
- data mining
- "classical" machine learning
- deep neural networks-based machine learning

Finally, visualization techniques and information presentation will be discussed:
- diagram, graph and heatmap creation

One to two sessions for each item.
The schedule and contents are subject to change based on class progress.

Total：14 classes, 1 Feedback session

[Course requirements]

This is a beginner course: no prior experience is required. However, some mathematical developments require to be familiar with basic probabilities. Some basic computer skills are required for accessing the material (web browser) and submitting the assignments (writing or scanning). No programming skill is required as algorithms are presented using pseudo code in plain English.

[Evaluation methods and policy]

The evaluation will be based on assignments given after some of the classes (50%) and a final examination (50%).

[Textbooks]

No textbook, handouts.

[References, etc.]

（**Reference book**）
Some references will be given in class.

[Study outside of class (preparation and review)]

The students are expected to review the new material within the week of delivery in order to smoothly follow the course.

[Other information (office hours, etc.)]

There is no specific office hour. Students can use e-mails for important communications, assignments, and questions.

Lecture code: T018001

Course number	U-LAS30 10019 LE13		
Course title (and course title in English)	Information and Society-E2 Information and Society-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Associate Professor,HADFI Rafik
Group	Informatics	Field(Classification)	(Foundations)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.5	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Information technology profoundly impacts all aspects of modern society, including daily life, economics, governance, education, and various industries. It is, therefore, essential to acknowledge the historical development of information science and the evolution of its influence on our society if we aim for a deeper understanding and broader perspective on information-based societies. This lecture will provide foundational knowledge of information technology and the relationships between information technology and society. The course delves into the social impacts of Information and Communications Technology (ICT), information handling, information economics, intellectual property, media literacy, and social media.

[Course objectives]

The students will be able to articulate the impacts of ICT on society and the critical issues related to the information economy and information society. They will also be able to develop their perspectives on information technologies, information ethics, and their interactions with society.

[Course schedule and contents)]

1. Introduction:
Information, information society, Internet, the relation between information, society, and technology (about 2 weeks)

2. Information policy and ethics:
ICT infrastructure and the society, ICT policy in Japan, Society 5.0, Industry 4.0, ethical issues related to the information society (about 2 weeks)

3. Information and education:
Information education, computer literacy, media literacy, information literacy, e-learning, MOOC, blended learning, digital divide, e-books (about 2 weeks)

4. Information and law:
Freedom of expression, right to know, right to be forgotten, information privacy as well as intellectual and industrial property rights such as patents and copyrights (about 2 weeks)

5. Information and economy:
Economic transactions, search/recommendation models for products, information asymmetry, network externality, lock-in phenomenon, path dependence, electronic payments, e-commerce, advertising on the

Continue to Information and Society-E2(2)↓↓↓

Information and Society-E2(2)

Internet, the impact of the Internet on the economy (about 3 weeks)

6. Information archiving:
Digital content archiving, digital libraries, usage of archived contents, information validity over time (about 1 week)

7. Digital governance:
Digital democracy, digital community, social media, cloud computing (about 1 week)

8. Social computing:
Human computation, crowdsourcing, collective intelligence (about 1 week)

9. Feedback（1 week)

[Course requirements]

None

[Evaluation methods and policy]

The evaluation will be based on your reports for assignments. There are two types of assignments:
- Assignments of short answer questions (50%): Each assignment will cover 2-3 weeks’ lecture contents.
- Two essay writing assignments (1,000 English words) regarding specified topics (50%).

All the assignments will be available via the PandA system.

[Textbooks]

Not used
Lecture slides will be available via the PandA system.

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Students can review the course material after classes (slides).

[Other information (office hours, etc.)]

No office hours are specified. E-mail: rafik.hadfi@i.kyoto-u.ac.jp

Lecture code: T018002

Course number	U-LAS30 10019 LE13				
Course title (and course title in English)	Information and Society-E2 Information and Society-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Associate Professor,HADFI Rafik		
Group	Informatics	Field(Classification)	(Foundations)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Information technology profoundly impacts all aspects of modern society, including daily life, economics, governance, education, and various industries. It is, therefore, essential to acknowledge the historical development of information science and the evolution of its influence on our society if we aim for a deeper understanding and broader perspective on information-based societies. This lecture will provide foundational knowledge of information technology and the relationships between information technology and society. The course delves into the social impacts of Information and Communications Technology (ICT), information handling, information economics, intellectual property, media literacy, and social media.

[Course objectives]

The students will be able to articulate the impacts of ICT on society and the critical issues related to the information economy and information society. They will also be able to develop their perspectives on information technologies, information ethics, and their interactions with society.

[Course schedule and contents)]

1. Introduction:
Information, information society, Internet, the relation between information, society, and technology (about 2 weeks)

2. Information policy and ethics:
ICT infrastructure and the society, ICT policy in Japan, Society 5.0, Industry 4.0, ethical issues related to the information society (about 2 weeks)

3. Information and education:
Information education, computer literacy, media literacy, information literacy, e-learning, MOOC, blended learning, digital divide, e-books (about 2 weeks)

4. Information and law:
Freedom of expression, right to know, right to be forgotten, information privacy as well as intellectual and industrial property rights such as patents and copyrights (about 2 weeks)

5. Information and economy:
Economic transactions, search/recommendation models for products, information asymmetry, network externality, lock-in phenomenon, path dependence, electronic payments, e-commerce, advertising on the

Continue to Information and Society-E2(2)↓↓↓

Information and Society-E2(2)

Internet, the impact of the Internet on the economy (about 3 weeks)

6. Information archiving:
Digital content archiving, digital libraries, usage of archived contents, information validity over time (about 1 week)

7. Digital governance:
Digital democracy, digital community, social media, cloud computing (about 1 week)

8. Social computing:
Human computation, crowdsourcing, collective intelligence (about 1 week)

9. Feedback（1 week)

[Course requirements]

None

[Evaluation methods and policy]

The evaluation will be based on your reports for assignments. There are two types of assignments:
- Assignments of short answer questions (50%): Each assignment will cover 2-3 weeks’ lecture contents.
- Two essay writing assignments (1,000 English words) regarding specified topics (50%).

All the assignments will be available via the PandA system.

[Textbooks]

Not used
Lecture slides will be available via the PandA system.

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Students can review the course material after classes (slides).

[Other information (office hours, etc.)]

No office hours are specified. E-mail: rafik.hadfi@i.kyoto-u.ac.jp

Lecture code: T062001

Course number	U-LAS30 20041 LE10		
Course title (and course title in English)	Mathematics for Informatics I-E2 Mathematics for Informatics I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Senior Lecturer,EVEN, Jani Juhani luc
Group	Informatics	Field(Classification)	(Issues)

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.5	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course is an introduction to graph theory. Graph theory is a field of mathematics that studies graphs. A graph is a way to represent relationships. For example, graphs can be used to represent a train map or a social network. Graphs and graph theory play an important role in computer science.
The purpose of this course is as follows:

- Learn the mathematical definitions of graphs,
- Understand the important theorems of graph theory,
- Discover some practical applications of graphs,
- Get familiar with graph-based algorithms.

[Course objectives]

The students should be able to use graph theory to proposed efficient models for real-world problems and efficiently solve them using graphs-based algorithms.

[Course schedule and contents)]

The course starts by the definition of graph and some basic concepts.

- Graph definition, matrix representation and common families of graphs
- Distance in graph, walk, trail and path
- Degree, subgraphs, and graph isomorphism

Then, the following topics are discussed with a focus on applications and algorithms:

- Eulerian graphs, Fleury’s algorithm, and Hamiltonian graph
- Graph traversals, depth-first search, and depth-first search.
- Trees and directed trees.
- Spanning trees, minimum spanning trees, and algorithms (Kruskal and Prim)
- Network flow, cut and maximum flow
- Bipartite graphs: maximum bipartite matching,
- Planar graphs: Planarity testing
- Graph coloring: vertex coloring, edge coloring

One to two sessions for each item.
The schedule and contents are subject to change based on class progress.

Total：14 classes, 1 Feedback session.

Continue to Mathematics for Informatics I-E2(2)↓↓↓

Mathematics for Informatics I-E2(2)

[Course requirements]

This course does not require special knowledge. However, many of the algorithms and examples are from the field of computer science. Some basic programming skill is an advantage. But no specific programming language knowledge is necessary as the algorithms will be presented using pseudo-code written in plain English.

[Evaluation methods and policy]

The evaluation will be based on assignments given after some of the classes (30%) and a final examination during the last class (70%).
For each task, the evaluation criteria will be presented and a raw score grade [0-100] will be used.

[Textbooks]

No textbook, handouts.

[References, etc.]

（**Reference book**）
Jonathan L. Gross, Jay Yellen, “Graph theory and its applications, second edition” (Chapman and Hall) ISBN:978-1584885054

[Study outside of class (preparation and review)]

The students are expected to review the new material before the next class in order to smoothly follow the course.

[Other information (office hours, etc.)]

There is no specific office hour. Students can use e-mails for important communications, assignments, and questions.

Lecture code: T019001

Course number	U-LAS30 20031 LE11				
Course title (and course title in English)	Information Network-E2 Information Network-E2	Instructor's name, job title, and department of affiliation	Graduate School of Human and Environmental Studies Program-Specific Senior Lecturer,THIES, Holger		
Group	Informatics	Field(Classification)	(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Wed.5	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Using the Internet for gathering information, sending e-mails, and online shopping has become a part of everyday life. In this course, students will learn the basic workings of the Internet and how computers communicate across networks. Students will also learn about information security issues and how to avoid potential problems while using the Internet.

[Course objectives]

The students will learn the basics of the Internet and the various protocols used when devices communicate across the network, understand problems involving information security and how to deal with them, and learn the basic rules governing proper use of information networks.

[Course schedule and contents)]

The course consists of 15 sessions (14 class sessions + 1 feedback session).
We will cover the following topics during the course, and spend one or two weeks on each topic:

1) Overview of the Internet
2) Application Layer (World Wide Web, e-mail, etc.)
3) Transport Layer (sockets, TCP and UDP)
4) Network Layer (IP addresses and routing)
5) Link Layer (LANs and Ethernet)
6) Wireless and mobile networks
7) Security
8) Rules of Internet usage

[Course requirements]

No prerequisites are required, but it is recommended that the students take an introductory course such as "Basic Informatics" before this course.

Continue to Information Network-E2(2)↓↓↓

Information Network-E2(2)

[Evaluation methods and policy]

Students will be expected to understand the basic workings of the Internet, information security and proper use of information networks. The student's understanding of these topics will mainly be evaluated by a final report at the end of the course. Evaluation will also be influenced by performance on practice exercises given during the course. Approximately: exercises (40%), final report (60%).

[Textbooks]

Relevant materials will be distributed in class, so no textbook is required. However, students who wish to study the topics in more detail are recommended to read the book "Computer Networking" by J. Kurose and K. Ross (see below).

[References, etc.]

（**Reference book**）
J. Kurose and K. Ross 『Computer Networking: A top-down approach (7th Edition)』（Pearson, 2016）ISBN:978-0133594140

[Study outside of class (preparation and review)]

Students should study material related to each topic before class, and review the course material after each class. It is also recommended that students gain first-hand experience of the topics discussed by using computers outside of class.

[Other information (office hours, etc.)]

Lecture code: T063001

Course number	U-LAS30 20042 SE11		
Course title (and course title in English)	Programming Practice (Python) -E2 Programming Practice (Python) -E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Senior Lecturer,EVEN, Jani Juhani luc

Group	Informatics	Field(Classification)	(Issues)

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・Second semester
Days and periods	Mon.5	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course is an introduction to the Python programming language for students without prior programming experience.
Python is beginner friendly as it is designed to create easily readable programs. However, it is possible to rapidly develop various types of applications because Python has a very large collection of high-quality libraries. Python is also extensively used in academic research. In addition, Python is open source and freely available for all major platforms.

[Course objectives]

In this course, students will first learn the syntax of the Python language and the structure of a Python program. Then, they will learn to use some of the standard data structures provided by the Python language and some of its popular libraries. Finally, students will train in designing, writing, and testing their own programs.
After attending the course, students should be able to:
- Understand and modify existing simple programs.
- Design, implement, and test their own simple programs.
- Design, implement, and test their own simple graphical interfaces.

[Course schedule and contents)]

Introduction (1 session)
- Computer hardware and programming languages,
- Python in today's programming landscape,
- Example of real-world Python use.

Part 1: Learning the syntax of Python (10 session)
In this part, the students will learn the fundamentals of the Python programming language by studying small example programs and completing simple programming tasks.
The presentation will include the following topics:
- Discover Python using the interactive mode
- Running a Python script
- Numeric data and Boolean
- Naming and comments
- Control structures
- Data structures (list, dictionary, string)

Continue to Programming Practice (Python) -E2(2)↓↓↓

Programming Practice (Python) -E2(2)

- Object oriented programming with Python
- Input and Output
- Error handling
- Using Python modules
- Graphical User Interface (GUI) for Python
- Scientific computation with Python

Part 2: Programming practice (3 sessions)
The goal is to put in application the knowledge acquired in part 1 and experience real-world software development challenges.
The students will have to:
- Propose a solution,
- Implement the solution,
- Test the solution.

The schedule and contents are subject to change based on class progress.

Total 14 classes and one feedback class.

[Course requirements]

This is a beginner course: no prior programming experience is required. It is a practical course: The mathematical foundations are not presented and concepts are presented using simple programs. Simple programs will be provided to introduce and explain all the concepts that are presented.
Students must bring their own computer to participate to this course (BYOD).
The course will be using Python 3 (Anaconda's Python environment) which is available for free on any recent versions of the main operating systems (Windows, Mac, or Linux) and is easy to install.

[Evaluation methods and policy]

The evaluation will be based on:
1.Some assignments given during part 1 (50%)
2.A final programming task done during part 2 (50%).
The notation criteria will be explained during the classes.

[Textbooks]

do not use

[References, etc.]

(Reference book)
For an application-oriented presentation, you can see [1] for an in-depth presentation you can refer to [2].
There are many on-line resources about Python, check the official Python website (https://www.python.org/).
[1] Al Sweigart, Automate the Boring Stuff with Python, 2nd edition, (No Starch Press) ISBN: 978-1593279929 (Python3)
[2] Mark Lutz, Programming Python, 5th Edition, (O'Reilly Media, Inc.) ISBN: 9781449398712 (Python2 & Python3)

[Study outside of class (preparation and review)]

Students should review the class material during the delivery week in order to smoothly follow the course.
Students who could not complete the tasks given during a class should complete them before the next class in

Continue to Programming Practice (Python) -E2(3)↓↓↓

order to smoothly follow the course.

[Other information (office hours, etc.)]

There is no specific office hour. Students can use e-mails for important communications, assignments, and questions.

Lecture code: T063002

Course number	U-LAS30 20042 SE11				
Course title (and course title in English)	Programming Practice (Python) -E2 Programming Practice (Python) -E2		**Instructor's name, job title, and department of affiliation**	Graduate School of Human and Environmental Studies Program-Specific Senior Lecturer,THIES, Holger	
Group	Informatics		**Field(Classification)**	(Issues)	
Language of instruction	English	**Old group**		**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Seminar	**Year/semesters**	2023・First semester
Days and periods	Tue.5/Thu.5	**Target year**	All students	**Eligible students**	For all majors

[Overview and purpose of the course]

This course is an introduction to the Python programming language for students without prior programming experience. Python is a beginner friendly programming language that is widely used in academic research and industry. In the course students will learn about basic programming concepts and how to write their own simple programs using Python.

[Course objectives]

Students will learn the basics of programming using the Python programming language, including data types, conditionals and loops, basic data structures, functions and the fundamentals of object oriented programming. They will also learn how to solve real-world problems by designing, writing and testing their own Python programs.
After attending the course students should be able to:
- Understand the fundamentals of programming (variables, control structures, data types, etc.)
- Understand and modify simple Python programs
- Design, implement and test their own simple programs

[Course schedule and contents)]

The course consists of 14 class sessions and one feedback session.
The tentative schedule is as follows:

Introduction (1 session)
- Computer hardware and programming languages
- Installing and using Python
- Editing, saving and running a script.

Basic syntax and data types (1 session)
- Variables, naming rules and comments
- Assignments and basic data types
- Input and Output

Control structures (2 sessions)
- Boolean values and Conditional statements
- Loops
- Logical and Bitwise Operations

Continue to Programming Practice (Python) -E2(2)↓↓↓

Programming Practice (Python) -E2(2)

- Lists and Collection data types

Functions (1 session)
- Writing and Calling Functions
- Function Inputs and Outputs
- Scope

Modules and packages (1 session)
- Concept of modules
- Importing modules
- Some important built-in modules

I/O and error handling (1 session)
- Reading data from a file
- Writing data to a file
- Error handling and exceptions

Object oriented programming with Python (2 sessions)
- Classes, Properties and Methods
- Inheritance

GUI application development (2 sessions)
- Learn how to write simple Graphical User Interfaces (GUIs)

Practice Project (3 sessions)
Students will use the knowledge acquired during the first part of the course to solve a small programming project.
They will be required to
- Select and define a problem
- Propose and implement a solution
- Test the solution

The precise course schedule and contents are subject to change depending on class progress.

[Course requirements]

This is a beginner course, no prior knowledge is required.
The course is practical: Students are required to write their own programs using the Python programming language.
It is recommended that students use their own computer and install the necessary software. Installation instructions will be given during the first lecture, no prior installation is necessary.
For students who do not have access to a programming environment, online services providing Python 3 in a web browser can be used instead.

[Evaluation methods and policy]

Evaluation will be based on in-class and homework assignments (70%) and final project (30%).

Continue to Programming Practice (Python) -E2(3)↓↓↓

Programming Practice (Python) -E2(3)

[Textbooks]

No textbook is required. Relevant materials will be distributed in class.

[References, etc.]

（**Reference book**）

Mark Lutz 『Learning Python, 5th edition』（O’Reilly Media, Inc.）ISBN:978-1449355739
Allen B. Downey 『Think Python: How to Think Like a Computer Scientist, 2nd edition』（O’Reilly Media, Inc.）ISBN:978-1491939369

[Study outside of class (preparation and review)]

Students should review the material after each class and solve weekly homework assignments.

[Other information (office hours, etc.)]

There is no specific office hour. Students can contact the instructor by email in case of questions.

Lecture code: T061001

Course number	U-LAS30 20040 SE11				
Course title (and course title in English)	Programming Practice (Java) -E2 Programming Practice (Java) -E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Informatics Program-Specific Senior Lecturer,EVEN, Jani Juhani luc		
Group	Informatics	**Field(Classification)**	(Issues)		
Language of instruction	English	**Old group**		**Number of credits**	4
Number of weekly time blocks	2	**Class style**	Seminar	**Year/semesters**	2023・First semester
Days and periods	Mon.4・5	**Target year**	All students	**Eligible students**	For all majors

[Overview and purpose of the course]

Java is an object-oriented language that is designed to be robust, secure, and portable while maintaining high performance. Java is a popular language used for numerous desktop applications, mobile applications, and web applications. Java has many libraries covering among others graphical user interface, networking, database access and scientific computing. The learning curve of Java is higher than that of simpler language like Python or Ruby but the reward is a higher maintainability.
In this course, students will learn to write programs that exploit the strengths of Java. First, the language will be presented and students will familiarize themselves with object-oriented programming while learning the basics of Java. Then, more advanced topics will be presented and illustrated with problem solving.

[Course objectives]

In this course, the students will learn the concepts of object-oriented programming, practice object-oriented programming with Java and learn to solve real problems using programming. After attending this course, the students should be able to write efficient object-oriented Java programs that are easy to maintain.

[Course schedule and contents)]

Part 1: Basic Java syntaxe (2 sessions)
- Basic Java syntax: types, variables, operators
- Flow control: Branching and looping
- Arrays

Part 2: Object-oriented programming with Java (3 sessions)
- Object-oriented programming and Java Classes
- Class fields and methods
- Class creation and instances
- References and values
- Access Control, scope, package
- Interface
- Inheritance

Part 3: Programming with Java (6 sessions)
- Java API
- Exceptions
- I/O

Continue to Programming Practice (Java) -E2(2)↓↓↓

Programming Practice (Java) -E2(2)

- Parallel processing
- Functional interface and lambda expressions
- GUI using JavaFX
- Network programming

Part 4: Program design, implementation, and test (3 sessions)
- Problem presentation
- Program design
- Implement and test

The schedule and contents are subject to change based on class progress.

Total 14 classes and one feedback class.

[Course requirements]

This course is designed for students with some programming experience in another language. The basics of programming are briefly presented so motivated students with no programming experience can apply. This is a practical programming class that does not present the mathematical foundations and focuses on programs themselves. Small programs will be given to introduce and explain all the concepts that are presented
The students are expected to complete the programming tasks in parts 1 to 3 during the classes. However, the programming task of part 4 and the assignments may require some homework outside of the classes.
Students must bring their own computer to participate to this course (BYOD).
Installing Java is easy on standard operating systems (Windows, Mac, and Linux).

[Evaluation methods and policy]

The evaluation will be based on the completion of the programming assignments given during the classes part 1 to 3 (70 %) and the program developed in part 4 (30 %). The notation criteria will be explained in details during the classes.

[Textbooks]

No textbook, handouts.

[References, etc.]

（**Reference book**）

[1] David J. Eck “Introduction to programming using Java, eight edition” (creative commons) ISBN: 978-1441419767
[2] Hideki Tachiki and Taeko Ariga “JAVA Programming 3rd Edition for All” (Kyoritsu Shuppan) ISBN: 978-4-320-12423-3
[3] Java API (for java8: https://docs.oracle.com/javase/8/docs/api/)

[Study outside of class (preparation and review)]

If very unfamiliar with programming, it may be necessary to read a textbook and practice programming in addition to the class. Students who could not complete the taks given during a class should complete them before the next class in order to smoothly follow the course.

[Other information (office hours, etc.)]

There is no specific office hour. Students can use e-mails for important communications, assignments, and questions.

Lecture code: T058001

Course number	U-LAS30 20038 SE10		
Course title (and course title in English)	Programming Practice (R)-E2 :For managing and analysing data Programming Practice (R)-E2 :For managing and analysing data	Instructor's name, job title, and department of affiliation	Graduate School of Agriculture Professor,Daniel Epron

Group	Informatics	Field(Classification)	(Issues)

Language of instruction	English	Old group		Number of credits	2

Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・Second semester
Days and periods	Mon.5	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

R is a programming language whose purpose is to be able to process and organize data sets, and to represent these data graphically. Since the two last decades, R is widely used by scientists worldwide for data management and statistical analyses. This course aims to get students to start using R for analysing data and interpreting the output of basic statistical tests. Classes are taught in the form of practical exercises on computers.

[Course objectives]

Upon successful completion of this course students will be able (i) to design and statistically analyse a simple experimental plan using R, (ii) to find and perform by themselves an accurate test for solving their scientific question, even if it has not been specifically addressed during the course and (iii) to produce smart graphics for the presentation of analysed data.

[Course schedule and contents)]

The course will simultaneously address how to use the R language to manage data, to implement relevant statistical tests and to generate graphical output

Course schedule:

1. Introduction
2. object in R: vectors, matrix, functions
3. data frame -importing data
4. Descriptive statistics
5. Programming with R and random numbers
6. Study of the distribution of quantitative variables
7. Importing, managing and analysing data (1)
8. Importing, managing and analysing data (2)
9. Linear model: linear regression
10. Importing, managing and analysing data (3)
11. Linear model: analysis of variance
12. Improving the quality of graphics for a presentation or report
13. Analysing a dataset: building the script and writing a report (1)
14. Analysing a dataset: building the script and writing a report (2)
15. Feedback

Continue to Programming Practice (R)-E2 :For managing and analysing data(2)↓↓↓

[Course requirements]

All students are welcome

Students will have to bring their own laptops to use in class that they will also use for homework. Students have to download and install R software and R-studio software before starting the course.

[Evaluation methods and policy]

Grading: Homework (three to five, 50%), script and report based on the final exercise (50%).

In no case will English language proficiency be a criterion for evaluating students.

Class attendance is expected: students who are absent more than three times without sound reasons (documented unavoidable absence) will not be credited.

[Textbooks]

Lecture notes will be provided before the class and R scripts will be provided after each class (uploaded on PandA).

[References, etc.]

（**Reference book**）

An Introduction to R (https://cran.r-project.org/manuals.html)

[Study outside of class (preparation and review)]

Work not finished in class time should be finished at home. Self-training is recommended: exercises will be provided.

[Other information (office hours, etc.)]

Students are encouraged to ask questions and to make comments during the class.

Students are welcome to arrange appointments by email, even outside the official office hour, for questions and discussion

Lecture code: T050001

Course number	U-LAS30 20033 SE11		
Course title (and course title in English)	Processing and Analyzing Data I-E2 : Shell-based data processing fundamentals Processing and analyzing data I-E2 :Shell-based data processing fundamentals	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,VEALE, Richard Edmund

Group	Informatics	Field(Classification)	(Issues)

Language of instruction	English	Old group		Number of credits	2

Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・Second semester
Days and periods	Fri.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

As the world and the sciences become increasingly computerized, it is increasingly important to understand how to search, process, and analyse large bodies of digital data. This course is designed for all students of all disciplines. The purpose is to learn the the basic concepts and methods for systematic processing of data encountered in any field.

Lectures will focus on learning basic command line tools for automatic processing of data, including sorting, filtering, summarizing, searching, and other related programming.

[Course objectives]

At the end of the course, students should be able to operate a computer to automatically:

(1) search for specific entries in large collections of data

(2) search for pattern-like entries in large collections of data

(3) filter desired content from large collection of data

(4) perform basic summary and counting statistics on data

(5) assemble small processing pipelines from the various tools they will study

[Course schedule and contents)]

(1) What is a computer, what is an operating system?
Remove microsoft/apple preconceptions.
Using Command Line Interfaces (CLI) to interact with computers: Shell.
Logging in to a remote machine (SSH, public/private keys, etc.)

(2) Using remote and local machines.
Basic Networking: TCP, FTP/HTTP, IP.
Managing data: Disk management, file systems, file system structure (tree), file permissions.
Moving data between machines: SCP, RSYNC.
Installing software: package managers (RPM, APT).
Security: Super User (su, sudo), users, groups.
Diagnostic tools: PS, HTOP, DF, etc.

(3) Complex commands for string manipulation and search.
Moving data between programs: standard in/out/error streams, piping, redirecting.
String manipulation: Regular Expressions, wildcards, AWK, SED
Loops: for/while loops, loop conditions.

Continue to Processing and Analyzing Data I-E2 :Shell-based data processing fundamentals(2)↓↓↓

Finding information: Stack Overflow, MAN pages.

(4) Shell Scripts and programming languages.
What is a "program"? Libraries, functions, paths, environmental variables.
Programming languages: interpreted versus compiled, lazy versus strict evaluation, data types. Python, R, Perl, Fortran, C/C++, Java.

(5) Data Formats
Binary versus Textual (CSV etc.). HDF5 (computer independent representation).
Statistics: Summary statistics on data. Good/bad ways of thinking.

(6) Data representation/presentation
Simple plotting/graphing (matlab, matplotlib, R, ggplot, gnuplot).
Why excel is bad (limitations).
Formats: PDF, vector versus raster.

(7) Representation of large data sets.
(Relational) Databases, SQL, "queries", subsets.

(8) Keeping track of your work (Version Control).
Version Control: CVS, SVN, GIT, mercurial. Remote versus local repositories.
Backing up: Version Control is not back-up. Backing up practices (tape, disks, etc.).

(9) Data processing THEORY
Best practices: concepts to reproduce reusibility.
Basic parallelization (GNU parallel).

(10) "Big Data" processing.
Parallelizing: MapReduce, Hadoop, Spark, MPI.
Big filesystems: HDFS, lustre, NFS.
Clusters, Supercomputers.
Scheduling computer time and resources (scheduler): TORQUE

(11) Modeling, optimization, parameter search
Gradient descent methods, neural networks
Parameter estimation: markov chain monte-carlo, evolutionary algorithms.
Random seeds: pseudorandom issues on large machines

(12) Project

(13) Project

(14) Project (presentations)

(15-16) Feedback

Continue to Processing and Analyzing Data I-E2 :Shell-based data processing fundamentals(3)↓↓↓

[Course requirements]

No prior knowledge of computer programming or data processing is necessary

[Evaluation methods and policy]

Class attendance and participation (10%), Quizzes (40%), Final Project/Report (50%)

[Textbooks]

No textbook used, lecture materials will be provided in class and online via PANDA.
Documentation about processing tools (e.g. manpages) will be introduced in class.

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Students are strongly recommended to practice class materials and on their own data outside of class to deepen their understanding.

[Other information (office hours, etc.)]

A personal computer is strongly recommended and makes the course significantly more accessible. While Windows-based, macOS-based and GNU/Linux systems are all acceptable, the majority of the course will focus on UNIX-based tools.

Lecture code: T057001

Course number	U-LAS30 20036 LE10		
Course title (and course title in English)	Fundamentals of Artificial Intelligence-E2 Fundamentals of Artificial Intelligence-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Associate Professor,CHU, Chenhui

Group	Informatics	Field(Classification)	(Issues)

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Recent development in artificial intelligence techniques (AI), in particular the set of techniques commonly referred to as "deep learning," has significantly increased the number of tasks that computers can solve easily. This leads to a current explosion in the use of AI: chatbots helping users on commercial websites, self-driving cars, automatic translation, automatic photo tagging, etc. It is, of course, not possible to introduce all aspects of AI in one semester, but this course will attempt to give a sufficiently detailed explanation of at least a few of the most common AI techniques. We will focus on supervised machine learning in general and deep learning in particular. One goal will be to give practical and working knowledge to students so that they can apply what they learned to at least some simple tasks.

[Course objectives]

Students will have a good understanding of simple supervised machine learning techniques and be able to implement and use some for automatic classification tasks.

[Course schedule and contents)]

1. Overview of Artificial Intelligence and this Course (1 week)
This will give a "big picture" description of the field of AI. We would first discuss some common applications of AI: game AI, chatbots, machine translation, automation (self-driving vehicles, robots), etc. Then we will discuss the paradigm of machine learning (supervised, semi-supervised, and unsupervised) and give an overview of this course.

2. Review of Mathematics Concepts (3 weeks)
Firstly, we will spend one lecture studying the basics of the Python programming language. Then, we will review some of the mathematics concepts that are the most necessary for the understanding of AI methods. In particular, we will review essential notions of calculus and optimization (derivative, numerical methods for finding a minimum), vector, and matrix. Finally, we will learn how to minimize a function with stochastic gradient descent and implement it in Python.

3. Basic Supervised Machine Learning (3 weeks)
Focusing on simple tasks of simple/multiple linear regression and classification, we introduce the terminology and basics of machine learning: defining a parameterized model, defining a loss, train the model parameters by minimizing the loss. We will also introduce how to implement simple/multiple linear regression in Python.

Continue to Fundamentals of Artificial Intelligence-E2(2)↓↓↓

4. Deep Learning (3 weeks)
We will first introduce the basic ideas of deep learning neural networks. Then we will study the architecture of neural networks and the back-propagation algorithm for optimizing neural networks. Finally, we will look at one of the most important types of neural network architectures: feed-forward with fully-connected layers and study how to implement them using the deep learning framework Chainer.

5. Computer Vision and Natural Language Processing (4 weeks)
We will first give a brief introduction to computer vision: what is an image for a computer; what are convolution layers? Then we will study how to build an object recognition neural network with convolution layers, max-pooling layers, and fully-connected layers. Next, we will implement and train a real object recognition neural network in Chainer. Finally, we will have a quick look at recurrent architectures and how they are used to process text. As a final application, students will be asked to solve a real problem in their studies using the models (either basic supervised machine learning or deep learning) introduced in this course.

10. Feedback (1 week)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation is based on class participation (15%), mini-reports and exercises (60%), and the final report of solving a real problem in students' studies using the models learned in this course (25%).

[Textbooks]

Lecture handouts will be provided in the class.

[References, etc.]

（**Reference book**）
Ian Goodfellow, Yoshua Bengio and Aaron Courville 『Deep Learning』（The MIT Press）ISBN:978-0262035613（2016）

[Study outside of class (preparation and review)]

The instructor expects students to spend over 60 minutes after each class reviewing the content. Some practical exercises will also be given at the end of some lectures so as to let the students see how much of the content they do understand practically.

[Other information (office hours, etc.)]

No office hours are specified. But, questions and requests are welcome by email.

Lecture code: T057002

Course number	U-LAS30 20036 LE10		
Course title (and course title in English)	Fundamentals of Artificial Intelligence-E2 Fundamentals of Artificial Intelligence-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Associate Professor,CHU, Chenhui

Group	Informatics	Field(Classification)	(Issues)

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Recent development in artificial intelligence techniques (AI), in particular the set of techniques commonly referred to as “deep learning,” has significantly increased the number of tasks that computers can solve easily. This leads to a current explosion in the use of AI: chatbots helping users on commercial websites, self-driving cars, automatic translation, automatic photo tagging, etc. It is, of course, not possible to introduce all aspects of AI in one semester, but this course will attempt to give a sufficiently detailed explanation of at least a few of the most common AI techniques. We will focus on supervised machine learning in general and deep learning in particular. One goal will be to give practical and working knowledge to students so that they can apply what they learned to at least some simple tasks.

[Course objectives]

Students will have a good understanding of simple supervised machine learning techniques and be able to implement and use some for automatic classification tasks.

[Course schedule and contents)]

1. Overview of Artificial Intelligence and this Course (1 week)
This will give a “big picture” description of the field of AI. We would first discuss some common applications of AI: game AI, chatbots, machine translation, automation (self-driving vehicles, robots), etc. Then we will discuss the paradigm of machine learning (supervised, semi-supervised, and unsupervised) and give an overview of this course.

2. Review of Mathematics Concepts (3 weeks)
Firstly, we will spend one lecture studying the basics of the Python programming language. Then, we will review some of the mathematics concepts that are the most necessary for the understanding of AI methods. In particular, we will review essential notions of calculus and optimization (derivative, numerical methods for finding a minimum), vector, and matrix. Finally, we will learn how to minimize a function with stochastic gradient descent and implement it in Python.

3. Basic Supervised Machine Learning (3 weeks)
Focusing on simple tasks of simple/multiple linear regression and classification, we introduce the terminology and basics of machine learning: defining a parameterized model, defining a loss, train the model parameters by minimizing the loss. We will also introduce how to implement simple/multiple linear regression in Python.

Continue to Fundamentals of Artificial Intelligence-E2(2)↓↓↓

4. Deep Learning (3 weeks)
We will first introduce the basic ideas of deep learning neural networks. Then we will study the architecture of neural networks and the back-propagation algorithm for optimizing neural networks. Finally, we will look at one of the most important types of neural network architectures: feed-forward with fully-connected layers and study how to implement them using the deep learning framework Chainer.

5. Computer Vision and Natural Language Processing (4 weeks)
We will first give a brief introduction to computer vision: what is an image for a computer; what are convolution layers? Then we will study how to build an object recognition neural network with convolution layers, max-pooling layers, and fully-connected layers. Next, we will implement and train a real object recognition neural network in Chainer. Finally, we will have a quick look at recurrent architectures and how they are used to process text. As a final application, students will be asked to solve a real problem in their studies using the models (either basic supervised machine learning or deep learning) introduced in this course.

10. Feedback (1 week)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation is based on class participation (15%), mini-reports and exercises (60%), and the final report of solving a real problem in students’ studies using the models learned in this course (25%).

[Textbooks]

Not used
Lecture handouts will be provided in the class.

[References, etc.]

（**Reference book**）
Ian Goodfellow, Yoshua Bengio and Aaron Courville 『Deep Learning』（The MIT Press）ISBN:978-0262035613

[Study outside of class (preparation and review)]

The instructor expects students to spend over 60 minutes after each class reviewing the content. Some practical exercises will also be given at the end of some lectures so as to let the students see how much of the content they do understand practically.

[Other information (office hours, etc.)]

No office hours are specified. But, questions and requests are welcome by email.

Lecture code: T047001

Course number	U-LAS30 20027 LE13				
Course title (and course title in English)	Information Literacy for Academic Study-E2 Information Literacy for Academic Study-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Associate Professor,CHU, Chenhui		
Group	Informatics	Field(Classification)	(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Effective and efficient utilization of information is one key point for studying at university. This course introduces various resources and methods that help students find valuable information for their studies. The practical topics include formulating a study strategy, developing search skills, evaluating sources, and referring to sources.

[Course objectives]

Students will be able to conduct effective decision-making and problem-solving in their academic studies by learning the methodologies of identifying, searching, evaluating, using, and presenting the information.

[Course schedule and contents)]

1. Introduction of Information Literacy (1 week)
This lecture introduces the fundamental concepts of information literacy, the standards of information literacy for higher education, and the relation between university studies and information literacy.

2. Study Strategies (2 weeks)
This lecture discusses how a student sets up an appropriate procedure to complete an assigned study/research task, such as determining the information needed, identifying the topic, developing a search strategy, collecting related information, and accomplishing the task.

3. Searching in Library (1 week)
This lecture first introduces the general organization of a library and then provides methods of locating the information needed at the library, which includes browsing shelves, checking card catalogs, and using an online catalog.

4. Searching Databases (1 week)
This lecture introduces the basic architecture of a database first, then the key items and methodologies for indexing. Afterward, finding an article from magazines, newspapers, journals, and reference books in full text or reference databases is discussed.

5. Searching the Internet (2 weeks)
This lecture first introduces the architecture of the World Wide Web, then explains the search engines, including their foundation, principles, elements, and working flow (crawling, indexing, and query). By explaining how search engines rank results and how PageRank measures individual web pages, we discuss

Continue to Information Literacy for Academic Study-E2(2)↓↓↓

the method of precisely locating information from the internet.

6. Evaluating Sources (3 weeks)
This lecture explains the differences between various information materials and their formats and introduces the evaluation criteria that one needs to apply to sources.

7. Referring Sources and Academic Integrity (2 weeks)
This lecture introduces the reasons, rules, and types of citing sources. The issues of copyright and plagiarism and their relationships are discussed as well.

8. Presenting Information (2 weeks)
This lecture provides tips as to how efficiently present the information gathered in research work.

9. Feedback (1 week)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation is based on class participation (15%) and assignments (85%).

[Textbooks]

Lecture handouts will be provided in the class.

[References, etc.]

(**Reference book**)

[Study outside of class (preparation and review)]

The instructor expects students to spend over 60 minutes after each class reviewing the content and building up their own logic.

[Other information (office hours, etc.)]

No office hours are specified. However, questions and requests are welcome by email.

Lecture code: T052003

Course number	U-LAS30 20030 LE10				
Course title (and course title in English)	Introduction to Algorithms-E2 Introduction to Algorithms-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Associate Professor,Jesper Jansson		
Group	Informatics	Field(Classification)	(Issues)		
Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

An algorithm is a well-defined procedure for solving a computational problem.
Reliable algorithms have become crucial components of people's daily lives; for example, the Internet or our smartphones would not work without them.
The purpose of this course is to provide a basic introduction to algorithms for non-computer science students.
General techniques for designing algorithms and analyzing their efficiency, as well as examples of widely used algorithms with important real-life applications, will be presented.

[Course objectives]

After completing this course, the student should be able to:
- Apply various algorithm design techniques for solving computational problems.
- Measure the efficiency of an algorithm.
- Explain how famous algorithms such as Google's PageRank, Quicksort, and Dijkstra's shortest-path algorithm work.

[Course schedule and contents)]

The course will cover the following topics:
1. Introduction
2. Graph traversal
3. Data compression
4. Cryptography
5. Topological sort
6. Shortest paths
7. PageRank
8. Voting systems
9. Searching
10. Sorting
11. Hash tables
12. String matching
13. Randomization
14. Course summary and Q & A session
<<Final examination>>
15. Feedback

Continue to Introduction to Algorithms-E2(2)↓↓↓

Introduction to Algorithms-E2(2)

[Course requirements]

An ability to think abstractly and to solve problems of a mathematical nature will be required for this course.
No programming skills are needed.

[Evaluation methods and policy]

A written examination at the end of the course.

[Textbooks]

P. Louridas 『Real-World Algorithms - A Beginner's Guide』 （The MIT Press, 2017. ISBN-13: 978-0262035705.）

[Study outside of class (preparation and review)]

Students will be expected to spend about 3 hours per week to prepare for and review the lessons.

[Other information (office hours, etc.)]

Lecture code: T052002

Course number	U-LAS30 20030 LE10		
Course title (and course title in English)	Introduction to Algorithms-E2 Introduction to Algorithms-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Associate Professor,Jesper Jansson

Group	Informatics	Field(Classification)	(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

An algorithm is a well-defined procedure for solving a computational problem.
Reliable algorithms have become crucial components of people's daily lives; for example, the Internet or our smartphones would not work without them.
The purpose of this course is to provide a basic introduction to algorithms for non-computer science students. General techniques for designing algorithms and analyzing their efficiency, as well as examples of widely used algorithms with important real-life applications, will be presented.

[Course objectives]

After completing this course, the student should be able to:
- Apply various algorithm design techniques for solving computational problems.
- Measure the efficiency of an algorithm.
- Explain how famous algorithms such as Google's PageRank, Quicksort, and Dijkstra's shortest-path algorithm work.

[Course schedule and contents)]

The course will cover the following topics:
1. Introduction
2. Graph traversal
3. Data compression
4. Cryptography
5. Topological sort
6. Shortest paths
7. PageRank
8. Voting systems
9. Searching
10. Sorting
11. Hash tables
12. String matching
13. Randomization
14. Course summary and Q & A session
<<Final examination>>
15. Feedback

Continue to Introduction to Algorithms-E2(2)↓↓↓

Introduction to Algorithms-E2(2)

[Course requirements]

An ability to think abstractly and to solve problems of a mathematical nature will be required for this course. No programming skills are needed.

[Evaluation methods and policy]

A written examination at the end of the course.

[Textbooks]

P. Louridas 『Real-World Algorithms - A Beginner's Guide』（The MIT Press, 2017. ISBN-13: 978-0262035705.）

[Study outside of class (preparation and review)]

Students will be expected to spend about 3 hours per week to prepare for and review the lessons.

[Other information (office hours, etc.)]

Lecture code: T065001

Course number	U-LAS30 20044 LE10		
Course title (and course title in English)	Introduction to Formal Languages-E2 Introduction to Formal Languages-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Informatics Program-Specific Associate Professor,Jesper Jansson
Group	Informatics	**Field(Classification)**	(Issues)

Language of instruction	English	**Old group**		**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Mon.1	**Target year**	All students	**Eligible students**	For all majors

[Overview and purpose of the course]

Formal language theory is a fundamental area of theoretical computer science that studies (among other things) different ways of representing possibly infinite collections of words having some shared structure.
It is closely related to computability, computational complexity, and mathematical logic, and has practical applications in linguistics, artificial intelligence, and the design of programming languages.
The purpose of this course is to provide an introduction to formal language theory for non-computer science students.
The main topics include finite-state automata, regular languages, pushdown automata, context-free languages, Turing machines, and decidability.

[Course objectives]

After completing this course, the student should be able to:
- Explain the relationships between different classes of formal languages, automata, and grammars.
- Design an automaton or a grammar that accepts or generates a specified formal language, and conversely, determine the formal language that is accepted or generated by a specified automaton or grammar.
- Prove or disprove mathematical properties of formal languages, grammars, and automata.
- Use the diagonalization method or reductions to establish that certain languages are undecidable.
- Understand how the concept of "information" can be defined using computability theory.

[Course schedule and contents)]

The course will cover the following topics:
1. Introduction
2. Finite-state automata, regular languages, nondeterminism (1)
3. Finite-state automata, regular languages, nondeterminism (2)
4. Finite-state automata, regular languages, nondeterminism (3)
5. Finite-state automata, regular languages, nondeterminism (4)
6. Pushdown automata, context-free languages, grammars (1)
7. Pushdown automata, context-free languages, grammars (2)
8. Pushdown automata, context-free languages, grammars (3)
9. Turing machines (1)
10. Turing machines (2)
11. Decidability
12. Reducibility (1)
13. Reducibility (2)

Continue to Introduction to Formal Languages-E2(2)↓↓↓

14. Course summary and Q & A session
<<Final examination>>
15. Feedback

[Course requirements]

An ability to think abstractly and to solve problems of a mathematical nature will be required for this course.
No programming skills are needed.

[Evaluation methods and policy]

A written examination at the end of the course.

[Textbooks]

M. Sipser 『Introduction to the Theory of Computation, Third Edition』 （Cengage Learning）ISBN:978-1133187790（2012）

[Study outside of class (preparation and review)]

Students will be expected to spend about 3 hours per week to prepare for and review the lessons.

[Other information (office hours, etc.)]

Lecture code: T065002

Course number	U-LAS30 20044 LE10		
Course title (and course title in English)	Introduction to Formal Languages-E2 Introduction to Formal Languages-E2	Instructor's name, job title, and department of affiliation	Graduate School of Informatics Program-Specific Associate Professor,Jesper Jansson

Group	Informatics	Field(Classification)	(Issues)

Language of instruction	English	Old group		Number of credits	2

Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Mon.1	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Formal language theory is a fundamental area of theoretical computer science that studies (among other things) different ways of representing possibly infinite collections of words having some shared structure.
It is closely related to computability, computational complexity, and mathematical logic, and has practical applications in linguistics, artificial intelligence, and the design of programming languages.
The purpose of this course is to provide an introduction to formal language theory for non-computer science students.
The main topics include finite-state automata, regular languages, pushdown automata, context-free languages, Turing machines, and decidability.

[Course objectives]

After completing this course, the student should be able to:
- Explain the relationships between different classes of formal languages, automata, and grammars.
- Design an automaton or a grammar that accepts or generates a specified formal language, and conversely, determine the formal language that is accepted or generated by a specified automaton or grammar.
- Prove or disprove mathematical properties of formal languages, grammars, and automata.
- Use the diagonalization method or reductions to establish that certain languages are undecidable.
- Understand how the concept of "information" can be defined using computability theory.

[Course schedule and contents)]

The course will cover the following topics:
1. Introduction
2. Finite-state automata, regular languages, nondeterminism (1)
3. Finite-state automata, regular languages, nondeterminism (2)
4. Finite-state automata, regular languages, nondeterminism (3)
5. Finite-state automata, regular languages, nondeterminism (4)
6. Pushdown automata, context-free languages, grammars (1)
7. Pushdown automata, context-free languages, grammars (2)
8. Pushdown automata, context-free languages, grammars (3)
9. Turing machines (1)
10. Turing machines (2)
11. Decidability
12. Reducibility (1)
13. Reducibility (2)

Continue to Introduction to Formal Languages-E2(2)↓↓↓

Introduction to Formal Languages-E2(2)

14. Course summary and Q & A session
<<Final examination>>
15. Feedback

[Course requirements]

An ability to think abstractly and to solve problems of a mathematical nature will be required for this course.
No programming skills are needed.

[Evaluation methods and policy]

A written examination at the end of the course.

[Textbooks]

M. Sipser 『Introduction to the Theory of Computation, Third Edition』 （Cengage Learning）ISBN:978-1133187790（2012）

[Study outside of class (preparation and review)]

Students will be expected to spend about 3 hours per week to prepare for and review the lessons.

[Other information (office hours, etc.)]

Lecture code: U156001

Course number	U-LAS40 10013 LE26		
Course title (and course title in English)	Health Psychology I-E2 Health Psychology I-E2	Instructor's name, job title, and department of affiliation	Institute for the Future of Human Society Program-Specific Assistant Professor,DE ALMEIDA, Igor
Group	Health and Sports	Field(Classification)	Health and Sports Sciences(Foundations)
Language of instruction	English	Old group	
Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture
Year/semesters	2023・First semester		
Days and periods	Wed.2	Target year	All students
Eligible students	For all majors		

[Overview and purpose of the course]

This course will introduce students to the social and psychological variables that influence our physical health and our ability to cope with illness. Topics include stress reactions, risk factors in chronic disease, coronary-prone behavior, the science of alternative/complementary medicine, and prevention of disease.

[Course objectives]

At the conclusion of this course, students will be able to:
1. Describe the basic function of the cardiovascular, immune, and endocrine system, and how health behaviors, personal relationships, and stress can influence these systems
2. Demonstrate understanding of the methods and evidence that exists to explain how psychology can impact physical health
3. Critically apply research findings in health psychology to real-world health problems and solutions

This course will also develop students' communication and critical thinking skills in English.

[Course schedule and contents)]

As required, and with advanced notice to students, the instructor may make some minor adjustments to the schedule below.

1 Course welcome and topic introduction
2 Systems of the Body
3 Stress and illness
4 Psychoneuroimmunology
5 Theories of Health Behaviors I
6 Theories of Health Behaviors II
7 Theories of Health Behaviors III
8 Symptoms and Help-Seeking Behaviors
9 Pain and Pain Management
10 Patients and Providers
11 Coping and Resilience
12 Complementary & Alternative Medicine
13 Culture and health I
14 Culture and health II

Continue to Health Psychology I-E2 (2)↓↓↓

Health Psychology I-E2 (2)

15 Review week
15 Final examination (Presentations)
16 Feedback week

The course format includes interactive lectures accompanied by powerpoint slides and demonstrations (interactive activities, short film) to illustrate concepts. Course time regularly includes small group / class discussions.

[Course requirements]

None

[Evaluation methods and policy]

Midterm essay - 30%
Final essay - 30%
Presentation - 40%

This course uses a raw score grading system (0-100).

[Textbooks]

Not fixed

[Study outside of class (preparation and review)]

To make satisfactory progress in the course, students will be expected to spend approximately 90 minutes each week outside of class reviewing lecture materials, class notes, and the online textbook.

[Other information (office hours, etc.)]

Walk-in office hours will be available each week. Students may use office hours to discuss course material or for other general questions, such as studies / careers in psychology. The time and location for walk-in hours will be announced in week 1. Students are also welcome to make appointments for office hours by emailing the instructor in advance and arranging a mutually convenient time.

Lecture code: U149001

Course number	U-LAS40 10011 LE26		
Course title (and course title in English)	Introduction to Basic Concepts of Health Psychology-E2 :Communication Issues and Decision-making in Patient Care Introduction to Basic Concepts of Health Psychology-E2 :Communication Issues and Decision-making in Patient Care	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Associate Professor,ANAGNOSTOU, Despoina

Group	Health and Sports	Field(Classification)	Health and Sports Sciences(Foundations)		
Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This module will introduce the principle concepts of health psychology and its research basis. It includes a breath of material covering from health and illness beliefs, behavior and outcomes, but also socio-economic factors impacting population health, as well as individual and cultural differences.
The module is organized in two parts: 1. Health promotion and illness prevention; 2. Psychological approaches to chronic illness. Every session is organized on key principles of the theme, the theory behind, research evidence in support of the theory and examples of real applications.

Students will develop an understanding of the key factors that contribute to health and how health psychology can support the maintenance of health. In addition, this module will explore the psychological factors that might contribute to the development and impact of illness. Moreover, we will explore how people cope with illness and how the health care system respond to this challenge. Finally, we will look at family support systems and what interventions can support them.

[Course objectives]

To develop understanding of the key approaches to health psychology
To understand key theories of health and illness and the subsequent models of health care
To understand the key theories of health behavior and behavior change and how they are used in health promotion
To explore psychological mechanisms in illness management and the development of psychological interventions to support chronic illness
To understand key theories of coping with chronic pain
To explore the key psychological impact on the management of chronic illness for the family

[Course schedule and contents)]

Part I: Health promotion- illness prevention
Session 1: Introduction to Health Psychology module
Session 2: Defining health psychology
Session 3: Health psychology approaches to health and illness; the biological and biopsychosocial model
Session 4: The concept of wellness- implications for health care models
Session 5: Health inequalities: The impact of poverty, socio-economic deprivation, unemployment and

Continue to Introduction to Basic Concepts of Health Psychology-E2 :Communication Issues and Decision-making in Patient Care(2)↓↓↓

minority status in health outcomes.
Session 6: Understanding health behavior
Session 7: Behavior change in health prevention and promotion

Part II: The role of health psychology in chronic illness
Session 8: Stress management
Session 9-10: Health psychology of chronic illness- the role of positive psychology
Session 11: Psychological approaches to chronic pain
Session 12: Response shift as a psychological response to chronic illness- Quality of life
Session 13: Challenges in communicating terminal disease
Session 14: The psychological consequences of caring for the family
Session 15: Presentations- feedback

[Course requirements]

None

[Evaluation methods and policy]

Evaluation via short assignments during the course and final oral presentation. (30- 70%)

[Textbooks]

Instructed during class
References to e-textbooks already provided by Kyoto University library will be introduced during the course.
All material and online resources will be uploaded in the PANDA page of the course

[References, etc.]

（**Reference book**）
Introduced during class
References will be introduced during the course. All resources will be uploaded in the PANDA page of the course

[Study outside of class (preparation and review)]

Preparation is required for the final course presentations(pptx of 10-15min).
Also, students will need to complete the short assignments as they will be instructed in different sessions.

[Other information (office hours, etc.)]

Key lectures will be given by the lecturer.
Some group work will be introduced to discuss key issues in comparing Japan with the Europe.
Students will give presentations during the last sessions of the course. Instructions for the presentations will be given in class.
It is advisable to participate actively and share comments and ask questions during the class.
Students should make an appointment through e-mail, in the case they need any advice.

Lecture code: U148001

Course number	U-LAS40 10012 LE26		
Course title (and course title in English)	Structures and Mechanisms of Human Movement-E2 Structures and Mechanisms of Human Movement-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Associate Professor,PATAKY，Todd

Group	Health and Sports	Field(Classification)	Health and Sports Sciences(Foundations)

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Fri.3	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

This course will consider how humans move and how human movements can be scientifically described. Key anatomical structures (bones and muscles) will be reviewed, along with the anatomical terminology needed to describe movement. Basic mechanical principles will be used to describe how our bodies interact with the environment. Students will also learn computer programming basics in order to process and display human motion data. Open-source software tools (Jupyter and Blender) will be used to emphasize concepts and conduct analyses.

[Course objectives]

Students will learn the biomechanical concepts as well as useful software tools for describing and analyzing human movement. Key biomechanical concepts include: functional anatomy, mechanics (kinematics and dynamics) and linear algebra. Software skills include: data analysis, computer programming basics, and 3D modeling/visualization. Through programming-based assignments students will incrementally learn how to apply these concepts to descriptions of real-world human movement data. As a Final Project, students will comprehensively compare two, similar movement types, using all biomechanical and software skills learned in this course.

[Course schedule and contents)]

Over this 14-class lecture, the following topics will be covered:

1) Anatomy I: Body Segments, Joints and Muscles
2) Anatomy II: Directions and Movements
3) Dynamics I: Linear 1D Movement
4) Dynamics II: 2D & 3D Movement
5) Dynamics III: 3D Movement
6) Motion Capture I: Introduction
7) Motion Capture II: Exploring Human Kinematics
8) Motion Capture III: Describing Human Kinematics
9) Motion Capture IV: Graphing Human Kinematics
10) Kinematic Chains I: Forward Kinematics
11) Kinematic Chains II: Inverse Kinematics
12) Final Project Work Session I: Segmentation
13) Final Project Work Session II: Creating Figures
14) Final Project Work Session III: Figure Interpretation

Continue to Structures and Mechanisms of Human Movement-E2(2)↓↓↓

15) Feedback

Total: 14 classes, 1 Feedback session

[Course requirements]

There are no specific requirements for this class. However, experience in computer programming, physics and mathematics may help you to learn concepts more quickly.

[Evaluation methods and policy]

Students are expected to complete regular assignments. Evaluation will be based on the following criteria:

- Assignments (70%) [10 Assignments @ 7% each]
- Final Project (30%)

TOTAL: 100%

[Textbooks]

An open, electronic textbook called "Introduction To Human Biomechanics" will be distributed electronically to students and will be used in most classes. All additional materials will also be distributed electronically and will be discussed in class.

[References, etc.]

（**Reference book**）

A variety of links to relevant websites will be provided in the lecture notes. Students are also encouraged to search for additional relevant internet sites to supplement learning.

（**Related URL**）

https://jupyter.org(The Jupyter platform will be used for all lecture notes and assignments. No experience is required.)
https://www.blender.org(Blender will be used for 2D and 3D human movement visualizations.)

[Study outside of class (preparation and review)]

This course has a number of out-of-class assignments and a final project. There is no exam. Students who do not pay attention to the lecture content during class will likely have difficulties completing the assignments.

All lecture content will be made available online prior to the lecture. It is recommended that students review this content prior to the lecture.

[Other information (office hours, etc.)]

OFFICE HOURS:
Immediately before/after lecture or by appointment (pataky.todd.2m @ kyoto-u.ac.jp)

Lecture code: U104001

Course number	U-LAS40 10007 LE26		
Course title (and course title in English)	Basics of the Human Body-E2 Basics of the Human Body-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,RAUDZUS, Fabian

Group	Health and Sports	Field(Classification)	Health and Sports Sciences(Foundations)

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Tue.5	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

In the lecture series "Basics of the Human Body" you will learn about the wonders of the human body. The lecture combines the knowledge of basic science with achievements in medicine. The important functions of different cells, tissues, and whole organs will be discussed to understand the organization and functions of the entire human body. Therefore, the lecture series starts with a general introduction followed by the basics of cellular physiology. Based on this, we will examine the different physiological systems, such as the muscular, cardiovascular, and nervous system. Further, reproductive physiology, as well as differences in fetal and neonatal physiology, will be discussed. To appreciate that the human body is a complex system, the lecture on sports physiology will revisit most previously discussed topics but will focus even more on their interplay. In addition to acquiring basic knowledge, you will learn how disturbances to the different physiological systems due to injury or disease impact specific functions or even the whole body. At the end of the lecture series, you will be able to understand the different processes of your body.

[Course objectives]

The lecture series will give you the necessary knowledge to understand the organization and functions of your body. Further, by studying different key mechanisms, you will acquire deeper insights into the structure, characteristics, the performed tasks, and the interconnection to other systems or organs of the body. After successful completion of the above-mentioned goals of the course, you will have the skills to apply this learning to new issues such as the impact of diseases.

[Course schedule and contents)]

1. Functional organization of the human body
2. Cell physiology
3. The muscular system
4. Blood physiology
5. Cardiovascular physiology
6. Respiratory physiology
7. Neurophysiology
8. Physiology of the senses
9. Gastrointestinal physiology
10. The urinary system
11. The endocrine system
12. Reproductive physiology
13. Fetal and neonatal physiology

Continue to Basics of the Human Body-E2(2)↓↓↓

Basics of the Human Body-E2(2)

14. How the different systems are connected: sports physiology
15. Final assignment
16. Feedback

Changes in order and/or content might occur.

[Course requirements]

The course is open to all students but a basic understanding in biology is recommended.

[Evaluation methods and policy]

Attendance and active participation: 20%
Midterm assignment: 40%
Final assignment: 40%

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Hall PhD, John E.; Hall MD MSc., Michael E. 『Guyton and Hall Textbook of Medical Physiology 14th Edition』 （June 30, 2020）ISBN:0323597122
Additional literature and Massive Open Online Courses (MOOCs) will be introduced during the lectures.

[Study outside of class (preparation and review)]

The revision of every class is necessary. This includes recapitulating the slides, reading additional materials, and using the Discussion section on PandA.
Further, assignments will be given and are expected to be prepared by the deadline. Examples of those assignments are: preparing short individual or group presentations, answering questions, and self-studying certain topics. The amount of time for revision and preparation required is, on average, between 60-90 minutes per week.

[Other information (office hours, etc.)]

If you have further questions, feel free to write me an email.

Lecture code: U106001

Course number	U-LAS40 10008 LE26		
Course title (and course title in English)	Introduction to Lifestyle Related Diseases-E2 Introduction to Lifestyle Related Diseases-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,RAUDZUS, Fabian

Group	Health and Sports	Field(Classification)	Health and Sports Sciences(Foundations)

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.5	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

The lecture series focuses on diseases that are predominantly caused by a "western lifestyle", including the overabundance of food such as meat, dairy products, and vegetable oils, as well as the abuse of tobacco and alcohol. Due to industrialization, the lack of physical activity and increased air pollution have become additional enhancers or causes of these diseases. The first lectures in this series give an overview of non-communicable diseases and their impact on longevity and their burden on society. Subsequent lectures are organized into four major topics that represent the major causes of the above-mentioned diseases: diet and physical inactivity, air pollution and smoking, alcohol abuse, and social-psychological stressors. The importance of these topics is increasing, as lifestyles in Japan are continuously changing towards American and European lifestyles. Due to this relevance, the lecture series will be highly interactive: a major topic will be introduced and extended by short presentations on different related diseases by students. In subsequent group discussions, strategies will be elaborated to recognize and minimize the risks. During the lecture, students can work on selected scientific literature, newspaper articles, and other media to increase their insights into lifestyle-related diseases and their prevention.

[Course objectives]

The lecture series will introduce you to the most-common lifestyle-related diseases. The necessary knowledge gained will enable you to understand the major causes of these diseases. By guided personal study, you will gain further insights into prevention strategies. After completing the lecture series, you will be familiar with diseases that are becoming an increasing financial and social burden on society but which can be avoided with a more conscious lifestyle.

[Course schedule and contents)]

1. Global overview of lifestyle-related diseases
2. How the wrong diet and physical inactivity can make you sick
2.1. Hypertension: why prolonged high blood pressure is lethal
2.2. Ischemic stroke: interruption of the blood supply to the brain
2.3. Diabetes mellitus: how too much sugar can leave a sour taste
3. Impact of air pollution and smoking on health
3.1. Asthma and chronic obstructive pulmonary disease (COPD): lung diseases affecting the airways
3.2. Lung cancer: how smoking causes cellular damage in the lung
3.3. Alzheimer's disease: environmental influences on neurodegeneration
4. The underestimated risks of alcohol misuse
4.1. Alcohol dependence: craving, loss of control, physical dependence, tolerance

Continue to Introduction to Lifestyle Related Diseases-E2(2)↓↓↓

Introduction to Lifestyle Related Diseases-E2(2)

4.2. Chronic liver disease and cirrhosis: scar tissue formation in the liver due to alcohol-induced damage
5. Major depressive disorder: mental disorder enhanced by several lifestyle-related factors
6. Prevention of lifestyle-related diseases
7. Final assignment
8. Feedback

Changes in order and/or content might occur.

[Course requirements]

The course is open to all students but a basic understanding of biology is recommended.

[Evaluation methods and policy]

Attendance and active participation: 20%
Midterm assignment: 40%
Final assignment: 40%

[Textbooks]

Not fixed

[References, etc.]

（**Reference book**）
Hall PhD, John E.; Hall MD MSc., Michael E. 『Guyton and Hall Textbook of Medical Physiology 14th Edition』（Elsevier, June 30, 2020）ISBN: 978-0323597128
Additional literature and Massive Open Online Courses (MOOCs) will be introduced during the lectures.

[Study outside of class (preparation and review)]

The revision of every class is necessary. This includes recapitulating the slides, reading additional materials, and using the Discussion section on PandA.
Further, assignments will be given and are expected to be prepared by the deadline. Examples of those assignments are: preparing short individual or group presentations, answering questions, and self-studying certain topics. The amount of time for revision and preparation required is, on average, between 60-90 minutes per week.

[Other information (office hours, etc.)]

If you have further questions, feel free to write me an email.

Lecture Code: U145001

Course number	U-LAS40 10010 LE26				
Course title (and course title in English)	Biology and Sociology of Chronic Diseases-E2 Biology and Sociology of Chronic Diseases-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,LUO YAN		
Group	Health and Sports	Field(Classification)	Health and Sports Sciences(Foundations)		
Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Thu.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

In this course, we will explore the social and environmental factors that affect chronic diseases. In each lecture, we will discuss some social factors using specific chronic diseases as examples (in brackets below). Additionally, national policies of various countries, including Japan, will be discussed for the management of chronic diseases.
The class format includes lectures, short videos, and group discussions of case examples.

[Course objectives]

1. To understand the social and environmental determinants of disease and illness.
2. To understand the impact of health policies and how they affect human health.
3. To critically examine how changing public perception may impact chronic diseases.

[Course schedule and contents)]

In principle, the course will be offered according to the following plan. The order and content may be subject to slight changes.

Week 1: Course introduction
Week 2-3: Race/ethnicity and gender as risk factors (e.g., diabetes, cancer), and related health policies
Week 4-5: Aging as a risk factor (e.g., dementia, arthritis), and related health policies
Week 6-7: Stress as a risk factor (e.g., mental disorders, heart diseases), and cognitive behavioral interventions
Week 8-9: Lifestyle as a risk factor (e.g., metabolic syndrome, digestive diseases), and preventative interventions and policies
Week 10-11: Environmental factors (e.g., allergy, occupational diseases), and related health policies
Week 12-14: Smoking, alcohol and drugs as risk factors (e.g., addiction, physical diseases), and related laws and health policies
Week 15: Feedback

[Course requirements]

None

Continue to Biology and Sociology of Chronic Diseases-E2(2)↓↓↓

Biology and Sociology of Chronic Diseases-E2(2)

[Evaluation methods and policy]

Attendance and active participation - 30%
Term paper - 70%

[Textbooks]

Not used

[References, etc.]

（References, etc.）
Reference materials will be provided during the class.

[Study outside of class (preparation and review)]

Students are expected to attend classes, complete the assigned reading and writing, and contribute to discussions.

[Other information (office hours, etc.)]

Students may ask questions or request to schedule an in-person appointment via email.

Lecture code: U144001

Course number	U-LAS40 10009 LE26		
Course title (and course title in English)	Nutrition and Health-E2 Nutrition and Health-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Program-Specific Assistant Professor,LUO YAN

Group	Health and Sports	Field(Classification)	Health and Sports Sciences(Foundations)

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods		Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course provides an overview of fundamental knowledge of food and nutrition. We will cover core nutritional concepts and explore special topics in nutrition using locally and internationally relevant examples. We will learn about major nutrients and their role in health and disease. Through this course, we will learn and develop the skills required to understand our diets for healthy living.
Students will be required to keep a simple food journal and apply knowledge gained to estimate energy requirements and assess their diet quality.

[Course objectives]

1. To provide an overview of the major nutrients relevant to human health.
2. Present current evidence for the role of key nutrients in the prevention of chronic diseases.
3. To develop a good understanding of the concept of dietary recommendations.
4. Discuss special topics in nutrition.
5. To estimate energy requirements, qualitatively assess the dietary quality of an individual, and plan a healthy diet.

[Course schedule and contents)]

In principle, the course will be offered along the following plan. However, the order or the number of times for each theme may change depending on the progression of the course or the handling of current topics.

1. Nutrient and non-nutrient components of food
2. Role of nutrients in health and disease
3. Tools for healthy eating: Dietary intake recommendations and food labels
4. Tools for healthy eating: Nutritional assessment
5. Tools for healthy eating: Food Journals
6. Designing a healthy diet-Macronutrients
7. Designing a healthy diet-Micronutrients
8. Nutrients involved in body fluid balance (including alcohol)
9. Nutrition-related disorders: Metabolic Syndrome
10. Eating disorders: Anorexia nervosa and bulimia nervosa
11. Special Topics in Nutrition-Pregnancy, lactation and infant formula
12. Special Topics in Nutrition- Geriatric nutrition
13. Special Topics in Nutrition- Sports nutrition
14. Special Topics in Nutrition- Supplementary and functional foods

Continue to Nutrition and Health-E2(2)↓↓↓

Nutrition and Health-E2(2)

15. Feedback

[Course requirements]

None

[Evaluation methods and policy]

Active class performance 30%
Food journal 25%
Food journal analysis 45%

(Food journal and food journal analysis to be submitted together at the end of the semester in a report form. Instructions on keeping and analyzing the food diaries will be provided during the lectures.)

[Textbooks]

Not used

[References, etc.]

（Reference book）
Reference materials will be provided during the class.

[Study outside of class (preparation and review)]

Students are expected to come to class having completed their food journal.

[Other information (office hours, etc.)]

Please contact the instructor by email if you have any questions. The instructor will also be available for course-related consultation out of lecture hours if requested by the students. Please make an appointment by email (medsocio.kyodai@gmail.com).

Lecture code: U155001

Course number	U-LAS40 20036 LE26				
Course title (and course title in English)	Psychopathology I-E2 Psychopathology I-E2	Instructor's name, job title, and department of affiliation	Graduate School of Human and Environmental Studies Program-Specific Associate Professor,TAJAN, Nicolas Pierre		
Group	Health and Sports	Field(Classification)	Health and Sports Sciences(Development)		
Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.5	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course introduces most common mental disorders (autism, schizophrenia, depression, etc.) and their symptoms using videos and case studies. The approach is integrative: it combines most recent psychiatric definitions (DSM-5; ICD-11), psychopathological and psychoanalytical understanding of human distress. By the end of this course, students will know how to diagnose mental disorders such as autism, schizophrenia, PTSD and depression.

[Course objectives]

To provide you with a general introduction to and understanding of mental disorders.
To increase your emotional intelligence through psychopathological knowledge.
To help you develop your analytical and critical thinking regarding the diagnosis of mental disorders.

[Course schedule and contents)]

1) Introduction
2) Neurodevelopmental disorders
3) Neurodevelopmental disorders: Autism Spectrum Disorder (ASD) I
4) Neurodevelopmental disorders: Autism Spectrum Disorder (ASD) II
5) Schizophrenia I
6) Schizophrenia II
7) Paranoia: Paranoid personality disorder
8) Post Traumatic Stress Disorder (PTSD)I
9) Post Traumatic Stress Disorder (PTSD)II
10) Depression I
11) Depression II
12) Anxiety Disorders, Obsessive Compulsive disorder
13) Cultural Concepts of Distress
14) Conclusion
15) Final test
16) feedback

Continue to Psychopathology I-E2(2)↓↓↓

Psychopathology I-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Students are expected to actively participate to discussion and read material during class. Evaluation is based on the following: Attendance and participation (30%), 2 written responses at beginning of class 6 and 11 (30%), final test (40%).

[Textbooks]

Relevant material is distributed in class.

[References, etc.]

（**Reference book**）

American Psychiatric Association. (2013) 『Diagnostic and statistical manual of mental disorders (5th ed.)』（Washington, DC: American Psychiatric Publishing, Inc.）
Barnhill, J. W. (Ed.). (2014) 『DSM-5 clinical cases』 （Arlington, VA, US: American Psychiatric Publishing, Inc.）

[Study outside of class (preparation and review)]

Students do not have homework assignments. However, they are advised to take notes during class and to review the course material before written responses and final test.

[Other information (office hours, etc.)]

[Courses delivered by instructors with practical work experience]

(1) Category
A course with practical content delivered by instructors with practical work experience

(2) Details of instructors’ practical work experience related to the course
Clinical experiences in a variety of fields as a psychoanalyst, psychologist

(3) Details of practical classes delivered based on instructors’ practical work experience

Lecture code: U135001

Course number	U-LAS40 20031 LE26		
Course title (and course title in English)	Introduction to Medical Psychology-E2 Introduction to Medical Psychology-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,SAHKER, ETHAN KYLE
Group	Health and Sports	Field(Classification)	Health and Sports Sciences(Development)

Language of instruction	English	Old group	Group A	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Fri.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

The mind-body connection is an important concept for understanding both health and illness. In medicine, behavior and emotion make up major risk and protective factors for many physical illnesses. Importantly, chronic illnesses and lifestyle diseases can be better understood with psychological and behavioral medicine. This is because if one thinks and behaves in a healthy way, they start to feel healthier. This understanding is the foundation of medical psychology. In this course students will gain a broad overview of medical psychology. They will gain knowledge in the history of psychology evolving from early medical disciplines. They will also be introduced to the foundational theories behind medical psychology. Additionally, students will learn about the primary roles of clinical psychology in evidence-based medicine.

[Course objectives]

To understand how the mind and body interact through thoughts, emotions, and behaviors
To gain insight into the role of psychology and clinical psychologists in medicine

[Course schedule and contents)]

1. Ethics
2. History and Systems
3. Biological Bases of Behavior
4. Cognitive and Affective Bases of Behavior
5. Social Bases of Behavior
6. Personality, Culture, and Identity
7. Clinical Psychology
8. Theoretical Orientations
9. Health Psychology and Psychosomatic Medicine
10. Abnormal Psychology
11. Common Mental Disorders
12. Stress and Trauma
13. Intelligence and Ability
14. Neuropsychology

<< Final Exam >>

15. Feedback

Continue to Introduction to Medical Psychology-E2(2)↓↓↓

Introduction to Medical Psychology-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

20% - Quizzes
40% - Final Exam
20% - Short Personal Essay
20% - Class Attendance and Active Participation

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Introduced during class
Reference materials will be provided in class.

[Study outside of class (preparation and review)]

Students are expected to complete assigned readings and assignments before class.

[Other information (office hours, etc.)]

Students may contact the instructor if they have questions and they may schedule an in-person appointment by email.

Lecture code: U154001

Course number	U-LAS40 20033 LE26		
Course title (and course title in English)	Cultural Aspects of Health Care-E2 Cultural Aspects of Health Care-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Associate Professor,ANAGNOSTOU, Despoina

Group	Health and Sports	Field(Classification)	Health and Sports Sciences(Development)

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Tue.3	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Culture has an important influence on many aspects of people's lives, such as beliefs, behaviors, emotions, religion, ritual, diet, body image, attitudes to illness, pain and other symptoms. This module explores the way that cultures have different systems of health beliefs to explain what causes illness, how it can be cured or treated, and who should be involved in the process.

This module explores the cultural influences from the perspective of the individual(personal health beliefs and behaviors) but also from society perspective (governments and health care systems) Specifically, it explores the influence of different religions, cultures, beliefs, and ethnic customs on how patients understand health concepts, how they take care of their health, and how they make decisions related to their health. It also provides knowledge with regards to the interplay between culture and health care structures and of their consequences to clinical practice. Moreover, this course looks at the cultural perspectives to population health, health inequalities and current health challenges such as organ donation and management of epidemics. Finally, it explores the concept of cultural competence in care provision, with a focus on multi-cultural societies.

[Course objectives]

To understand the interplay between culture and health care
To explore how the different cultural contexts may influence perceptions and behaviors in relation to health, illness and organization of health care
To explore the impact of different cultural ideas of body image and the various representations of a health body in different times in history.
To understand the influence of socio-economic factors to population health.
To explore different approaches to health issues that carry stigma in different cultural contexts (i.e. disability, AIDS)
To understand the current debates of providing care, considering patients cultural backgrounds

[Course schedule and contents)]

Session 1: Introduction to the module
Session 2: Definition and different approaches to culture and health
Session 3: Culture and wellbeing; its implications on the industry of wellness across the world
Session 4: Migration, globalization and health
Session 5: Socio-economic factors and health inequalities- the examples of UK and US
Session 6: Informal caregiving in an aging society: the unspoken reality of care in the 21st century

Continue to Cultural Aspects of Health Care-E2(2)↓↓↓

Cultural Aspects of Health Care-E2(2)

Session 7: The body: cultural definitions of body image and health
Session 8: Social approaches to disability
Session 9: Cultural aspects of stress and suffering
Session 10: Cultural approaches to pain and pain management
Session 11: Cultural competency in health care
Session 12: the AIDS pandemic and different country approaches
Session 13: Cultural approaches to organ donation and the impact of globalization to organ trafficking
Session 14-15: Presentations- feedback

[Course requirements]

None

[Evaluation methods and policy]

Students will be evaluated based on their final course oral presentations.

[Textbooks]

Instructed during class
E-resources,published papers and and e-textbook chapters will be introduced during the course.

[References, etc.]

（Reference book）
Introduced during class
References will be provided during the course. All material will be saved on the PANDA page of the course for students to access

[Study outside of class (preparation and review)]

Preparation is required for the final course oral presentations (10-15min, PPTx)

[Other information (office hours, etc.)]

Key lectures will be given by the module leader, using visual and audio material to illustrate key ideas within different sessions.
Group work during lectures will support discussions around key issues and possible comparison between Japan with Europe/US.
Students will give presentations during the last sessions of the course. Instructions for the presentations will be given in class.
It is advisable to participate actively and share views during the class.
Students should make an appointment through e-mail, in the case they need any advice.

Lecture code: W224001

Course number	U-LAS51 10014 SB48		
Course title (and course title in English)	科学コミュニケーションの基礎と実践（薬・英） A -E3 Theory and Practice in Scientific Writing and Discussion (Pharmaceutical Sciences, English)A-E3	Instructor's name, job title, and department of affiliation	Graduate School of Pharmaceutical Sciences Program-Specific Associate Professor,CAMPBELL, Douglas Simon

Group	Career Development	Field(Classification)	International Communication

Language of instruction	Japanese and English	Old group	Group C	Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・First semester
Days and periods	Mon.4/Mon.5	Target year	2nd year students or above	Eligible students	For science students

[Overview and purpose of the course]

"Theory and Practice in Scientific Writing and Discussion" will provide students with the basics of scientific English.
Expressions and vocabulary used in scientific texts are different from everyday English. When giving a presentation or a seminar, or writing a report or research manuscript, it is critical to use a well organised and precise language so that the ideas and discoveries are well communicated.
This course is mainly targeted to students who wish to pursue a scientific career, especially in research.
Although learning new vocabulary and grammar is a substantial part of this course, the emphasis will be put on practice.

[Course objectives]

To acquire basic knowledge on the structure and vocabulary of scientific English (biology, physics, chemistry).
To be able to build sentences using the vocabulary and grammar they have learned.
To learn English names of common scientific tools.
To be able to accurately describe dimensions and relative positions of objects, scientific equations, chemical reactions and other scientific concepts.
To be able to communicate scientific content in English in a relaxed manner and without hesitation.

[Course schedule and contents)]

1. What is Scientific English? (1 week)
2. The basic units and dimensions, numerals, enunciation and comprehension of complex numbers and equations. (1 week)
3. Chemicals and chemical reactions. (1 week)
4. Latin and Greek roots of modern scientific English. (1 week)
5. How to describe the relative position and dimensions of an object, descriptions of movements and force, basic human and animal anatomy. (3 weeks)
6. Mid-term exam / Description of experimental setups (1 week)
7. Description of experimental setups in Biology and Chemistry. (2 weeks)
8. Listening to a scientific presentation/TV program and asking questions on its content (2 weeks)
9. Introduction to giving presentations - Elevator Pitch / self- introduction and Scientific-flash talks (3 weeks) Presentations
10. Presentations and Feedback (1 week)

Continue to 科学コミュニケーションの基礎と実践（薬・英） A-E3(2)↓↓↓

[Course requirements]

Students uncomfortable in social interactions may find this course challenging.

[Evaluation methods and policy]

- Class participation (answering and asking quetsions or discussion, 40%).
- Midterm exam (30%)
- Assignments (such as role play in Laboratory or Pharmacy, elevator pitch / self introduction, scientific flash talk, 30%).

The balance between the above will be dependent on the number of assignments given.

[Textbooks]

Anthony FW FOONG 『Comprehensive Scientific English (A) 4th Edition』（IMEX. Japan）ISBN:978-4-9905790-2-9（4th edition, April 2020）
OpenStax Biology, Anatomy and Physiology, Chemistry and Physics, freely available to download at the URL below.

[References, etc.]

（Reference book）

Introduced during class
References and articles will also be given via PandA.

（Related URL）

https://openstax.org/subjects

[Study outside of class (preparation and review)]

Review from the textbook, listening exercises on the CDs, class material and preparation for assignments to be presented either in class or submitted.

[Other information (office hours, etc.)]

The contents of the syllabus are a guide to the content of the course, the exact content may change. Input from students is very welcome to suggest aspects of scientific English to cover in the course. I am always happy to discuss with students, please contact me via email in the first instance.

Lecture code: W225001

Course number	U-LAS51 10015 SB48				
Course title (and course title in English)	科学コミュニケーションの基礎と実践（薬・英） B -E3 Theory and Practice in Scientific Writing and Discussion (Pharmaceutical Sciences, English)B-E3	Instructor's name, job title, and department of affiliation	Graduate School of Pharmaceutical Sciences Program-Specific Associate Professor,Martin Robert		
Group	Career Development	Field(Classification)	International Communication		
Language of instruction	Japanese and English	Old group	Group C	Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・Second semester
Days and periods	Mon.4/Mon.5	Target year	2nd year students or above	Eligible students	For science students

[Overview and purpose of the course]

The ability to effectively communicate science in English, whether it is for a lab report, preparing an abstract and/or poster or an oral presentation for a conference, a journal club, a thesis, or a full manuscript, is an essential skill for any student and aspiring young researcher. Failure to produce a good narrative results in lost opportunities for both the writer and the reader. Developing skills in both written and oral forms of communication is therefore important to successfully progress in science.

This course will aim to improve student confidence in communicating science in English. Opportunities will be provided to learn and practice the basics of effective scientific writing and communication in English. Emphasis will be placed on learning the basic structures and logic of different forms of scientific communication and practicing through the analysis of scientific material and writing. Practical exercises to develop those skills, will include among others, preparing a good title and abstract, analyzing scientific text, and presenting a scientific research article (journal club presentation) and its evaluation. Many exercises will be completed in small groups. The course will be targeted to non-native speakers of English.

[Course objectives]

This main objective of this course is to learn and practice skills for communicating scientific content effectively in English. The emphasis will be on structuring and organizing content, data and figures, and their interpretation to build a coherent narrative. Tips and tricks about writing and presenting as well as patterns to avoid will also be presented.

At the end of this course students will:
- Understand and be able to explain the basic structure and format of different forms of scientific communications
- Master key conventions and structures essential for effective scientific communication
- Have gained skills in organizing concepts and ideas into a coherent narrative, using the appropriate words, units, logic, etc.
- Be able to produce clear short text and make an oral presentation of a research article following the formal scientific style of writing and presenting
- Have acquired confidence and practiced critical evaluation skills by providing constructive feedback about their peers' work.

Continue to 科学コミュニケーションの基礎と実践（薬・英） B-E3(2)↓↓↓

[Course schedule and contents)]

The following topics will be covered over the course of 14 classes, not necessarily in that order:

Week 1 Course guidance and introduction
Week 2 Introduction to communication
Week 3 Finding and managing scientific literature and resources (databases and reference management software)
Week 4 Crafting a good title
Week 5 Analyzing and preparing a good abstract
Week 6 The basics of scientific writing. Structure and logic
Week 7 How to write different parts of a manuscript or report
Week 8 Tips for reading and understanding scientific content
Week 9 Making good figures and visuals and describing them well
Weeks 10-14 Critical thinking and evaluation - Research article presentations (Journal club)
Week 16 Feedback

Total: 14 classes plus one Feedback session

[Course requirements]

Access to a personal computer or device is required to complete homework assignments and other practice.

[Evaluation methods and policy]

20 % Class attendance and active participation
60 % In-class exercises/quizzes and homework assignments
20 % Presentation

[Textbooks]

Lebrun, J.-L. 『Scientific Writing 2.0: A Reader And Writer's Guide』（World Scientific Publishing Company, 2011）
Glasman-Deal, H. 『Science Research Writing: A Guide for Non-native Speakers of English.』（Imperial College Press, 2010）
The books above will be used for part of course but students are not required to buy them. Kyoto University Library has some digital license for Lebrun and Glasman-Deal.

[References, etc.]

（**Reference book**）
Hofmann, A. 『Writing in the Biological Sciences: A Comprehensive Resource for Scientific Communication.』（Oxford University Press, 2015）
Another useful resource:
English communication for scientists is listed below.

（**Related URL**）
https://www.nature.com/scitable/ebooks/cntNm-14053993/contents/

[Study outside of class (preparation and review)]

Students can expect to spend on average about 1-2 hours per week on homework assignments and preparation for in-class exercises.

Continue to 科学コミュニケーションの基礎と実践（薬・英） B-E3(3)↓↓↓

[Other information (office hours, etc.)]

Some of the content is subject to change according to the class size.

The instructor can be contacted by e-mail to arrange an appointment.

Lecture code: W236001

Course number	U-LAS51 10028 SE48				
Course title (and course title in English)	Scientific English II-E3 (Presentation & Discussion) Scientific English II-E3 (Presentation & Discussion)	**Instructor's name, job title, and department of affiliation**	Graduate School of Engineering Associate Professor,Zhu Fan		
Group	Career Development	**Field(Classification)**	International Communication		
Language of instruction	English	**Old group**	Group C	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Seminar	**Year/semesters**	2023・First semester
Days and periods	Fri.3	**Target year**	2nd year students or above	**Eligible students**	For science students

[Overview and purpose of the course]

Forbes magazine reports that "seventy percent of employed Americans who give presentations agree that presentation skills are critical to their success at work (...) The other 30% don't know it yet."

In this new global and interconnected world, being able to clearly and succinctly communicate ideas is becoming more and more a basic requirement for success at work. Presentation skills are to the XXI century what English skills were to the XX century: a necessity, rather than a luxury.

The aim of this class is to help you improve your communication proficiency, focusing on presentation and discussion skills in English.

[Course objectives]

At the end of the course, you should be able to present ideas in a concise and orderly manner, in both small and large settings, either individually or as part of a group. The principles behind the use of slideware, color and presentation theory, graphic creation, data delivery, etc., will be introduced during this practical class.

[Course schedule and contents)]

This practical class will divide the learning of presentation skills in the following building blocks:
A) Preparation (Definition of main idea, structure, story, research, etc.)
B) Design (Principles of design, color theory, typography, images, etc.)
C) Delivery (Rehearsal, connecting with an audience, Q&A, etc.)
These themes will be built in conjunction with permanent practice and discussion. Students will have to prepare and present both individual and group presentations during the course. This course consists of 15 classes including one feedback class. A general schedule of the lectures is given below.

1) Technical presentation
2) Preparation
3) Analysis of structure
4) Creating the structure
5) Basic design rules
6) Principles of visual design
7) Presenting data
8) Bad data display
9) Basic principles of delivery

Continue to Scientific English II-E3 (Presentation & Discussion)(2)↓↓↓

10) Group presentation exercise
11) Individual presentation exercise 1
12) Individual presentation exercise 2
13) Individual presentation exercise 3
14) Individual presentation exercise 4 / Analysis of presentations
15) Feedback & report

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on homework and class participation (25%), feedback from other students (15%), and feedback and scores from the instructor on group and individual presentations (60%). Details will be explained in class. This class will have no written examination.

To pass this class, you need to be able to proficiently prepare, design, and deliver general and technical presentations in English.

[Textbooks]

Handouts will be provided at the beginning of each section.

[References, etc.]

（**Reference book**）
Garr Reynolds 『Presentation Zen: Simple Ideas on Presentation Design and Delivery』 ISBN: 9780321525659
Nancy Duarte 『Slide:ology: The Art and Science of Creating Great Presentations』 ISBN:9780596522346
Dan Roam 『Show and Tell: How Everybody Can Make Extraordinary Presentations』 ISBN: 9781591846857
Dona Wong 『The Wall Street Journal Guide to Information Graphics』 ISBN:9780393072952
Stephen Few 『Show Me the Numbers: Designing Tables and Graphs to Enlighten』 ISBN:9780970601971
Edward Tufte 『The Visual Display of Quantitative Information』 ISBN:9780961392147

[Study outside of class (preparation and review)]

As an eminently practical class, you will be expected to work on your own time, preparing and honing the ideas and presentations that you will deliver during class.

Additional time to watch notable presentations online (TED, PechaKucha, Toastmasters, etc., as recommended by the instructor during classes) will be required.

[Other information (office hours, etc.)]

Information related to office hours and contact of instructors will be provided during the first lecture.

Lecture code: W237001

Course number	U-LAS51 10029 SE48		
Course title (and course title in English)	Advanced Scientific English-E3 (Debate) Advanced Scientific English-E3 (Debate)	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,SCHMOECKER, Jan-Dirk Graduate School of Engineering Associate Professor,AN RIN Graduate School of Engineering Associate Professor,KHAYYER ABBAS Graduate School of Engineering Associate Professor,KIM SUNMIN Graduate School of Engineering Associate Professor,PIPATPONGSA, Thirapong Graduate School of Engineering Associate Professor,QURESHI, Ali Gul Graduate School of Engineering Senior Lecturer,Chang, Kai-Chun Graduate School of Engineering Associate Professor,Zhu Fan

Group	Career Development	Field(Classification)	International Communication

Language of instruction	English	Old group	Group C	Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・Second semester
Days and periods	Wed.2	Target year	2nd year students or above	Eligible students	For science students

[Overview and purpose of the course]

Debating and negotiating are skills needed in most professions students will enter after graduation. The course aims to improve critical thinking and general abilities to discuss scientific issues.

[Course objectives]

1) To improve students' ability to discuss scientific issues in a set format. Students will learn to defend their opinions and to react to counter-arguments. 2) Students will be introduced to a number of current issues in Civil Engineering through the debate topics.

[Course schedule and contents)]

The first lecture will give an introduction to the course and to debating: What makes a good debate, introduction on how to prepare for a debate, some helpful tools for organizing the debate, etc. The second lecture then will be an initial test debate. The following lectures are then grouped into four units of 3 lectures, each unit is taught by a different faculty member and discusses different debate topics, often related to the teacher's research interest. Each unit has following outline. In Lecture 1 of a unit the topic will be introduced and students choose a role (pro or contra the debate motion). Then in Lecture 2 students collect some information and arguments on the topic by reading articles or collecting information from the internet. The lecture is further meant to prepare debate talks and to prepare for potential counter- arguments. In the final classes of each unit students are then performing the actual debate. Debate topics are chosen by teachers from engineering issues as well as current issues.

Weeks 1-2: Introduction, debate exercises
Weeks 3-5: Debating on topics related to transport planning.

Continue to Advanced Scientific English-E3 (Debate)(2)↓↓↓

Advanced Scientific English-E3 (Debate)(2)

Weeks 6-8: Debating on topics related to large civil engineering projects.
Weeks 9-11: Debating on topics related to sustainable vs efficient technology.
Weeks 12-14: Debating on topics related to current affairs.

There is no written exam at the end of the semesters. Feedback is given during regular classes and as feedback session after the course completion. (Total 14 classes plus 1 feedback session).

[Course requirements]

None

[Evaluation methods and policy]

The grade will be based mainly on the presentations about the debate topics (70%). In addition active participation in the class (30%) are evaluated.

[Textbooks]

Not used
No textbook is required for this course. Handouts will be distributed by the instructors as needed.

[Study outside of class (preparation and review)]

In some weeks students will be asked to collect information material for the debates and to complete the preparation for the debates that can not be carried out during the class period.

[Other information (office hours, etc.)]

All instructors will provide their contact information for questions and feedback.

Lecture code: W228001

Course number	U-LAS51 10018 SE48				
Course title (and course title in English)	Business English-E3 Business English-E3		**Instructor's name, job title, and department of affiliation**	Graduate School of Management Associate Professor,WILLIAM BABER	
Group	Career Development		**Field(Classification)**	International Communication	
Language of instruction	English	**Old group**		**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Seminar	**Year/semesters**	2023・First semester
Days and periods	Tue.2	**Target year**	2nd year students or above	**Eligible students**	For all majors

[Overview and purpose of the course]

This course is for students with Intermediate to Low-Advanced English skills. Students with higher English skills may not take the course. The course practices English skills that are necessary for business.

[Course objectives]

Students will learn about
- Formal business email
- Informal business email
- Summarizing (verbal and written)
- Short written reports
- Short verbal representations to small groups
- Understanding and communicating precise rules

[Course schedule and contents)]

Week 1: Informal work email, speaking skills
Week 2: Formal and "bad news" email
Week 3: Summarizing
Week 4: Summarizing
Week 5-14: Above skills, presenting, writing, and more.
Week 15: Feedback session
"Total：14 classes, 1 Feedback session"

[Course requirements]

Students with English skills below "Intermediate" or above "Low Advanced" will not be accepted.
The course is targeted for students with middle level skills.

[Evaluation methods and policy]

Students are graded based on the number and level of tasks completed. Tasks increase with difficulty as each level is cleared. The grading is explained further in class and in handouts.

Continue to Business English-E3(2)↓↓↓

Business English-E3(2)

[Textbooks]

Students will receive materials from the professor.

[References, etc.]

（**Reference book**）
Students will receive materials from the professor.

[Study outside of class (preparation and review)]

Students are expected to complete tasks outside of class and in class. Class time is mainly for support, question asking, and skills review with the professor.

[Other information (office hours, etc.)]

In class meetings.
Size limit: 20 students
Size is limited in order to allow time for frequent interaction with the professor.

Lecture code: W228002

Course number	U-LAS51 10018 SE48		
Course title (and course title in English)	Business English-E3 Business English-E3	Instructor's name, job title, and department of affiliation	Graduate School of Management Associate Professor,WILLIAM BABER
Group	Career Development	Field(Classification)	International Communication

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・Second semester
Days and periods	Thu.4	Target year	2nd year students or above	Eligible students	For all majors

[Overview and purpose of the course]

This course is for students with Intermediate to Low-Advanced English skills. Students with higher English skills may not take the course. The course practices English skills that are necessary for business.

[Course objectives]

Students will learn about
- Formal business email
- Informal business email
- Summarizing (verbal and written)
- Short written reports
- Short verbal presentations to small groups
- Understanding and communicating precise rules

[Course schedule and contents)]

Course Schedule and Contents
Week 1: Informal work email, speaking skills
Week 2: Formal and "bad news" email
Week 3: Summarizing
Week 4: Summarizing
Week 5-14: Above skills, presenting, writing, and more.
Week 15: Feedback session
"Total：14 classes, 1 Feedback session"

[Course requirements]

Students with English skills below "Intermediate" or above "Low Advanced" will not be accepted.
The course is targeted for students with middle level skills.

[Evaluation methods and policy]

Students are graded based on the number and level of tasks completed.

Continue to Business English-E3(2)↓↓↓

Business English-E3(2)

[Textbooks]

Students will receive materials from the professor.

[References, etc.]

（**Reference book**）
Students will receive materials from the professor.

[Study outside of class (preparation and review)]

Students are expected to complete tasks outside of class and in class. Class time is mainly for support, question asking, and skills review with the professor.

[Other information (office hours, etc.)]

In class meetings.
Size limit: 20 students
Size is limited in order to allow time for frequent interaction with the professor.
Office hours: Monday and Friday afternoons by appointment.

Lecture code: W229001

Course number	U-LAS51 10019 SE48		
Course title (and course title in English)	Business Thinking-E3 Business Thinking-E3	**Instructor's name, job title, and department of affiliation**	Graduate School of Management Associate Professor,WILLIAM BABER
Group	Career Development	**Field(Classification)**	International Communication

Language of instruction	English	**Old group**		**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Seminar	**Year/semesters**	2023・First semester
Days and periods	Wed.2	**Target year**	2nd year students or above	**Eligible students**	For all majors

[Overview and purpose of the course]

This course teaches some core approaches to thinking about business: understanding quality; understanding user reactions to products; understanding business models; and so on.

[Course objectives]

Students will learn about these basic concepts - they will be discussed and handled at a level appropriate to the knowledge and language skills of the class.
- defining and communicating quality
- understanding business processes
- understanding business models with Business Model Canvas

[Course schedule and contents)]

Week 1-3: Criteria for evaluating and communicating about quality
Week 4-6: Business Process Mapping
Week 7-10: Business Model Canvas
Week 11-13: Business structures
Week 14: In class presentations and course summary
Week 15: Feedback session
"Total：14 classes, 1 Feedback session"

[Course requirements]

None

[Evaluation methods and policy]

Strong English speaking skills will be necessary. Students are expected to work in small groups in English weekly, and to make presentations to the class at least three times in the semester.
Presentations to the class will count for approximately 40% of the course points.
Presentations in small groups to the class will count for approximately 60% of the course points.

[Textbooks]

Materials will be provided by the professor.

Continue to Business Thinking-E3(2)↓↓↓

Business Thinking-E3(2)

[References, etc.]

（Reference book）

Materials will be provided by the professor.

[Study outside of class (preparation and review)]

Some projects will require work at home or outside of the classroom to collect information about businesses and products in Kyoto.

[Other information (office hours, etc.)]

office hours: Monday and Friday afternoons by appointment.

Lecture code: W230001

Course number	U-LAS51 10020 SE48						
Course title (and course title in English)	Negotiation-E3 Negotiation-E3			**Instructor's name, job title, and department of affiliation**	Graduate School of Management Associate Professor,WILLIAM BABER		
Group	Career Development			**Field(Classification)**	International Communication		
Language of instruction	English	**Old group**		**Number of credits**	2		
Number of weekly time blocks	1	**Class style**	Seminar	**Year/semesters**	2023・Second semester		
Days and periods	Wed.4	**Target year**	2nd year students or above	**Eligible students**	For all majors		

[Overview and purpose of the course]

Tools and practical experience for conducting negotiations from pre-planning to agreement, so-called Harvard Method or Mutual Gains Negotiation. The course is conducted entirely in English and requires strong speaking and listening skills. The focus is generally on business, however the skills are applicable to other kinds of negotiation, such as politics.
Practices may include remote negotiations with students in overseas universities.

[Course objectives]

Students will understand basic concepts such as alternative, zone of agreement, reserve points, planning, creating new value, problem solving, satisfaction, relationship building, and the overall process of negotiation.

[Course schedule and contents)]

Lecture 1: Basic negotiation skills 1
Lecture 2: Basic negotiation skills 2
Lecture 3: Basic negotiation skills 3
Lecture 4-13: Case practices and skills
Lecture 14: Overview
Week 15: Feedback session
"Total：14 classes, 1 Feedback session"

[Course requirements]

None

[Evaluation methods and policy]

Ongoing evaluation of skills in class including verbal and written assignments.
About 20% of the points will be scored in quizzes.
About 20% of the points will be scored in reflective writing assignments.
About 50% of points will be scored in assignments such as submitted agreements and planning documents.
About 10% of points will be scored for active participation in simulations.

[Textbooks]

Baber, Chen 『Practical Business Negotiation』 （Routledge） ISBN:9780367421731

[Study outside of class (preparation and review)]

Readings from the textbook may be assigned for preparation before class.
Additional materials (cases) will be given to students for preparation before a practice negotiation.

[Other information (office hours, etc.)]

Office hours: Monday and Friday afternoons by appointment

Lecture code: W231001

Course number	U-LAS51 10021 SE48		
Course title (and course title in English)	Digesting Scientific English-E3 Digesting Scientific English-E3	Instructor's name, job title, and department of affiliation	Graduate School of Letters Senior Lecturer,Duncan Wilson

Group	Career Development	Field(Classification)	International Communication

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・First semester
Days and periods	Fri.4	Target year	2nd year students or above	Eligible students	For all majors

[Overview and purpose of the course]

Students will be tutored in how to improve their English reading skills, using a variety of texts and exercises. Passages or terms identified as difficult will be analyzed and explained in simpler language, and possible alternatives presented. The structure and content of scientific reports will be examined. Short texts on a range of scientific topics followed by multiple-choice questions will be used to build confidence and understanding. The overall aim is to foster students' abilities to extract the most important content from scientific texts, find specific information, and draw appropriate conclusions.

[Course objectives]

Students will gain experience in reading scientific texts and extracting the most important information from them. They will also learn to identify good and poor scientific writing.

[Course schedule and contents)]

1. Style and Content in Scientific Papers
2. Good Scientific Writing Style and Spelling
3. Names, Numbers and a Scientific Article
4. Getting the Message: Reading Scientific Texts
5. Asking Questions, Predictions and Hypotheses
6. How Articles Get Published and Editorial Correspondence
7. Citations and Reference Style
8. Scientific Poster Presentations: Good and Bad
9. Active and Passive Voice and CV Writing Tips
10. How Punctuation Affects Meaning, and Ambiguity
11. Scientific Misconduct
12. Writing Exercises I
13. Writing Exercises II
14. Course Review
15. Course Feedback

Note: The contents of specific classes may change.

Continue to Digesting Scientific English-E3(2)↓↓↓

Digesting Scientific English-E3(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class participation (20%) and a final, multi-component exam (80%).

[Textbooks]

Not used
Lecture notes/slides will be distributed and posted on KULASIS.

[References, etc.]

（**Reference book**）
Introduced during class.

[Study outside of class (preparation and review)]

No special preparations are required before or after classes, other than revising the material covered.

[Other information (office hours, etc.)]

Lecture code: W232001

Course number	U-LAS51 10022 SE48				
Course title (and course title in English)	Scientific Writing and Presenting in English-E3 Scientific Writing and Presenting in English-E3	Instructor's name, job title, and department of affiliation	Graduate School of Letters Senior Lecturer,Duncan Wilson		
Group	Career Development	Field(Classification)	International Communication		
Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Seminar	Year/semesters	2023・Second semester
Days and periods	Fri.4	Target year	2nd year students or above	Eligible students	For all majors

[Overview and purpose of the course]

Students will be introduced to issues surrounding scientific writing and presenting. Topics will include how to avoid the most common errors of expression (written and oral), through the use of examples and opportunities to practice. Focus will be on how to structure a scientific report and to write concisely in English, with help from real-life examples. Teaching will include open discussions and an opportunity for students to participate in a mini-symposium as both presenters and audience members.

[Course objectives]

Students completing the course will have improved knowledge of the structure of scientific papers and presentations, as well as clearer ideas of what to do and what not to do to write or present successfully in English.

[Course schedule and contents)]

1. Introduction and Aims of Scientific Writing
2. Good Scientific Writing
3. Common Errors in Scientific English
4. Scientific Papers: Structure and Function
5. Citations and Reference Style
6. Scientific Misconduct
7. Punctuation, Ambiguity, Active and Passive Voice and CV Writing
8. Asking Questions, Predictions and Hypotheses
9. Poster Presentations: Good and Bad
10. Verbal and Non-verbal Skills for Oral Presentations
11. Mini-Symposium: Student Oral Presentations
12. The Process of Getting Published
13. Writing Exercises
14. Course Review
15. Course Feedback

Note: The contents of specific lectures may change.

Continue to Scientific Writing and Presenting in English-E3(2)↓↓↓

Scientific Writing and Presenting in English-E3(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class participation (20%), a short oral presentation (10%) and a final written exam (70%).

[Textbooks]

Not used
Class notes/slides will be distributed.

[Study outside of class (preparation and review)]

Students are expected to review the class hand-outs after each class.

[Other information (office hours, etc.)]

Lecture code: Y102001

Course number	U-LAS60 10002 LE17				
Course title (and course title in English)	Interdisciplinary Sciences-E2 :Global Changes Interdisciplinary Sciences-E2 :Global Changes	**Instructor's name, job title, and department of affiliation**	Institute for Liberal Arts and Sciences Program-Specific Professor,YODEN SHIGEO Disaster Prevention Research Institute Associate Professor,Sameh Kantoush Disaster Prevention Research Institute Senior Lecturer,LAHOURNAT, Florence		
Group	Interdisciplinary Sciences	**Field(Classification)**	Interdisciplinary Sciences		
Language of instruction	English	**Old group**		**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・Second semester
Days and periods	Thu.5	**Target year**	Mainly 1st year students	**Eligible students**	For all majors

[Overview and purpose of the course]

The main purpose of this course is to address the phenomenon of climate change from a variety of angles, using the IPCC 6th Assessment Reports (Summary for Policymakers) as a base for learning, reflection, and discussion.
Along the semester, we will be using the three IPCC Working Group reports:
WG I: The physical science basis,
WG II: Impacts, adaptation, and vulnerability, and
WG III: Mitigation of climate change.
This course encourages students to develop self-learning skills and English expression skills, through assigned self-directed group discussions and presentations.

[Course objectives]

To gain knowledge regarding the current understanding of the scientific basis of the global warming issue, and some of the perspectives for adaptation and mitigation.

[Course schedule and contents)]

1. Introduction (1 week)
 - Description of the class outline and objectives
 - Introduction of fundamental keywords
 - Self-introductions of the participants
 - Group composition: we expect nine groups (tentative) working through the semester, to ensure a good balance of nationality, background, and gender within each group
 - For each theme, several groups will be assigned to specific Working Group Report sections to enable debates between the groups

2.- 5. Theme 1 (4 weeks) “The physical science basis of global warming”
 - Week 1: short lecture by Yoden, and the start of group work
 - Week 2: group work (preparation of presentation or report)
 - Week 3 & 4: group presentations and discussions (3 groups/session x 25 min)
 Feedback will be given at the end of the presentation sessions (15 min)

6.- 9. Theme 2 (4 weeks) “Impacts, adaptation, and vulnerability”
 - Week 1: short lecture by Lahournat, and the start of group work
 - Week 2: group work (preparation of presentation or report)

Continue to Interdisciplinary Sciences-E2 :Global Changes(2)↓↓↓

 - Week 3 & 4: group presentations and discussions (3 groups/session x 25 min)
 Feedback will be given at the end of the presentation sessions (15 min)

10.- 13. Theme 3 (4 weeks) “Mitigation of climate change”
 - Week 1: short lecture by Kantoush, and start of group work
 - Week 2: group work (preparation of presentation or report)
 - Week 3 & 4: group presentations and discussions (3 groups/session x 25 min)
 Feedback will be given at the end of the presentation sessions (15 min)

14. Closing session (1 week)
 - General discussion: remarks and comments by all
 - Final remarks

15. Feedback（1 week）

[Course requirements]

None

[Evaluation methods and policy]

Assessment for the class will base on the following three criteria:
 1. Class attendance/active participation in group work,
 2. Group presentations, and
 3. Individual reports (interim and final).
Details on each criterion will be announced during the first class.

[Textbooks]

Not used
No textbook. Use the pdf files of the IPCC WG reports, which will be available on PandA.

[References, etc.]

（**Reference book**）

IPCC, 2021: Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Pean, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekci, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 3－32, doi:10.1017/9781009157896.001.

IPCC, 2022: Summary for Policymakers. In: Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. [H.-O. Poertner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegria, M. Craig, S. Langsdorf, S. Loeschke, V. Moeller, A. Okem, B. Rama (eds.)]. Cambridge University Press. In Press. pp. 1-35. https://www.ipcc.ch/report/ar6/wg2/

IPCC, 2022: Summary for Policymakers. In: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak,

Continue to Interdisciplinary Sciences-E2 :Global Changes(3)↓↓↓

S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. pp. 1-52. doi: 10.1017/9781009157926.001.

Also,
Koonin, S. E., 2021: Unsettled: What Climate Science Tells Us, What It Doesn' t, and Why It Matters. BenBella Books, Inc., Dallas, 306pp.

クーニン スティーブン・E（著）三木 俊哉（訳）, 2022: 気候変動の真実 科学は何を語り、何を語っていないか? 日経BP, 372pp.

[Study outside of class (preparation and review)]

Students are expected to read the recommended resources for each session, in order to be able to actively participate during discussion.
In order to prepare for each presentation, students will need to meet with their group in between sessions, outside the class time.

[Other information (office hours, etc.)]

- The expected number of students is 45 to 54 (= 5 to 6 x 9 groups). Priority will be given to iUP Japanese and international students enrolled in the program, and other students will be registered in the available slots.
- Regarding office hours, use PandA to send an e-mail to request an appointment.

Lecture code: Y213001

Course number	U-LAS61 10014 LE17		
Course title (and course title in English)	Introduction to Sustainable Development-E2 Introduction to Sustainable Development-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Energy Science Professor,MCLELLAN, Benjamin Graduate School of Global Environmental Studies Associate Professor,TRENCHER, Gregory
Group	Interdisciplinary Sciences	**Field(Classification)**	Environmental Sciences

Language of instruction	English	**Old group**		**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Thu.2	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For all majors

[Overview and purpose of the course]

Sustainable development tries to satisfy people's present needs while maintaining the ability of future generations to meet their own needs. It also requires a triple focus on environmental, economic and social aspects. In this course we will explore how nations can balance growth with environmental health. After studying about various sustainability challenges such as climate change, plastic waste, agriculture, health/diets, energy and social capital, students will develop their own development project proposals.

[Course objectives]

Students will gain an understanding of the core principles of sustainable development and their application through global and local case studies. At the conclusion of the course students will present their own development project proposals to the class.

[Course schedule and contents)]

This course will cover the following topics:
1.Introduction: Definition and principles of sustainable development (Trencher/McLellan)
2.Climate change: The science and surprising impacts (Trencher)
3.Plastic waste crisis in the oceans (Trencher)
4.Diets for a sustainable planet (Trencher)
5.Case studies in Japan and around the world - guest speakers (Trencher)
6.Sustainable road transport: The road to electrification (Trencher)
7.Natural capital (water and other resources, ecosystem services) (McLellan)
8.Social capital (stakeholders, cultural sustainability) (McLellan)
9.Energy issues (McLellan)
10.Business, trade and globalization, global treaties and climate change (McLellan)
11.Case studies in Japan and around the world - guest speakers (McLellan)
12.Proposal preparation (Trencher/McLellan)
13.Student development proposals (Trencher /McLellan)
14.Student development proposals and conclusion (Trencher /McLellan)

Each of the above topics typically covers 1 class week.
Specific topics may change.
The course overall consists of 14 classes and one feedback session.

Continue to Introduction to Sustainable Development-E2(2)↓↓↓

Introduction to Sustainable Development-E2(2)

[Course requirements]

Enthusiasm about the topic and willingness to share ideas in class.
Must be willing to discuss in English with classmates, and to contribute to group assignments.

[Evaluation methods and policy]

Individual components:
1. Attendance and participation: 25%
2. In-class exercises and short assignments: 25%

Groupwork components
3. Project outline: 5%
4. Final presentations 20%
5. Final report: 25%

Standard scoring scale (0-100) will be applied

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Richard Heinberg, Daniel Lerch 『The Post Carbon Reader: Managing the 21st Century's Sustainability Crises』（Watershed Media）ISBN:978-0-9709500-6-2（ Not compulsory, but highly recommended.）
Rachel Carson 『Silent Spring』
Paul Ehrlich 『The Population Bomb』
John Elkington 『Cannibals with Forks』
Paul Collier 『The Bottom Billion』
Jared Diamond 『Collapse』
Meadows, Meadows and Randers 『The Limits to Growth 』
Jevons 『The Coal Question 』（https://oll.libertyfund.org/titles/jevons-the-coal-question）
Thomas Malthus 『An Essay on the Principle of Population』（http://www.esp.org/books/malthus/population/malthus.pdf）
Herman Daly 『Beyond Growth』

（**Related URL**）
http://hdr.undp.org/en/content/human-development-index-hdi(Human Development Index)
https://sustainabledevelopment.un.org/?menu=1300(Sustainable Development Goals)

[Study outside of class (preparation and review)]

Final presentation requires students to spend time out of class hours in preparation.

[Other information (office hours, etc.)]

Lecture code: Y213002

Course number	U-LAS61 10014 LE17				
Course title (and course title in English)	Introduction to Sustainable Development-E2 Introduction to Sustainable Development-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Global Environmental Studies Associate Professor,TRENCHER, Gregory Graduate School of Energy Science Professor,MCLELLAN，Benjamin		
Group	Interdisciplinary Sciences	**Field(Classification)**	Environmental Sciences		
Language of instruction	English	**Old group**		**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・Second semester
Days and periods	Thu.2	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For all majors

[Overview and purpose of the course]

Sustainable development tries to satisfy people's present needs while maintaining the ability of future generations to meet their own needs. It also requires a triple focus on environmental, economic and social aspects. In this course we will explore how nations can balance growth with environmental health. After studying about various sustainability challenges such as climate change, plastic waste, agriculture, health/ diets, energy and social capital, students will develop their own development project proposals.

[Course objectives]

Students will gain an understanding of the core principles of sustainable development and their application through global and local case studies. At the conclusion of the course students will present their own sustainable development project proposals to the class, applying a Sustainable Development Goals (SDG) approach to determine the best approach for addressing specific societal and environmental problems.

[Course schedule and contents)]

This course will cover the following topics (and may change if required):
1.Introduction: Definition and principles of sustainable development (Trencher/McLellan)
2.Climate change: The science and surprising impacts (Trencher)
3.Plastic waste crisis in the oceans (Trencher)
4.Diets for a sustainable planet (Trencher)
5.Case studies in Japan and around the world - guest speakers (Trencher)
6.Sustainable road transport: The road to electrification (Trencher)
7.Natural capital (water and other resources, ecosystem services) (McLellan)
8.Social capital (stakeholders, cultural sustainability) (McLellan)
9.Energy issues (McLellan)
10.Business, trade and globalization, global treaties and climate change (McLellan)
11.Case studies in Japan and around the world - guest speakers (McLellan)
12.Proposal preparation (Trencher/McLellan)
13.Student development proposals (Trencher /McLellan)
14.Student development proposals and conclusion (Trencher /McLellan)
15. Feedback

[Course requirements]

- Participation is required. This is not just attendance - it means joining the conversation. If you must miss a class, explain reason to instructor. Come on time (2 lates = 1 absent).

Continue to Introduction to Sustainable Development-E2(2)↓↓↓

Introduction to Sustainable Development-E2(2)

- Come to class prepared. Read the chapters or articles to be covered before class. Be ready to discuss your ideas. Files will generally be uploaded to the PandA site before class.
- Complete assignments on time. Assignments must be handed in on their due dates and by the due time. If an extension is needed, you must talk with the instructor in advance. All written work must be original to receive credit.

[Evaluation methods and policy]

Individual components
1.Attendance and participation: 15%
2.In-class exercises and short assignments: 35%

Group-work components
3.Group project proposal outline (1 page) 5%
4.Final group presentation: 25%
5.Final group report: 20%

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Richard Heinberg, Daniel Lerch 『The Post Carbon Reader: Managing the 21st Century's Sustainability Crises』（Watershed Media）ISBN:978-0-9709500-6-2（Not compulsory, but highly recommended.）
A reading list and some freely-available resources are provided in PandA.

[Study outside of class (preparation and review)]

Final presentation requires students to spend time out of class hours in preparation.

[Other information (office hours, etc.)]

Please contact the instructor to set up an office meeting. You will be informed of the instructor's email address in class.

Lecture code: Y208001

Course number	U-LAS61 10009 LE61						
Course title (and course title in English)	Chemistry, Society and Environment-E2 Chemistry, Society and Environment-E2			**Instructor's name, job title, and department of affiliation**	Graduate School of Energy Science Professor,MCLELLAN, Benjamin		
Group	Interdisciplinary Sciences			**Field(Classification)**	Environmental Sciences		
Language of instruction	English	**Old group**	Group B	**Number of credits**	2		
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester		
Days and periods	Thu.1	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For science students		

[Overview and purpose of the course]

Chemistry and chemical processes are very important in both the natural environment and in human society. It is important to understand how chemistry helps to develop the products and services that we utilise, as well as how chemical products from society impact the environment, and how we can mitigate such impacts.

This class will introduce some of the important chemical processes and products that shape modern society, as well as examining the influence that they have on the environment. It will cover basic, important chemical processes that occur in nature as well.

The course is aimed at those who are not specialists in chemistry, but are interested in chemistry and its application, history and influence.

[Course objectives]

Students will understand the importance of chemistry and its role in the modern world. Students will understand the importance of chemistry in relation to societal goals and environmental issues.

[Course schedule and contents)]

The following topics will be covered (in 1-3 weeks as highlighted).

Chemistry introduction

1. The history of chemistry and its influence on society
2. The scale of chemical industries and the comparison with global flows

Introduction to the basics of important chemical processes:

3. Energy chemistry (2 weeks)
4. Water chemistry (2 weeks)
5. Petrochemistry
6. Pharmaceuticals / health chemistry
7. Mineral chemistry

Environmental issues and chemistry

Continue to Chemistry, Society and Environment-E2(2)↓↓↓

8. Global warming impacts
9. Local chemical pollution
10. Chemical solutions to environmental problems (2 weeks)
11. Summary and capstone class

One class is held per week.
The course overall consists of 14 classes and one feedback session.

[Course requirements]

None

[Evaluation methods and policy]

Participation and small exercises (50%)
Final presentation (10%)
Final exam or assignment (40%)

[Textbooks]

Not fixed

[References, etc.]

(**Reference book**)
Introduced during class

[Study outside of class (preparation and review)]

Small exercises out of class may be expected.
Class slides will be provided for pre-reading.

[Other information (office hours, etc.)]

Consultation is available by prior arrangement.

Lecture code: Y209001

Course number	U-LAS61 10010 LE17				
Course title (and course title in English)	Human-environmental Interactions-E2 Human-environmental Interactions-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Global Environmental Studies Associate Professor,TRENCHER, Gregory		
Group	Interdisciplinary Sciences	**Field(Classification)**	Environmental Sciences		
Language of instruction	English	**Old group**	Group A	**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Thu.5	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For all majors

[Overview and purpose of the course]

This lecture and discussion course will introduce students to environmental challenges and the human-environmental interactions causing these. In doing so, students will gain an interdisciplinary understanding that includes perspectives from the natural sciences about the drivers of global environmental problems and social science perspectives on the social, policy and ethical dimensions of causes and solutions. The course will use detailed case studies to explore topics of global relevance such as climate change, plastic ocean debris, national park management, agriculture and diets.

[Course objectives]

Students will be encouraged to look critically at the environmental impacts of their own behavior as well as practices on the local, regional, national and international scale. In doing so, students will gain an interdisciplinary understanding that includes perspectives from the natural sciences about the drivers of global environmental problems and social science perspectives on the social, policy and ethical dimensions of causes and solutions. Students will be expected to contribute their ideas and express themselves in small group discussions and classroom exercises.

[Course schedule and contents)]

1. Introduction to course
2. Climate Change 1: Basic science and observations
3. Climate Change 2: Extreme weather and long-term impacts
4. Climate Change 3: The great decarbonisation challenge
5. Climate Change 4: Geoengineering: The ultimate human-nature interaction
6. Agriculture: The relationship between meat, health and environmental change
7. Agriculture: GMOs
8. Ocean Plastic 1: Overview of the problem and causes
9. Ocean Plastic 2: Overview of the problem and causes
10. National park management (Daintree in Australia) and introduction to assignments
11. Home film viewing
12. Group research assignment preparation
13. Group research presentations
14. Group research presentations
15. Feedback (by appointment)

Continue to Human-environmental Interactions-E2(2)↓↓↓

Human-environmental Interactions-E2(2)

[Course requirements]

A willingness to participate in class discussions and group work.

[Evaluation methods and policy]

Attendance and participation 20%
Home film viewing assignment 25%
Student presentations 30%
Student paper 25%

[Textbooks]

No text required. Readings and lecture notes will be distributed in class.

[Study outside of class (preparation and review)]

All students will be expected to participate in classroom discussions and complete assignments. Revision of class presentations is expected.

[Other information (office hours, etc.)]

Please email the instructor to set up an office appointment. Email address will be provided in class.

Lecture code: Y227001

Course number	U-LAS61 10021 LE14				
Course title (and course title in English)	Climate Change and Human Activities-E2 : Introduction to Humanosphere Climate Change and Human Activities-E2 :Introduction to Humanosphere	**Instructor's name, job title, and department of affiliation**	Research Institute for Sustainable Humanosphere Professor,Luce, Hubert		
Group	Interdisciplinary Sciences	**Field(Classification)**	Environmental Sciences		
Language of instruction	English	**Old group**		**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Fri.4	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For all majors

[Overview and purpose of the course]

The knowledge of the past climates on the Earth and the understanding of the mechanisms responsible for their variations are crucial for a better insight of the current global warming. The purpose of this lecture is thus to give students the necessary background for discussing wisely (a) the natural and anthropogenic causes of the current climate change, and (b) the possible societal and environmental impacts of a climate change based on historical examples. The course mainly describes: (1) the known past climates on Earth, (2) the scientific methods used for identifying the past climates and for monitoring the current climate, (3) the natural mechanisms responsible for climate changes, (4) a historical example of climate change impacts on human societies: The Little Ice Age, (5) the growing evidence of anthropogenic effects on the current climate.

[Course objectives]

In this lecture, the students will understand the natural and anthropogenic causes of the present climate change. They will get some tools for appreciating possible impacts of the present climate change on human societies from the analysis of historical and recent events of climate variations. This lecture tackles topics of concern of the Sustainable Development Goals (SDG) of the United Nations (SDG13: climate action).

[Course schedule and contents)]

1. Introduction to the Earth's climate system
-Earth's current climate system and the need to study past climates.
(Week 1-2)
2. The natural causes of global climate change and their time scales.
- From astronomical causes (e.g., Milankovitch cycles) to internal factors (e.g., volcanic activity, continental drift, albedo, greenhouse gases, internal variability)
(Weeks 3-4)
3. The importance of the feedback loops on amplification or attenuation of climate changes.
(Week 5)
4. The primitive Earth's atmosphere and its evolution until today, and the uniqueness of the Earth's atmosphere in the solar system.
- The successive biogeochemical processes leading to the current atmosphere
- Comparisons with the other telluric planets (Mercury, Venus, Mars and the Moon) and the reasons of the differences.
(Week 6-7)
6. The ice ages and their possible causes
-Description of different techniques used to reconstruct past climates.

Continue to Climate Change and Human Activities-E2 :Introduction to Humanosphere(2)↓↓↓

-Description of the different ice ages in light of the information given in 2-3.
(Week 8-9)
7. The climates over the last 100 000 years
- focusing on the Holocene variations and their impacts on the first human societies and civilizations
(Week 10)
8. Societal impacts of a climate change: Example of the Little Ice Age (~1300-1850)
- Description of the cooling period and its possible causes. Impacts on economies and human cultures and societies in Europe, America and Japan: starvations and revolutions.
(Week 11)
9. The anthropogenic causes of the current climate change.
-Indicators of the climate change: observation records, changes in physical and biological systems
- Growing evidence of the human impacts on the climate change
(Week 12-13)
10. What lessons from the past about the possible societal impacts of the current climate change? what can we fear and what solutions?
-Mitigation and adaptation measures
(Week 14)
11. Final Examination
(Week 15)
12. Feedback
(Week 16)

[Course requirements]

This lecture only requires scientific backgrounds in natural sciences of high school levels

[Evaluation methods and policy]

Evaluation will be:
Active participation in class: 20 pts
Assignments/projects at home: 40 pts
Final examination: 40 pts

[Textbooks]

Not fixed
There is no specific textbook for this course. Its content will be based on multiple references (books, websites) that will be mentioned during the course.

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Course materials are made available before class.
Students are encouraged to study materials before and after each class for assimilating technical or uncommon words.
Depending on the topic, the study of the lecture and the preparation of the report for the evaluation may take a few hours a week.

Continue to Climate Change and Human Activities-E2 :Introduction to Humanosphere(3)↓↓↓

[Other information (office hours, etc.)]

Lecture materials are made available on KULASIS website. Communication by emails is possible for questions outside of school hours

Lecture code: Y226001

Course number	U-LAS61 10020 LE14		
Course title (and course title in English)	Environmental Monitoring for Humanosphere-E2 :Introduction to Humanosphere Environmental Monitoring for Humanosphere-E2 :Introduction to Humanosphere	Instructor's name, job title, and department of affiliation	Research Institute for Sustainable Humanosphere Professor,Luce,　Hubert

Group	Interdisciplinary Sciences	Field(Classification)	Environmental Sciences

Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Fri.4	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

The population growth has increased human vulnerability to natural disasters. In addition, advanced technologies and continued increasing demand for energy and other natural resources have led to detrimental impacts on the environment. In-depth knowledge and understanding of environmental conditions are necessary for implementing social changes devoted to protect human life and to preserve the planet for the next generations, as recommended by the Sustainable Development Goal SDG13 (Climate action) of the United Nations. Environmental monitoring, i.e. the observation and the study of the environment, is thus crucial in preparation of risk assessment, population warning against natural disasters, environmental regulations and sustainable development. In this lecture, general aspects of environmental monitoring are presented.

[Course objectives]

The students will gain knowledge about the concept of environmental monitoring. Through a few examples, the students will understand how important environmental monitoring can be for diagnosing problems and warning, and for helping their remediation. They will also get an overview of some monitoring systems used (e.g. network of sensors and communication infrastructures) for these purposes.

[Course schedule and contents)]

1. Introduction: human-environment interactions and the need for environmental monitoring
(Weeks 1-2)
2. Purposes of environmental monitoring: In-depth description
-Generation of information for warning, for getting knowledge, for understanding and for solving issues.
(Week 3)
3. Practical aspects of monitoring
-Sampling strategies, data acquisition and processing: basic rules to obtain reliable information.
(Weeks 4-6)
4. Agencies / organizations providing monitoring data
-International and national agencies and databases
(Week 7)
5. Remote sensing for environmental monitoring
-Basic principles of active and passive remote sensing techniques and their applications.
(Weeks 8-9)
6. Examples of major environmental issues and their monitoring

Continue to Environmental Monitoring for Humanosphere-E2 :Introduction to Humanosphere(2)↓↓↓

Environmental Monitoring for Humanosphere-E2 :Introduction to Humanosphere(2)

-Acid rain, threats to biodiversity, water and soil degradations, monitoring agencies and databases.
(Week 10)
7. An emblematic illustration of the usefulness of environmental monitoring: the stratospheric ozone hole/ depletion
- Introduction to the stratospheric ozone layer, discovery of ozone depletion from monitoring, actions to solve the problem and global ozone monitoring systems.
(Weeks 11-12)
8. Climate Change Monitoring
- The global climate change due to human activities diagnosed by monitoring, Earth- and satellite-based instrumentation for weather/climate monitoring.
(Week 13)
9. Early Warning systems
- Definition and purposes, Air Quality Early Warning systems and Earthquake, tsunami and volcano Early Warning systems.
(Weeks 14)
10. Final examination
(Week 15)
11. Feedback
(Week 16)

[Course requirements]

This lecture only requires scientific backgrounds in natural sciences of high school levels.

[Evaluation methods and policy]

Evaluation will be:
Active participation in class: 20 pts
Assignments/projects at home: 40 pts
Final examination: 40 pts

[Textbooks]

Not used. Slide handouts will be distributed.

[References, etc.]

（**Reference book**）
J. Artiola, I. L. Pepper, M. L. Brusseau 『Environmental Monitoring and Characterization』（Elsevier Sience & Technology Books, March 2004,）ISBN:0120644770

[Study outside of class (preparation and review)]

Course materials are made available before class.
Students are encouraged to study materials before and after each class for assimilating technical or uncommon words.
Depending on the topic, the study of the lecture and the preparation of the report for the evaluation

[Other information (office hours, etc.)]

Materials (pdf files) are available on KULASIS website. Communication by emails are possible for questions outside of class hours.

Lecture code: Y221001

Course number	U-LAS61 10016 LE80		
Course title (and course title in English)	Sustainable Forest Environment-E2 Sustainable Forest Environment-E2	**Instructor's name, job title, and department of affiliation**	Graduate School of Agriculture Program-Specific Assistant Professor,KOCH, Michael Conrad
Group	Interdisciplinary Sciences	**Field(Classification)**	Environmental Sciences

Language of instruction	English	**Old group**		**Number of credits**	2
Number of weekly time blocks	1	**Class style**	Lecture	**Year/semesters**	2023・First semester
Days and periods	Fri.2	**Target year**	Mainly 1st & 2nd year students	**Eligible students**	For all majors

[Overview and purpose of the course]

"Forest sustainable management and their use of resources are key to combating climate change, and to contributing to the prosperity and well-being of current and future generations" - The UN. Along with carbon sequestration, forests play a major role in the hydrological cycle, maintain biodiversity, provide food, raw material for shelter and means for recreation. Following this ethos, this course provides an introduction to forestry science and management. The course can be divided into three parts related to (i) understanding of the critical role forests play on earth, (ii) threats faced by forests ecosystems, and (iii) methods, tools and management for forest sustainability.

Understanding the interactions in a forest ecosystem is critical for the sustainable exploitation and management of forest resources. Stricter environmental laws today mandate Environmental Impact Assessment (EIA) of any state significant project in forest areas e.g. mining, dams and road projects. Understanding and mitigating the negative impacts, like the possible extinction of downstream fish species after the construction of a dam, become important issues for such projects. Students interested in a career in consultancy in EIA and forestry in general will find the concepts of this course helpful.

[Course objectives]

Upon successful completion of this course, students will be able (1) to understand scientific methods for characterizing the physical and living environment in forests and understand the interactions between these components, (2) to explain the concepts of sustainability for tackling forest environmental issues, and (3) to develop tools and frameworks for sustainable management of forests.

[Course schedule and contents)]

1. Introduction - Forests and the global ecosystem
2. Silviculture basics
3. Forest soils
4. Water, Carbon, Nitrogen and other nutrient cycles
5. Ecological energetics
6. Forest biodiversity
7. Natural threats to forest ecosystems
8. Logging and sustained yield
9. Ecological footprint
10. Sustainable Forest Management - I
11. Sustainable Forest Management - II

Continue to Sustainable Forest Environment-E2(2)↓↓↓

Sustainable Forest Environment-E2(2)

12. Environmental Impact Assessment - I
13. Environmental Impact Assessment - II
14. Revision and self-learning week
15. Examination
16. Feedback

[Course requirements]

None

[Evaluation methods and policy]

Students' evaluation will be based on
(1) applying knowledge through answering mini-quizzes (20%);
(2) developing scientific communication skills through writing summary reports of book chapters, research papers and oral presentation (30%);
(3) writing a short essay of a case study using critical & problem-solving skills (10%);
(4) final examination (40%)

[Textbooks]

There is no official textbook for this course. The content of the course is an assembly of selected topics from various textbooks, references, online sources and libraries.

[References, etc.]

(**Reference book**)
Introduced during class

[Study outside of class (preparation and review)]

Students are encouraged to read and review reading materials before classes. Outcome of the reading will be assigned as a class performance, which accounts for the final grade.

[Other information (office hours, etc.)]

After class, student consultation will be arranged with prior notice.

Lecture code: Y225001

Course number	U-LAS61 10019 LE58				
Course title (and course title in English)	Introduction to Biogeochemistry-E2 Introduction to Biogeochemistry-E2	Instructor's name, job title, and department of affiliation	Graduate School of Agriculture Professor,Daniel Epron		
Group	Interdisciplinary Sciences	Field(Classification)	Environmental Sciences		
Language of instruction	English	Old group		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・First semester
Days and periods	Mon.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors

[Overview and purpose of the course]

Biogeochemistry studies the physical, chemical and biological processes that govern the exchanges of energy and matter between the biosphere, the atmosphere and the lithosphere. The course presents the main terrestrial biogeochemical cycles and discusses how natural processes influence them and how they are altered by anthropogenic disturbances. Particular attention will be paid to the global carbon cycle and the importance of soil organic matter in this cycle. This subject is on the border of physics, chemistry, biology, and earth science. It brings important concepts that form the basis of environmental science.

[Course objectives]

Upon successful completion of this course, students will be able (i) to understand the role of biological, chemical and physical processes in determining the fate of the major elements ecosystems and in the terrestrial biosphere, and (ii) to anticipate the effects of management practices on soil organic matter and inherent site fertility.

[Course schedule and contents)]

Course schedule:
1. Introduction to biogeochemistry: element reservoirs and fluxes
2. Biomass, primary production and net ecosystem production
3. Decomposition and mineralisation of organic matter.
4. Land use, land use change and soil organic matter
5. Production, emission and consumption of methane by soils and vegetation
6. Anthropogenic disturbances of major biogeochemical cycles: the global carbon cycle
7. Nutrient cycles and budget in terrestrial ecosystems
8. The biological cycle of nitrogen
9. Weathering and mineral alteration
10. Nutrient limitations and ecosystem fertility
11. Nutrients in aquatic ecosystems: oligotrophy and eutrophication
12. Anthropogenic disturbances of the global N and P cycles
13. Energy and water balances of terrestrial ecosystems
14. Human impact of the water cycle: the blue water / green water paradigm
15. End of Term Exam
16. Feedback

Continue to Introduction to Biogeochemistry-E2(2)↓↓↓

Introduction to Biogeochemistry-E2(2)

[Course requirements]

Beneficial but not mandatory: basic knowledges in biology and chemistry (high school)

[Evaluation methods and policy]

Grading: Quizzes or questions based on previous class contents (after each class on PandA, 50%), end of term exam (50%).
In no case will English language proficiency be a criterion for evaluating students. Tests and exams are designed to allow short answers.
Class attendance is expected: students who are absent more than three times without sound reasons (documented unavoidable absence) will not be credited.

[Textbooks]

Lecture notes and slides will be provided before each class (uploaded on PandA).

[References, etc.]

（**Reference book**）
Chapin III FS, PA Matson, P Vitousek, P l. 『Principles of Terrestrial Ecosystem Ecology』（Springer）
ISBN:ISBN 978-1-4419-9503-2（Recommended books to deepen the course content (not mandatory)）
Schlesinger WH, Bernhardt ES 『Biogeochemistry: An Analysis of Global Change』（Academic Press）
ISBN:ISBN 978-0123858740（Recommended books to deepen the course content (not mandatory)）

[Study outside of class (preparation and review)]

Students are expected to review the course content of previous classes and to read the materials distributed before each class (about two hours between two classes).

[Other information (office hours, etc.)]

Students are encouraged to ask questions and to make comments during the class.
Students are welcome to arrange appointments by email, even outside the official office hour, for questions and discussion.

Lecture code: Y212001

Course number	U-LAS61 10013 LE78						
Course title (and course title in English)	Introduction to Food Sustainability-E2 Introduction to Food Sustainability-E2			Instructor's name, job title, and department of affiliation	Graduate School of Agriculture Associate Professor,Garry John PILLER		
Group	Interdisciplinary Sciences			Field(Classification)	Environmental Sciences		
Language of instruction	English	Old group		Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester		
Days and periods	Thu.2	Target year	Mainly 1st & 2nd year students	Eligible students	For all majors		

[Overview and purpose of the course]

In this course an interdisciplinary, systems approach is taken to broaden and deepen the understanding of concepts, stakeholder perspectives and the complexity of food systems sustainability beyond their own chosen discipline. To achieve this, course work, case studies from various countries, as well as group activities, will be undertaken to foster knowledge exchange and communication between the participants, who come from a diverse range of faculties and schools within Kyoto University. By doing so, the course aims to equip participants with lateral, integrative and forward-thinking skills; who have the capability to contribute to and lead future changes in the food system from a local to a global scale.

[Course objectives]

The expectations and goals for the students taking this course are as follows:

1. Be able to define and explain key issues in sustainable food systems from multiple perspectives.
2. Develop their critical and reflective thinking skills related to food, environmental, economical and social interactions.
3. Develop effective communication skills and be able to engage in thoughtful discussion of current food security issues

[Course schedule and contents)]

Class Schedule

1. Introduction
2. Origins of Sustainability
3. Tragedy of the Commons
4. Population Growth & Urbanization
5. Economic Development— Changes in Dietary Patterns
6. Food Security/ Sovereignty
7. Climate Change & its Impacts
8. Food: Biodiversity
9. Food: Water
10. Food: Energy
11. Food: Fertilizers
12. Food: Land & Soils
13. Food: Environmental Impacts/ Waste
14. Emerging Issues: Biotechnology, Biofuels
15. Feedback

Continue to Introduction to Food Sustainability-E2(2)↓↓↓

Introduction to Food Sustainability-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Grading: Active participation and listening quizzes (20%), weekly quizzes based on assigned pre-class reading materials (30%), mid-term essay (30%), and an in-class group presentation (20%).

[Textbooks]

Not used

[References, etc.]

(**Reference book**)

Handouts and supplemental readings will be distributed electronically and/or as a hard copy in class

[Study outside of class (preparation and review)]

Students should read or listen to the required pre-class materials and submit any required assignment before the class, and come to class ready to participate in class activities.Typically, this will entail listening to a short video or podcast (10 min. or less), as well as reading a 2 or 3 page handout and be prepared to write answers to 1 or 2 questions about the reading material in the following class (15 to 20 minutes provided in class).

[Other information (office hours, etc.)]

Open door policy during office hours, and anytime by email.

Lecture code: Y214001

Course number	U-LAS61 10015 LE14		
Course title (and course title in English)	Natural Disaster Science-E2 Natural Disaster Science-E2	Instructor's name, job title, and department of affiliation	Disaster Prevention Research Institute Associate Professor,Sameh Kantoush
Group	Interdisciplinary Sciences	Field(Classification)	Environmental Sciences

Language of instruction	English	Old group	Group B	Number of credits	2
Number of weekly time blocks	1	Class style	Lecture	Year/semesters	2023・Second semester
Days and periods	Thu.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course will give students an introduction to the utilization of natural resources and natural disasters in the earth that impact humanity and life in general. The aim of this course will emphasize the fundamental scientific principles to explain current technical issues and impacts of climate change on water related disasters in the world such as flood, tsunami, landslides, severe weather, and sediment related disasters. Historic catastrophes will be emphasized. Based on these understandings, all students will study causes, effects, and options available to predict, control, and mitigate natural disasters and social scientific approaches. Examples from recent and ancient history will be used and, whenever possible, Japanese examples will be identified. Knowledge gained in this course will allow for a better understand the world around us and a greater appreciation of the potential issues moving forward for humans.

[Course objectives]

By the end of this course student will:
-Understanding of the world around us and a greater appreciation of the potential issues moving forward for humans.
-Be able to distinguish and analyze various types of natural disasters
-Be able to identify causes and assess significance of natural disasters for human
-Be able to gain analytical skills for how to develop strategies for prediction, mitigation of flooding, climate change impacts and sedimentation disasters

[Course schedule and contents)]

Week1: Introduction to Natural Disasters and Hazards
Week2: Disaster Risk Reduction, Management, and Risk Assessment
Week3-4: Geological Hazards: Earthquakes Causes, Measurements, Mitigation and Risks
Week5: Typhoons, Cyclones, and Hurricanes
Week6-7: Flooding as a Hazard: Monitoring, Prediction, and Mitigation
Week8-9: Report and Group Presentations
Week10-11: Landslides and Debris Flow Disaster: Monitoring, Predication, and Mitigation
Week12-13: Coastal Hazards: Monitoring, Prediction, and Mitigation
Week14: Warning and Evacuation
Week15: Revision and Summary (group presentation)
Week16: Feedback

Continue to Natural Disaster Science-E2(2)↓↓↓

Natural Disaster Science-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Grades will be based on participation and collaboration in group work discussions and cooperative activities, writing reports associated with each topic of natural disasters that have occurred during the course.
Evaluation will be based on class attendance, active participation (40%), and reports and group presentations on major natural disasters that occur during the time period of the course (60%).

[Textbooks]

E.A. Keller and D.E. DeVecchio 『Natural Hazards, Earth's Processes as Hazards, Disasters, and Catastrophes, 』(Pearson) ISBN:10 0-321-93996-4

[Study outside of class (preparation and review)]

Students are requested to read carefully listed textbook and access to historical case studies on each natural disaster through website and related literatures.

[Other information (office hours, etc.)]

Class participation and questions are very welcome during the lectures or at the end of the lecture. The schedule of office hours will be announced later. Moreover, if you have extra question, students may contact me by email.

Lecture code: Z002075

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Global Environmental Issues (地球環境問題) ILAS Seminar-E2 :Global Environmental Issues	Instructor's name, job title, and department of affiliation	Graduate School of Agriculture Professor,Daniel Epron		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Mon.5
Classroom	04, Yoshida-South Campus Bldg. No. 1			Language of instruction	English
Keyword	Climate change / Land degradation / Deforestation / Resource depletion / Biodiversity loss				

[Overview and purpose of the course]

Several environmental problems preoccupy peoples around the world. They result from conflicts between natural and human systems, affect our daily life and compromise our future. This seminar will explore how several environmental issues are addressed at the regional, national or international level, and how ecology and environmental science are used as a basis for addressing and tackling these issues.

[Course objectives]

Upon successful completion of this seminar, students will (i) have a basic scientific understanding of the major environmental issues, and will be able (ii) to critically assess these issues and (iii) to develop decision-making skills for proposing sustainable options for the future.

[Course schedule and contents)]

The course will be based on in-depth analyses of several case studies that will be related to either:
- Climate change: vulnerability, adaptation and mitigation
- Heat waves and urban heat islands
- Air pollution: ozone in the troposphere
- Air pollution: input of nitrogen from the atmosphere to the biosphere
- Water pollution: eutrophication of aquatic ecosystems and scarcity of fresh water resources
- Water pollution: pesticides and endocrine disruptor
- Land degradation and restoration
- Deforestation
- Resource depletion: overfishing and fishing allowance
- Habitat fragmentation and endangered species

The first class will be an introduction and overview of course content. We will review the major environmental issues through reading a scientific paper. Students will work either alone or in small teams on one of these subjects they will select. They will have to read in depth relevant scientific papers, first provided by the instructor and then found by the students. Students will prepare oral presentations based on the paper's content to the group at the next class as a starting point for a discussion. For all subjects that will be analyzed simultaneously, the guideline of the course will be (i) problem definition, (ii) quantification of impacts, (iii) vulnerability assessment and (iv) identification of appropriate solutions to solve it.

Continue to ILAS Seminar-E2 :Global Environmental Issues (地球環境問題)(2)↓↓↓

ILAS Seminar-E2 :Global Environmental Issues (地球環境問題)(2)

(1) Introduction and selection of case studies [1 week]
(2) Problem definition [2-3 weeks]
(3) Quantification of impacts [3-4 weeks]
(4) Vulnerability assessment[3-4 weeks]
(5) Identification of appropriate solutions [3-4 weeks]
(6) Final restitution [1week]
(7) Feedback [1week]

Total:14 classes and 1 feedback

[Course requirements]

None

[Evaluation methods and policy]

Grading: Class participation (20%, students are expected to actively participate in discussion), oral presentation (40% during the class hours), written report (40%).
In no case will English language proficiency be a criterion for evaluating students.
Class attendance is expected: students who are absent more than three times without sound reasons (documented unavoidable absence) will not be credited.

[Textbooks]

No textbooks; reading materials will be distributed before the class (uploaded on PandA).

[References, etc.]

(Reference book)

Reference books will be suggested to each student according to the subject she/he select and her/him interest

[Study outside of class (preparation and review)]

Students are expected to read the distributed articles, to find additional information and to prepare oral presentations. Works on project outside of class hours is expected (about three hours between two classes).

[Other information (office hours, etc.)]

Students are encouraged to ask questions and to make comments during the class.
Students are welcome to arrange appointments by email, even outside the official office hour, for questions and discussion

Lecture code: Z002002

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Introduction to Logic, Proofs and Programs（論理，証明およびプログラムへの入門） ILAS Seminar-E2 :Introduction to Logic, Proofs and Programs	**Instructor's name, job title, and department of affiliation**	Graduate School of Human and Environmental Studies Program-Specific Senior Lecturer,THIES, Holger		
Group	Seminars in Liberal Arts and Sciences	**Number of credits**	2	**Number of weekly time blocks**	1
Class style	Seminar	**Year/semesters**	2023・First semester	**Quota (Freshman)**	15 (15)
Target year	Mainly 1st year students	**Eligible students**	For all majors	**Days and periods**	Mon.5
Classroom	230, Yoshida-South Campus Academic Center Bldg.	**Language of instruction**	English		
Keyword	Computation / Logic / Formal proof				

（Students of Faculty of Integrated Human Studies cannot take this course as liberal arts and general education course. Please register the course with your department.）

[Overview and purpose of the course]

This course is an introduction to basic logical principles and formal methods in computer science.
Students will learn fundamental concepts and techniques of mathematical logic and their applications to computer science and other areas.
The emphasis is on the computational aspects of logic and the topics will be introduced through hands-on use of the Coq proof assistant, a tool for machine-checked mathematical proofs.
The software assists students in constructing formal proofs and automatically checks their correctness.

[Course objectives]

Students will become familiar with logical reasoning and formal proofs.
They will also get some practical experience in the use of a proof assistant.
The course will help students develop skills that are important in any field of research, such as critical thinking and the ability to construct rigorous arguments.

[Course schedule and contents)]

Below are some possible topics that we will cover during the course. We will spend one or two weeks on each topic. The topics we cover may change depending on the interests and abilities of the students.

1) Propositional logic
2) First-order Predicate logic
3) Computer assisted theorem proving
4) Basics of functional programming
5) Natural deduction
6) Type Theory
7) Constructive Logic
8) The relationship between proofs and programs

Total: 15 sessions (14 class sessions and 1 feedback session)

Continue to ILAS Seminar-E2 :Introduction to Logic, Proofs and Programs（論理，証明およびプログラムへの入門）(2)↓↓↓

[Course requirements]

No prior knowledge is required, however some familiarity with rigorous mathematical proofs and interest in computer programming will be helpful.
The course will include some practical exercises. It is recommended that students have access to a computer where they can install software.

[Evaluation methods and policy]

Students are expected to actively participate in discussion, read material, and solve exercises in class.
Evaluation will be based on the following: written and oral assignments (50%), final report (50%)

[Textbooks]

No textbook. Relevant materials will be distributed in class.

[References, etc.]

（**Reference book**）
The following books might be useful as references and background reading, but are not required.

1) "Logic in Computer Science" by Michael Huth and Mark Ryan
Publisher: Cambridge University Press (2004), ISBN: 978-0521543101

2) "A Beginner's Guide to Mathematical Logic" by Raymond Smullyan.
Publisher: Dover Publications (2014), ISBN: 978-0486492377

3) "Software Foundations" by Benjamin C. Pierce et al., Volume 1: Logical Foundations, available online:
https://softwarefoundations.cis.upenn.edu/

4) “Interactive Theorem Proving and Program Development”, by Yves Bertot and Pierre Casteran,
Publisher: Springer (2004), ISBN: 978-3662079645.

[Study outside of class (preparation and review)]

Students should review the course material after each class and solve the homework assignments.

[Other information (office hours, etc.)]

Lecture code: Z002026

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Methods in Ecology and Natural History（生態学・自然史学の手法） ILAS Seminar-E2 :Methods in Ecology and Natural History	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,BARNETT, Craig Antony

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	10 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Mon.5
Classroom	22, Yoshida-South Campus Bldg. No. 1			Language of instruction	English
Keyword	野外研究 / 鳥類 / 都市環境				

[Overview and purpose of the course]

Field research is an essential component of ecology because without it we could not compile models and test hypotheses. In this course we will use field techniques such as point counts to obtain a data set from different parts of the urban environment in Kyoto make comparisons among them in order to understand what species live in these different areas and how the environment can be related to their natural history. Students will work in teams and collect data and then data will be pooled and analyzed in class. Students will work as teams for their presentations, but will submit their own written report.

[Course objectives]

1) Learn to identify birds in Kyoto and surrounding areas
2) Learn how to conduct a scientific experiment
3) Learn some facets of avian natural history
4) Data analysis and presentation
5) How to write a scientific report in English using the data we collected

[Course schedule and contents)]

1) Course introduction, designing an experiment
2) How to design a field experiment.
3) Identifying birds
4) Identifying birds
5) Collecting data
6) Collecting data
7) Collecting data
8) Collecting data
9) Collation and data exploration
10) Data analysis
11) Writing an abstract and introduction
12) Methods and results
13) Discussion and conclusions
14) Peer review

Continue to ILAS Seminar-E2 :Methods in Ecology and Natural History（生態学・自然史学の手法）(2)↓↓↓

15) Group presentations
16) Feedback

[Course requirements]

Understanding of high school biology is recommended.

[Evaluation methods and policy]

Assessment will comprise of participation in data collection and either preparation of final report or in-class presentation.

[Textbooks]

Reading materials distributed during classes.

[References, etc.]

（Reference book）

C. J. Bibby, N. D. Burgess, D. A. Hill, and S. H. Mustoe 『Bird Census Techniques 2nd Edition』（Academic Press）
W. J. Sutherland, I Newton, and R. E. Green 『Bird Ecology and Conservation: A Handbook of Techniques』（Oxford University Press）
M. Brazil 『Birds of East Asia』（Princeton University Press）

[Study outside of class (preparation and review)]

To achieve the course goals students should review the course materials plus optionally the recommended readings after each class. The time necessary for review should be in the range of 2-3 hours per class.

[Other information (office hours, etc.)]

Take out accident insurance.（Partial Refund of Premium Paid for Personal Accident Insurance for Students Pursuing Education and Research (Gakkensai)）

Lecture code: Z002003

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :The wonderful world of quantum physics（素晴らしき量子物理の世界） ILAS Seminar-E2 :The wonderful world of quantum physics	Instructor's name, job title, and department of affiliation	Graduate School of Science Senior Lecturer,PETERS,Robert

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Mon.5
Classroom	21, Yoshida-South Campus Bldg. No. 1			Language of instruction	English
Keyword	quantum mechanics / particles and wave / quantum phenomena / quantum computing				

[Overview and purpose of the course]

We will start with an introduction of crucial experiments 100 years ago, which have changed the beliefs of physicists about small particles and atoms. From there, we will understand the differences between the macroscopic and microscopic worlds and the basic concepts of modern quantum theory. In the second part of the course, we will look at quantum phenomena and their applications, such as quantum teleportation, quantum computing, entanglement, magnetism, and superconductivity.

In principle, this course is given in English. However, if there are parts that the students cannot understand in English, I can and will explain those in Japanese.

[Course objectives]

- Catching a glimpse of the bizarre behavior of the quantum world.
- Seeing the differences between the macroscopic and microscopic worlds
- Becoming familiar with the basic concepts of quantum physics
- Revealing the mysteries behind quantum computing, quantum teleportation, and quantum phenomena such as magnetism, superconductivity, and entanglement.

[Course schedule and contents)]

The course will be adapted to the level of the students. Therefore, the number of weeks may change.

- Introduction to experiments on atoms and quantum particles which have changed the beliefs of physicists 100 years ago (4-6 weeks)
    - light as wave and particle
    - electrons as waves
    - double-slit experiment for electrons
    - the development of modern quantum mechanics
    - Heisenberg uncertainty-principle
    - why quantum mechanics is weird

- Applications of quantum phenomena (3-4 weeks)

Continue to ILAS Seminar-E2 :The wonderful world of quantum physics（素晴らしき量子物理の世界）(2)↓↓↓

    - quantum tunneling
    - quantum teleportation
    - quantum computing

- Quantum phenomena in atoms, molecules, and larger bodies (5-7 weeks)
    - atoms
    - why more is different (many-body physics)
    - molecules
    - superconductivity
    - magnetism

Total：14 classes, 1 Feedback class.
＊15 lectures per semester(two credits) including a class for feedback

[Course requirements]

None

[Evaluation methods and policy]

Attendance, participation (50%) and assignment (50%)

[Textbooks]

Not used

[References, etc.]

（Reference book）

Introduced during class

[Study outside of class (preparation and review)]

The students should read texts about quantum phenomena. The texts, which I will hand out, will help to understand the contents of the class and provide the background for discussions during the lecture.

[Other information (office hours, etc.)]

Office hours: After the course

Lecture code: Z002039

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Topics in Frontier Physics（現代物理学の最先端） ILAS Seminar-E2 :Topics in Frontier Physics	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,WENDELL,Roger		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Mon.5
Classroom	36, Yoshida-South Campus Academic Center Bldg. North Wing	Language of instruction	English		
Keyword	Modern Physics / Nobel Prize / Physics Discoveries				

[Overview and purpose of the course]

This class will introduce students to new and exciting topics in modern physics. Recent discoveries and Nobel prize-winning research will be discussed in straight-forward terms such that anyone can understand and enjoy modern science. Lectures and discussions will be held in English and will cover a wide variety of topics in recent research. Even students with no previous physics experience are encouraged to join this class and learn about how we understand the world today. There will be in-class demonstrations to match some of the topics and we will frequently work in groups to approach interesting problems in current research.

[Course objectives]

Students in this course will learn about the fundamental physics behind recent topics in modern research as well as how they are applied in the real world. We will discuss these as both large and small groups. Students will work together and with the lecturer to understand new and challenging ideas at the forefront of physics.

[Course schedule and contents)]

Each week a different topic in modern physics and cosmology will be presented. The following week will include small and large group discussion on that material and related topics. Topics will include some of the following:

-) From the birth of stars to supernovae
-) The history of the universe and its expansion
-) Dark Matter and Dark Energy
-) Observation of gravitational waves
-) Radiation in the modern world
-) Quarks and CP symmetry
-) Discovery of the Higgs boson
-) Neutrinos and their oscillations
-) Lasers for trapping atoms
-) Superconductivity at low and high temperatures

In addition to the above, students may request lectures on a few topics of their choice.

Continue to ILAS Seminar-E2 :Topics in Frontier Physics（現代物理学の最先端）(2)↓↓↓

Total：14 classes, 1 Feedback class.

[Course requirements]

None

[Evaluation methods and policy]

This is a seminar course and the grade will be based on in-class participation (80%) and short reports (20%). Coming to each class with questions and an open mind is essential. Be ready to discuss in English with other students and the lecturer.

[Textbooks]

Not used

[References, etc.]

（Reference book）

Introduced during class

[Study outside of class (preparation and review)]

Instructions on material to review ahead of lectures and supplementary reading will be presented in class.

[Other information (office hours, etc.)]

Students curious about recent discoveries in modern physics are encouraged to attend this course. No prior knowledge of physics is required.

Lecture code: Z002071

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Clinical and ethical issues within palliative care- the European Context（ヨーロッパにおける緩和ケア） ILAS Seminar-E2 :Clinical and ethical issues within palliative care- the European Context	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Associate Professor,ANAGNOSTOU，Despoina		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Tue.5
Classroom	32, Yoshida-South Campus Bldg. No. 1	Language of instruction	English		
Keyword	palliative care / end of life care / ethics / clinical issues / Europe				

[Overview and purpose of the course]

The overall aim of the seminar is to develop understanding of the key current clinical and ethical issues in palliative and end-of-life care globally with a particular focus on the European context. Issues related to aging population, chronic illness and comorbidities rise will also be addressed.

We will use a combination of short lectures, interactive group discussion and problem based activities and personal reflection throughout the course to address aspects of shared decision-making in palliative care, communication challenges in facing terminal prognosis, ethical issues as viewed within EUROPE, holistic needs assessment and management of complex family interactions.

[Course objectives]

To understand the concepts of palliative and end of life care
To understand the different models of palliative care within Europe
To develop awareness of the different disease groups relevant to palliative care
To develop awareness of the current ethical debates within palliative care in Europe

[Course schedule and contents)]

Session 1: Introduction of the seminar and of those participating
Session 2: Definition and different approaches to palliative care/ end of life care- historical development
Session 3: Wellbeing and wellness in health care- the link to quality of life
Session 4: Family involvement or informal care-giving: the untold reality in palliative care
Session 5: Financial burden/implications for the family in end-of-life care
Session 6: Management of chronic pain in palliative care
Session 7: The importance of resilience as a coping mechanism in palliative care
Session 8: Communication issues in advanced cancer
Session 9: Developing communication skills- key challenges
Session 10: Quality of life as the centre of care in palliative care
Session 10: Advanced care planning- current trends

Continue to ILAS Seminar-E2 :Clinical and ethical issues within palliative care- the European Context（ヨーロッパにおける緩和ケア）(2)↓↓↓

Session 11: Decision-making approaches to palliative care- the importance of shared decision-making
Session 12: Spirituality and spiritual care in palliative care
Session 13: Play therapy in children palliative care
Session 14: Ethical issues in palliative care- cultural competency in palliative care provision
Session 15: presentations- feedback

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on a combination of short assignments throughout the course and a final-course oral presentation.(30/70)

[Textbooks]

Instructed during class
 Textbook material, relevant publications and online resources will be introduced in each session. The relevant material will be uploaded on the PANDA system for students to access.

[References, etc.]

（Reference book）
Introduced during class
References to relevant literature will be given at each session- and always will be located within the PANDA page of the seminar.

[Study outside of class (preparation and review)]

Students will need to follow instructions to complete short assignments through the seminar, based on the lecture and the provided material. They will also need to prepare their final course presentations (PPTx of 10-15min).

[Other information (office hours, etc.)]

Teacher short lectures, discussion groups, student presentations, small group works during seminar session based on an issue specified by the teacher.

Students are advised to actively participate; make comments and ask questions to generate discussions

Students can communicate directly via e-mail with the seminar teacher for advice, etc. Should they need to meet in person, they can make an appointment with the teacher via e-mail.

This class is conducted in a remote format where the instructor delivers classes from outside the classroom. So students are required to bring their own devices.

Lecture code: Z002058

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Food Systems in Asia（アジアにおける食農システム） ILAS Seminar-E2 :Food Systems in Asia	Instructor's name, job title, and department of affiliation	Graduate School of Agriculture Associate Professor,Hart Nadav FEUER		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	12 (8)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Tue.5
Classroom	W302, Faculty of Agriculture Main Bldg. (North Campus)	Language of instruction	English		
Keyword	Food / Cuisine / Nutrition				

[Overview and purpose of the course]

This interactive seminar is about the contemporary transformation of food, nutrition, and agriculture in East and Southeast Asia. The content of the course will be both familiar and challenging to anyone who has eaten different cuisines in Asia. We will cover the development of local cuisines, the role of farmers, and the evolution of diet in modern society. The perspective will be both practical (How does society gather and eat?) and theoretical (Why food systems developed the way they did). Weekly activities involving food, such as tasting, smelling, cooking, are an important learning tool and a fun part of the seminar.

[Course objectives]

Students will learn how scientists understand and analyze global food trends from multiple perspectives. Students will also test their skills in an applied way by analyzing specific cuisines in East Asia and providing their own insight and analysis.

[Course schedule and contents)]

Module 1: Cuisines and agri-food systems in different regions
1. Introduction and Staple Foods
2. Rice food systems of East Asia
3. Wheat food systems of East Asia
4. Rice-based vs. Wheat-based Agrifood Systems

Module 2: Field Trip
5. Field Trip: Kobatake Farm near Sonobe. This event will take place on a weekend day (a Saturday or Sunday between the 4th and 6th class meeting, after consideration of student schedules). It will coincide with rice transplanting period, and include some physical work on the farm. Students should be prepared for early departure and early evening return. Make sure to have clothing and shoes that can become dirty. For students who cannot join the field trip, an alternative class activity will be organized. Transportation costs may be free (shared van up to 9 students) or up to 1,180 yen (return train to Sonobe), depending on class size. Students are responsible for their own lunch. Effort will be made to enable participation in case of financial burden.
6. Field trip followup and Challenges of Traditional Farm Systems

Module 3: Food systems and cuisine

Continue to ILAS Seminar-E2 :Food Systems in Asia（アジアにおける食農システム）(2)↓↓↓

7. Rural food, urban cuisine, national cuisine
8. Taste, smell, chew: sensory skills of eating

Module 4: Learning about food
9. Food education and childhood
10. Nutrition of historical food systems
11. Food system disruptions

Module 5: Student Presentations (order selected later)
12. Cuisine of Korea
13. Cuisine of Vietnam
14. Cuisine of Malaysia

15. Essay and Feedback Period (details in class)

[Course requirements]

English proficiency suitable for understanding lectures, reading basic texts, and participating in class discussion.

[Evaluation methods and policy]

10% Attendance and active participation (Reduced after more than 3 absences without official excuse)
15% Mini-essay assignments
15% In-class discussion and participation in activities
30% Final exam OR essay
30% Final group presentation

[Textbooks]

Not used
No textbook, but consultation of in-class materials and eBooks available at Kyoto University Library (see Reference book).

[References, etc.]

（**Reference book**）
Van Esterik, Penny 『Food Culture in Southeast Asia』（Greenwood）ISBN:9780313344190（eBook available from instructor）

[Study outside of class (preparation and review)]

Students will be expected to do short readings in preparation for class and discuss them the following week. Suitable readings for all English levels are available. Alternatively, students will do practical exercises which must be submitted the following week.

[Other information (office hours, etc.)]

Short meetings can be spontaneous or scheduled. Longer meetings scheduled only by email.

Concerning field trip participation: students should ensure that they join the necessary insurance, such as Personal Accident Insurance for Students Pursuing Education and Research (Gakkensai - 学研災)

Lecture code: Z002073

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :History and Theory of Modern Architecture（現代建築の歴史と理論） ILAS Seminar-E2 :History and Theory of Modern Architecture	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Professor,DANIELL，Thomas Charles

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	10 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Tue.5
Classroom	22, Yoshida-South Campus Bldg. No. 1			Language of instruction	English
Keyword	architecture / history				

[Overview and purpose of the course]

This seminar comprises a broad survey of the history of modern architecture, from the late nineteenth century to the early twenty-first century. The content will be organized as a mixture of chronological sequences and building typologies. There will be explanations of the principal characteristics of the design methods, key figures, and major buildings.

[Course objectives]

By the end of this seminar, students will: Recognize the various styles, specific architects, dates, and locations of important buildings; Understand the climatic, technological, socioeconomic, and cultural factors that have shaped the architecture; Learn to employ basic methods of data collection in research; Assemble this research into a cogent structure; Present research findings to an audience.

[Course schedule and contents)]

The seminar comprises an approximately chronological sequence of lectures. The topics and sequence may be altered during the semester. The first two-thirds of the semester will be lectures by the instructor. The final third of the semester will be presentations by the students. The schedule may be adjusted according to the number of students.

01 Introduction and overview
02 Birth of Modernism
03 High Modernism
04 Late Modernism
05 Alternative Modernisms
06 Postmodernism
07 Neomodernism
08 Deconstructivism
09 Parametricism
10 Supermodernism
11 Student presentations
12 Student presentations

Continue to ILAS Seminar-E2 :History and Theory of Modern Architecture（現代建築の歴史と理論）(2)↓↓↓

13 Student presentations
14 Student presentations
15 Feedback

[Course requirements]

No prior knowledge is required. Students should be able to participate in discussions with their classmates in English.

[Evaluation methods and policy]

Assessment is a mixture of short weekly reports and a term essay/presentation. Students must write short reports on the content of 8 of lectures, following the templates provided (8x10%=80%). Each student will be assigned an individual architect to research, and will submit an illustrated essay on that architect and then present the content to the class in a short, illustrated lecture (20%). Attendance is mandatory. Participation in class discussions will be evaluated.

[Textbooks]

Not used
A PDF file containing the required readings will be provided.

[References, etc.]

（Reference book）

William Curtis 『Modern Architecture since 1900』（Phaidon Press）ISBN:978-0714833569
Charles Jencks 『The Story of Post-Modernism: Five Decades of the Ironic, Iconic and Critical in Architecture』（Wiley）ISBN:978-0470688953
Sigfried Giedion 『Space, Time and Architecture: The Growth of a New Tradition』（Harvard University Press）ISBN:978-0674830400
Kenneth Frampton 『Modern Architecture: A Critical History』（Thames & Hudson）ISBN:978-0500203958
Reyner Banham 『Theory and Design in the First Machine Age』（Praeger）ISBN:978-0262520584
Colin St. John Wilson 『The Other Tradition of Modern Architecture』（Academy Editions）ISBN:978-1854904126

[Study outside of class (preparation and review)]

All students are expected to have read the assigned readings before each class.

[Other information (office hours, etc.)]

By appointment.

Lecture code: Z002084

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Introduction to Organic Electronics (初心者向け有機エレクトロニクス) ILAS Seminar-E2 :Introduction to Organic Electronics	**Instructor's name, job title, and department of affiliation**	Institute for Chemical Research Senior Lecturer,MURDEY，Richard James		
Group	Seminars in Liberal Arts and Sciences	**Number of credits**	2	**Number of weekly time blocks**	1
Class style	Seminar	**Year/semesters**	2023・First semester	**Quota (Freshman)**	10 (10)
Target year	Mainly 1st year students	**Eligible students**	For all majors	**Days and periods**	Tue.5
Classroom	11, Yoshida-South Campus Academic Center Bldg. North Wing	**Language of instruction**	English		
Keyword	chemistry / molecules / semiconductors / physics / technology				

[Overview and purpose of the course]

Some organic molecules and polymers can behave as electrical semiconductors, a property that makes them useful materials for electronics. In this seminar course, you will learn why certain molecules conduct electricity, how organic semiconductors are made, and how devices like organic solar cells and organic transistors work. The lectures are structured as individual topics, selected to show the main aspects of this exciting research field. The material is aimed at 1st and 2nd year students interested in learning about science in English. 3rd and 4th year students are also welcome. Seminars are presented in English. Discussion is in English and Japanese.

[Course objectives]

This seminar course will give students a general overview of the field of organic electronics.

[Course schedule and contents)]

1. Organic electronics in the world today
2. Organic molecules and polymers - what makes them semiconductors?
3. Understanding electricity and conductivity
4. The difference between inorganic and organic materials
5. An introduction to energy levels
6. Defects and imperfections
7. Fabrication methods
8. Some really basic electronics
9. Device measurement: in-class demonstration
10. Selected examples in current research
11. Solar cells
12. Lighting and displays
13. Transistors
14. The next frontier...
15. [no class]
16. Feedback

Continue to ILAS Seminar-E2 :Introduction to Organic Electronics (初心者向け有機エレクトロニクス)(2)↓↓↓

[Course requirements]

None

[Evaluation methods and policy]

Each lecture will introduce a short homework assignment related to the topic covered. These assignments count for 70% of the final grade. Attendance and class participation count for 30%.

[Textbooks]

Not used

[References, etc.]

（Reference book）

Introduced during class

[Study outside of class (preparation and review)]

Weekly assignments reinforce key concepts introduced in the seminars.

[Other information (office hours, etc.)]

Lecture code: Z002021

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Logic, critical thinking and argument（自然科学・工学に関する論理的・批判的思考法と議論） ILAS Seminar-E2 :Logic, critical thinking and argument (Natural Sciences and Engineering)	Instructor's name, job title, and department of affiliation	Graduate School of Energy Science Professor,MCLELLAN, Benjamin

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	7 (7)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Tue.5
Classroom	Room 302, Faculty of Engineering Integrated Research Bldg. (Main Campus)			Language of instruction	English
Keyword	logic / critical thinking / media / science / Fake News				

[Overview and purpose of the course]

Science is not restricted to the academic world - it flows-over into the mass media (both factual and fictional). Logic is vital to the presentation of academic research findings and also to analysing the communication of science in the media.

The aim of this course is for students to learn and practice critical thinking with respect to science and its broader reporting in the mass media.

The students will participate in extracting themes, understanding bias in documents, videos and in their own work. They will practice how to critically analyse documents and to develop their own writing skills, particularly in the area of justification of arguments and the logical structuring and linking of content.

[Course objectives]

The goal of the course is for students to be able to present logical written arguments and to be able to critically assess the validity and structure of literature in the natural sciences and engineering. This will be based on a variety of scientific literature in the academic realm as well as in the media.

[Course schedule and contents)]

The course will broadly cover critical thinking, including the following themes:

1. Introduction to critical thinking: what, why and how
2. Proof, argument and opinion (2 weeks)
3. Logic and illogicality
4. Making the most of information (but not too much) (2 weeks)
5. Academic argument in natural science writing
6. Structuring and clarity in writing
7. Assumptions, reliability and uncommon sense
8. Comprehension, comprehensiveness and conciseness
9. Science in the media - News, Fake News, Movies, Books (3 weeks)

Continue to ILAS Seminar-E2 :Logic, critical thinking and argument（自然科学・工学に関する論理的・批判的思考法と議論）(2)↓↓↓

10. Summary class
11. Feedback

The course is very flexible, depending on the students ability and topics of societal and scientific interest at the time, so exact topics will vary.

The course will be interactive, involving students in discussions on topical issues.

[Course requirements]

None

[Evaluation methods and policy]

Participation in class exercises and take-home exercises (70%)
Final report (30%)
Students will be marked on the ability to identify and critically analyse text, and to produce text of their own.
Standard marking framework is used with a raw score given (0-100)

[Textbooks]

Not used
Exerts from the two reference books below are used as references for some classes.

[References, etc.]

（**Reference book**）
Judith Boss 『THiNK (2nd Edition) 』（2011.）
Merrilee H. Salmon 『Introduction to Logic and Critical Thinking (6th Edition)』
Students who wish to learn more would be encouraged to read these references.

[Study outside of class (preparation and review)]

Out of class preparation for in-class exercises may be required.

[Other information (office hours, etc.)]

For this class, office hours are Monday 13:00-14:00 but prior email contact is required.

Lecture code: Z002078

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Mental Health and Social Isolation in Japan(日本におけるメンタルヘルスとひきこもり) ILAS Seminar-E2 :Mental Health and Social Isolation in Japan	Instructor's name, job title, and department of affiliation	Graduate School of Human and Environmental Studies Program-Specific Associate Professor,TAJAN, Nicolas Pierre		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	10 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Tue.5
Classroom	35, Yoshida-South Campus Academic Center Bldg. North Wing	Language of instruction	English		
Keyword	Mental Health / Hikikomori / Social Isolation / Depression / Schizophrenia				

(Students of Faculty of Integrated Human Studies cannot take this course as liberal arts and general education course. Please register the course with your department.)

[Overview and purpose of the course]

This seminar introduces the challenges of social isolation (hikikomori, schizophrenia, depression) and sheds a new light on the development of the mental health field.

[Course objectives]

To provide you with a general introduction to and understanding of key questions and challenges of social isolation.
To help you develop your analytical and critical thinking regarding the mental health field.

[Course schedule and contents)]

1) Introduction
2) School Non-Attendance and Clinical Psychologists
3) The Resistance to Students' Psychological Care
4) Is Social Withdrawal a Mental Disorder?
5) Mental Health Surveys on Hikikomori
6) NPO Support Towards Hikikomori Youths
7) Hikikomori Subjects' Narratives
8) Beyond the Hikikomori Spectrum
9) Schizophrenia in Japan
10) Schizophrenia in Japan
11) Depression in Japan
12) Depression in Japan
13) Conclusions I
14) Conclusions II
15) Final test
16) Feedback

Continue to ILAS Seminar-E2 :Mental Health and Social Isolation in Japan(日本におけるメンタルヘルスとひきこもり)(2)↓↓↓

[Course requirements]

None

[Evaluation methods and policy]

Students are expected to actively participate in discussion and read material during class. Evaluation is based on the following: Attendance and participation (30%)
2 short tests (Multiple choice questionnaires with 3 possible answers) at the beginning of class 5 and 9 (30%)
final test (40%).

[Textbooks]

Relevant material is distributed in class.

Students can freely download my book (OPEN ACCESS)
Tajan Nicolas. 2021. Mental Health and Social Withdrawal in Contemporary Japan: Beyond the Hikikomori Spectrum. Oxon: Routledge, Japan Anthropology Workshop Series.

Note: each class, except 9-12, refers to one chapter of my open access book.
Class 2 (chapter 1)
Class 3 (chapter 2)
Class 4 (chapter 3)
Class 5 (chapter 4)
Class 6 (chapter 5)
Class 7 (chapter 6)
Class 8 (chapter 7)
Class 13 (chapter 8)
Class 14 (chapter 8)

（Related URL）

https://www.taylorfrancis.com/books/oa-mono/10.4324/9781351260800/mental-health-social-withdrawal-contemporary-japan-nicolas-tajan(My Open Access book)

[Study outside of class (preparation and review)]

Students do not have homework assignments. However, they are advised to take notes during class and to review the course material before tests.

[Other information (office hours, etc.)]

Office hours Friday 12:30-13:00

[Courses delivered by instructors with practical work experience]

(1) Category
A course with practical content delivered by instructors with practical work experience

(2) Details of instructors' practical work experience related to the course
Clinical experiences in a variety of fields as a psychoanalyst, psychotherapist, psychologist

(3) Details of practical classes delivered based on instructors' practical work experience

Lecture code: Z002079

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Nanostructured Materials（ナノ組織材料） ILAS Seminar-E2 :Nanostructured Materials	**Instructor's name, job title, and department of affiliation**	Graduate School of Engineering Senior Lecturer,GAO，Si		
Group	Seminars in Liberal Arts and Sciences	**Number of credits**	2	**Number of weekly time blocks**	1
Class style	Seminar	**Year/semesters**	2023・First semester	**Quota (Freshman)**	15 (15)
Target year	Mainly 1st year students	**Eligible students**	For all majors	**Days and periods**	Tue.5
Classroom	Room 122, Engineering Science Depts Bldg. Physics (Main Campus)	**Language of instruction**	English		
Keyword	Science / materials				

[Overview and purpose of the course]

The physical properties of materials, such as strength, ductility, toughness and corrosion resistance largely depend on their microstructures - the very small scale (generally smaller than 0.1 millimeter) structures of the material that can be only observed by microscopes. By tuning the microstructures the physical properties of the materials can be greatly modified without changing their chemical compositions. Nanostructured materials refer to the materials having microstructures of which the characteristic length scale is very small, generally in the order of 1 to 1000 nanometers (1 nanometer is equal to 10^-9 meter). Because of the extremely fine microstructures, the nanostructured materials often exhibit superior physical properties which cannot be obtained from the conventional materials having coarse microstructures. The purpose of this course is to introduce the frontier research of the nanostructured materials with focusing on the microstructures and mechanical properties of nanostructured metals and metallic alloys. For that purpose, the background knowledge of material science and engineering and physical metallurgy will be firstly introduced in the seminar. Examples of the nanostructured materials having excellent properties and the related physical mechanisms will then be introduced and discussed. Laboratory tours are offered to the students to learn the cutting-edge techniques for fabricating and characterizing the nanostructured materials.

[Course objectives]

By taking this course, students will learn why the materials researches are going into the length scale of nanometer in recent decades. In addition, they will have a brief understanding on the frontier researches of processing, properties and microstructures of the nanostructured metals and alloys.

[Course schedule and contents)]

1. Introduction to materials and materials science
2. Atomic structure and interatomic bonding
3. Structure of crystalline solids
4. Imperfections in solids
5. Microstructures of materials and concept of nanomaterials
6. Laboratory tour* (Techniques for evaluating the mechanical properties and microstructures observation)
7. Metallic materials having nanostructures

8-11. Microstructures and mechanical properties of nanostructured metallic materials

12. Laboratory tour* (Techniques for creating nanostructured metallic materials)

Continue to ILAS Seminar-E2 :Nanostructured Materials（ナノ組織材料）(2)↓↓↓

13-14. Advanced characterization techniques

15.Feedback

* Two laboratory tours in the 6th and 12th week will be held in the laboratory for structure and property of materials in the Department of Materials Science and Engineering at Yoshida campus.

[Course requirements]

None

[Evaluation methods and policy]

Attendance and active participation [60%]

Final report [40%]

[Textbooks]

Not used

[Study outside of class (preparation and review)]

Students are required to read assigned materials (distributed by the teacher) before and after the class for preparation and review. The necessary time for those would be around 2 hours for each class.

[Other information (office hours, etc.)]

Lecture code: Z002082

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Sensors in Everyday Life（日常生活におけるセンサー） ILAS Seminar-E2 :Sensors in Everyday Life	Instructor's name, job title, and department of affiliation	Institute for Chemical Research Senior Lecturer,PINCELLA，Francesca		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	15 (8)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Tue.5
Classroom	32, Yoshida-South Campus Academic Center Bldg. West Wing	Language of instruction	English		
Keyword	medical diagnostics / sensors for diabetes / food sensors / environmental sensors / smartphone sensors				

[Overview and purpose of the course]

Have you ever wondered how your smartphone knows when it is vertical or horizontal? Do you know that a special food wrapping could soon tell you if an apple is ripe or not without even biting it? And you have probably seen the rapid tests that can tell you in a few minutes if you have influenza or COVID-19, but do you know how they work?
All these achievements are made possible thanks to various types of sensors, and this course will introduce you to this interdisciplinary topic.
The aim of this course is to find the answers to some very basic questions like: what is a sensor? What makes a sensor a good sensor? What do sensitivity and specificity mean?
In the first half of the course, we will introduce the general concept of sensor and its ubiquity in our daily life, from thermometers and smoke detectors, to accelerometers in cars and smartphones.
In the second half of the course, we will focus on the new frontiers in chemo- and bio-sensors. We will introduce several examples of innovative sensors for medical diagnostics, food quality and environmental monitoring and their sensing mechanisms.

[Course objectives]

In this course students will familiarize themselves with the concept of sensor and the principles that govern its functioning. The students will learn the basic physics and chemical concepts necessary to understand various sensing mechanims introduced in class. The students will learn to approach the scientific literature, and to read, analyze and extract relevant information from a scientific paper. The students will be encouraged to reflect on the current challenges regarding the development and applications of chemo- and bio-sensors especially in relation to ongoing societal changes (e.g. telemedicine for graying society, monitoring food adulterations, etc..).

[Course schedule and contents)]

Week 1:
- General principle: signal, transducer, output
- Fundamentals: sensitivity, specificity and reproducibility
- Sensors classification

Week 2-6:
- Sensors in everyday life and their evolution:

Continue to ILAS Seminar-E2 :Sensors in Everyday Life（日常生活におけるセンサー）(2)↓↓↓

 o In our homes: Thermometer and smoke detector
 o For our health: Blood glucose sensor
 o In our smartphones: Accelerometers
 o For our safety: Seismometers
 o For our health: Heart rate monitor

Week 7-14:
 o New frontiers in chemo- and bio-sensors

Week 16: Feedback

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on attendance and active class participation (30%), group assignment (30%), and final project report (take-home exam, 40%).

[Textbooks]

Not used

[References, etc.]

（Reference book）

Florinel-Gabriel Banica 『Chemical Sensors and Biosensors: Fundamentals and Applications』（Wiley）ISBN:978-0-470-71066-1
Peter Grundler 『Chemical Sensors: An Introduction for Scientists and Engineers』（Springer）ISBN: 9783540457428
Postolache, O.A., Mukhopadhyay, S.C., Jayasundera, K.P., Swain, A.K 『Sensors for Everyday Life - Healthcare Settings』（Springer, 2017）ISBN:9783319473192

[Study outside of class (preparation and review)]

Students are encouraged to revise the class material regularly and submit assignments on time. Furthermore, students shall research the chosen topic for the final project report, with regular feedback from the instructor, taking advantage of the material recommended in class.

[Other information (office hours, etc.)]

Office hours: online or in person meetings with the instructor can be requested (appointment by email or on Panda)

Lecture code: Z002031

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :What are Liquids? Answers from Physics, Chemistry and Engineering（液体は何？液体の基礎物理学と化学） ILAS Seminar-E2 :What are Liquids? Answers from Physics, Chemistry and Engineering	**Instructor's name, job title, and department of affiliation**	Graduate School of Science Associate Professor,THUERMER, Stephan		
Group	Seminars in Liberal Arts and Sciences	**Number of credits**	2	**Number of weekly time blocks**	1
Class style	Seminar	**Year/semesters**	2023・First semester	**Quota (Freshman)**	15 (15)
Target year	Mainly 1st year students	**Eligible students**	For all majors	**Days and periods**	Tue.5
Classroom	Seminar room 21, ILAS Bldg.	**Language of instruction**	English		
Keyword	Life / Water / Liquid / Flow / Interface				

[Overview and purpose of the course]

Every day you see and use liquids such as water and oil, but also toothpaste, creams or glue. In this seminar we want to study ‘liquids’ from the point of view of physics, chemistry and engineering (in particular fluid dynamics). Have you ever wondered what makes water stick to a window or how toothpaste flows out of the tube? I invite you to study the properties of liquids, how they flow, stick or spread, and gain a deeper understanding of their behavior, which is so important in nature and your daily life. This course will take a closer look on liquids from various perspectives, combining various fields but without getting lost too much into details. Students with any major are welcome.

液体は水のように生命現象に欠くことができない物質の相であり、多くの化学合成や物質開発が溶液中で行われています。また、構造変化の大きな液体は、固体とは性質の似て非なる興味深い凝集相です。このセミナーでは、物理・化学・工学におよぶ多角的な視点から、液体の科学について学びます。

[Course objectives]

Students will gain the following form this seminar:
- Interest and fun to learn more about phenomena in nature and study topics on their own.
- Knowledge about liquid behavior as a starting point for other courses in natural science.
- The ability to look at problems and behavior from multiple scientific fields (physics, chemistry, engineering).
- The ability to express their ideas, discuss and present topics of natural sciences in English.

この講義の目的の一つは、英語で科学を議論するスキルを学ぶことですが、同時に、物理や化学、工学のように分野の境界を越えて、様々な視点から現象を考える機会を持つことです。

[Course schedule and contents)]

This seminar is held in a causal and interactive way! Students can influence the selection of topics based on their interest!

Continue to ILAS Seminar-E2 :What are Liquids? Answers from Physics, Chemistry and Engineering（液体は何？液体の基礎物理学と化学）(2)↓↓↓

The course will work though several aspects of liquids, which include the following topics. The plan below is not strict and rather serves as a guideline.

1. Introduction to liquids - Honey, toothpaste or even sand? (3 weeks)
We look at liquids from different scientific viewpoints and identify their behavior.

2. Oil and water do not mix? (4 weeks)
We learn why liquids form and which different forces hold liquids together.

3. The shape of a raindrop and the lotus effect. (4 weeks)
We take a closer look at liquid surface and interface effects such as adhesion, cohesion, surface tension.

4. How to get ketchup out of the tube? (3 weeks)
We see what makes liquids flow and how different liquids react to forces.

5. Feedback and presentation (1 week)

Depending on the available time and interest of the students, we may also discuss topics such as the application of liquids in nature, science, and technology or exotic liquids such as ionic or magnetic liquids.

[Course requirements]

None

[Evaluation methods and policy]

Preparing homework (30%)
Small exercises during the seminar (30%)
Giving a short presentation at the end of the seminar (40%)

[Textbooks]

Not used
No textbook is used. Handouts will be provided during class.

[References, etc.]

（Reference book）
John Finney 『Water: A Very Short Introduction』（Oxford University Press）ISBN:9780198708728（This book is a short and interesting read specifically about water）
Etienne Guyon, Jean-Pierre Hulin, Luc Petit, Catalin D. Mitescu 『Physical Hydrodynamics』（Oxford University Press）ISBN:9780198702450（An advanced book if you are really interested in the science behind liquids）

[Study outside of class (preparation and review)]

Students are expected to review the lecture handouts after each class and look up unknown English terms themselves. Homework assignments need to be prepared before the next lecture. It is also encouraged to refer to additional sources of information (books, websites) for the specific topics. If something is unclear or difficult, the instructor can be asked at any time.

Continue to ILAS Seminar-E2 :What are Liquids? Answers from Physics, Chemistry and Engineering（液体は何？液体の基礎物理学と化学）(3)↓↓↓

[Other information (office hours, etc.)]

The lectures will be held in English, but some supporting material and explanations are given in Japanese. Students are welcome to ask questions in English or Japanese during and after the class. Office hours are flexible. Appointments can be made directly or via email.

Lecture code: Z002010

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :A Beginners' guide to Carrying out Field Surveys and Qualitative Research（フィールドワークと定性的研究実施入門） ILAS Seminar-E2 :A Beginners' guide to Carrying out Field Surveys and Qualitative Research	**Instructor's name, job title, and department of affiliation**	Disaster Prevention Research Institute Associate Professor,SAMADDAR，Subhajyoti		
Group	Seminars in Liberal Arts and Sciences	**Number of credits**	2	**Number of weekly time blocks**	1
Class style	Seminar	**Year/semesters**	2023・First semester	**Quota (Freshman)**	15 (15)
Target year	Mainly 1st year students	**Eligible students**	For all majors	**Days and periods**	Wed.5
Classroom	Seminar room 22, ILAS Bldg.			**Language of instruction**	English
Keyword	Research Methodology / Qualitative research / Survey tools and techniques / Field Surveys / Action Research				

[Overview and purpose of the course]

In order to design practical and effective development plans and policies, it is essential to deeply understand local communities. In order to understand the voices and thoughts of communities, qualitative research methods will enable us to gain a deeper understanding of reality and everyday life. This is from the perspective of common people, from their own words and viewpoints. It brings voices to the voiceless and hears the unheard. This is a bottom-up approach.

Qualitative research is not only a science but also an art. During this course, we will learn the art and science of qualitative research methods. We will learn the basics of conducting qualitative research by discussing with each other, observing our university campus and fellow students, and reading articles. In this course, students will gain a basic understanding of qualitative research methods by completing practical exercises, conducting field surveys, and analyzing field data.

[Course objectives]

The main objectives of this seminar course are as follows:

1. This course will teach you how to conduct interviews, hold group discussions, and analyze photographs and documents.

2. The purpose of this course is to learn how to select research fields, decide on samples, and collect data from interviews, observations, photographs, and texts.

3. Learn how to analyze and present those data scientifically and aesthetically by coding, decoding, phasing, and paraphrasing.

[Course schedule and contents)]

Week 1: Introduction
- Understanding the basic concepts of qualitative research.

Continue to ILAS Seminar-E2 :A Beginners' guide to Carrying out Field Surveys and Qualitative Research（フィールドワークと定性的研究実施入門）(2)↓↓↓

- Why study qualitative research methods.

Week 2: Designing qualitative studies
- Filed Survey and Data collection decisions.

Week 3: Sampling
- Sample size
- Sampling strategies and options.

Week 4: Fieldwork strategies
- Rapport building techniques.
- Pilot survey techniques for knowing the fields.

Week 5: Techniques Of Data Collection
- Interview
- Observation
- Oral history
- Photography

Week 6: Data Collection from Observation, Photography, and Interview
- Collecting data within the university and among familiar individuals.

Week 7: Data Collection Training and Experiment on University Campus

Week 8: Discussion and class meeting on the challenges of data collection faced by the students.

Week 9: Recording data
- What to record
- Note-taking practices when doing fieldwork.
- Converting field notes into fuller notes.
- Keeping Notes.

Week 10: Data Analysis
- Codes and decoding
- Types of code
- Reading the data and extracting codes

Week 11: Data Coding practice for data analysis

Week 12: Presenting the results
- Graphic and pictorial presentation techniques.
- Displaying qualitative data.
- Making good use of photographs.

Week 13: Writing a Qualitative Data

Continue to ILAS Seminar-E2 :A Beginners' guide to Carrying out Field Surveys and Qualitative Research（フィールドワークと定性的研究実施入門）(3)↓↓↓

- Encoding our writings.
- Quotes in our writings.
- Overall structure.

Week 14: Composing research, to share it with others.
- Composing qualitative research.
- Reworking your composition.

Week 15: Final Presentation and report submission

Week 16: Feedback

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on
- Active participation (30 points).
- Field survey practice (30 points)
- Report Writing (20 Points)
- Presentations (20 points).

Assignments and report presentations will be assessed on the basis of achievement level for course goals

[Textbooks]

Handouts will be distributed by the instructor if necessary.

[References, etc.]

（Reference book）

Field Surveys will be conducted within the campus.

[Study outside of class (preparation and review)]

A field survey will be conducted in order to gain a better understanding of the situation.

As a group or individually, students will work on small projects or existing case studies on campus to gain practical experience in qualitative research methods. The students will present the results of their projects and discuss them with their teachers and fellow students.

[Other information (office hours, etc.)]

The course with experiments or offered outside of the campus, state on the taking out accident insurance of Personal Accident Insurance for Students Pursuing Ed. & Rsch. as needed.
Field Surveys will be conducted within the campus.

Lecture code: Z002093

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Chaos theory（カオス理論） ILAS Seminar-E2 :Chaos theory	Instructor's name, job title, and department of affiliation	Graduate School of Science Senior Lecturer,DECHANT, Andreas		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Wed.5
Classroom	23, Yoshida-South Campus Academic Center Bldg. West Wing	Language of instruction	English		
Keyword	Science / Physics / Chaos / Programming				

[Overview and purpose of the course]

This seminar introduces various fascinating aspects of chaos. While "chaos" often has the connotation of something complicated and uncontrollable, we will see that chaotic behavior can emerge from seemingly simple situations. We will discover that chaos can be, in its own way, very ordered. Perhaps even more surprisingly, chaos can actually be a source of stability. Along the way, we will familiarize ourselves with some of the necessary mathematical tools to describe chaotic behavior. Finally, we will discuss where chaos occurs in physics and everyday phenomena. Throughout the seminar, we will perform several simple experiments on a computer and learn to recognize chaotic behavior.

[Course objectives]

- Understanding the connection between non-linearity and chaos.
- Becoming familiar with the basic mathematical theory of chaos.
- Recognizing chaotic phenomena in daily life and physics.
- Being able to write simple computer programs to visualize chaotic behavior.

[Course schedule and contents)]

Week 1-2: Dynamical systems and phase-space description.
Week 3-6: Using the Julia programming language to visualize dynamical systems.
Week 7-9: Bifurcations: the route to chaos.
Week 10: The Lyapunov exponent: chaotic or not?
Week 11-12: Self-similarity and Feigenbaum constants: order in chaos.
Week 13-14: Chaos in physics.
Week 15：Final written examination
Week 16：Feedback

[Course requirements]

Basic programming skills are helpful but not required.

Continue to ILAS Seminar-E2 :Chaos theory（カオス理論）(2)↓↓↓

ILAS Seminar-E2 :Chaos theory（カオス理論）(2)

[Evaluation methods and policy]

The students will be graded based on their participation in class (20%), worksheets and programming assignments (40%) and a final written examination (40%). Students will need at least 60% in total to pass.

[Textbooks]

No textbook, handouts will be provided.

[Study outside of class (preparation and review)]

The students will occasionally be asked to complete assignments or simple programming exercises.

[Other information (office hours, etc.)]

Office hour: Wed. 15:00-16:00

Lecture code: Z002085

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Computer simulations in Biology（生物学におけるコンピュータシミュレーション） ILAS Seminar-E2 :Computer simulations in Biology	Instructor's name, job title, and department of affiliation	Graduate School of Science Program-Specific Senior Lecturer,BRANDANI, Giovanni・Bruno

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Wed.5
Classroom	04, Yoshida-South Campus Bldg. No. 1			Language of instruction	English
Keyword	computer simulations / Python / numerical methods / reaction kinetics / gene expression				

[Overview and purpose of the course]

Computer simulations play an important role in the process of scientific discovery, complementing theory and experiments. In this seminar course, the students will learn how to code computer simulations in Python to investigate problems of great biological interest. For example, we will study how populations of prey and predators change over time in a given ecological system, understand how bacteria search for food around their environment, and predict the spread of epidemics. The course is structured as a series of tutorials (as Jupyter notebooks) where students implement a model for a given biological system and apply it to learn more about the topic. In the final project, students will investigate a topic of choice, and present their results for the final evaluation.

[Course objectives]

To be able to program computer simulations using the Python programming language.
To understand how models are routinely used to in biology.
To learn about the process of scientific discovery: how to ask your own questions and design your own "computer experiments" to give an answer.

[Course schedule and contents)]

Schedule (may be subject to change, some topics are covered in multiple classes):
- Introduction to the course
- Introduction to programming in Python
- Chemical kinetics
- Predator-prey population dynamics
- Epidemiology
- Final project
(Total:14 classes and 1 feedback)

Continue to ILAS Seminar-E2 :Computer simulations in Biology（生物学におけるコンピュータシミュレーション）(2)↓↓↓

[Course requirements]

Course open to all students. In order to practice with coding, each student should work on a laptop during classes.

[Evaluation methods and policy]

Class attendance and active participation (50%), final project and oral presentation (50%)

[Textbooks]

Handouts will be provided.

[Study outside of class (preparation and review)]

If conditions permit it, in one or more occasions students will be divided into small groups to work together on a project.

[Other information (office hours, etc.)]

Please feel free to come to my office at any time, or to send an email to brandani@biophys.kyoto-u.ac.jp

Lecture code: Z002097

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Critical Thinking in Ethics（倫理学における批判的思考） ILAS Seminar-E2 :Critical Thinking in Ethics	**Instructor's name, job title, and department of affiliation**	Graduate School of Letters Assistant Professor,Campbell, Michael		
Group	Seminars in Liberal Arts and Sciences	**Number of credits**	2	**Number of weekly time blocks**	1
Class style	Seminar	**Year/semesters**	2023・First semester	**Quota (Freshman)**	15 (15)
Target year	Mainly 1st year students	**Eligible students**	For all majors	**Days and periods**	Wed.5
Classroom	02, Yoshida-South Campus Academic Center Bldg. West Wing	**Language of instruction**	English		
Keyword	Philosophy / Metaphysics / Personal Identity / Political philosophy / Ethics				

[Overview and purpose of the course]

In this seminar we will read and discussion a series of classic texts in analytic philosophy, covering a wide range of different topics. Students will be encouraged to actively participate in discussions concerning questions such as whether immortal life would be desirable, how individuals relate to their bodies, what it means to be free, the nature of regret and remorse, and what justice requires.

[Course objectives]

- To introduce students to a wide range of philosophical texts
- To introduce students to a range of key texts and thinkers in philosophy.
- To foster students' abilities to participate in constructive philosophical debate and to improve students' confidence in articulating their ideas.
- To develop students' abilities to reason critically, to interpret philosophical texts and to construct and critique arguments.

[Course schedule and contents)]

Week 1 Introduction
Week 2 - 3 Would Immortality Be Desirable?
Week 4 - 5 What Gives Life Meaning?
Week 6 - 7 Am I My Body?
Week 7 - 8 Can I Know Others?
Week 9 - 10 What Can I Regret?
Week 11 - 12 What is Freedom?
Week 13 - 14 What Does Justice Require?
Week 15 Feedback Class

[Course requirements]

Students will be expected to read at least one text in English prior to each week, to be set by the instructor.

Continue to ILAS Seminar-E2 :Critical Thinking in Ethics（倫理学における批判的思考）(2)↓↓↓

[Evaluation methods and policy]

Students will be evaluated by quizzes conducted regularly throughout the semester. Students will be given a raw score grade out of 100.

[Textbooks]

Not used

[Study outside of class (preparation and review)]

Each week students will be required to read a philosophy essay and to complete an associated reading exercise. Therefore every week there will be an expectation to read 10-20 pages of philosophy and to complete a short writing task.

[Other information (office hours, etc.)]

Lecture code: Z002008

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Frontiers in Theoretical Physics I （理論物理学最前線 I ） ILAS Seminar-E2 :Frontiers in Theoretical Physics I	**Instructor's name, job title, and department of affiliation**	Yukawa Institute for Theoretical Physics Associate Professor,Antonio De Felice		
Group	Seminars in Liberal Arts and Sciences	**Number of credits**	2	**Number of weekly time blocks**	1
Class style	Seminar	**Year/semesters**	2023・First semester	**Quota (Freshman)**	12 (8)
Target year	Mainly 1st year students	**Eligible students**	For all majors	**Days and periods**	Wed.5
Classroom	3A, Yoshida-South Campus Academic Center Bldg. North Wing	**Language of instruction**	English		
Keyword	Theoretical Physics / 理論物理学 / modern physics / 現代物理学				

[Overview and purpose of the course]

● New discoveries and problems arise constantly in theoretical physics.

● We will discuss about the latest achievements, puzzles in the class.

● We will then read each week a couple of recent papers appeared on “Scientific American” of the subject of astronomy, cosmology, theoretical physics or experiments in particle physics.

● Students are given a paper to discuss for the next week.

● The students will be divided into groups and will answer some questions regarding the paper.

● Each of the groups in turn will report their answers to everyone else.

[Course objectives]

● Students will develop critical thinking in a friendly environment.

● The point is to understand and think about the message which lies at the core of each paper.

● The discussion session will then be an arena to develop students’ skills to create their own scientific ideas.

● Students will be stimulated to have opinions, comments, criticism, questions.

Continue to ILAS Seminar-E2 :Frontiers in Theoretical Physics I（理論物理学最前線 I ）(2)↓↓↓

[Course schedule and contents)]

● 14 lectures per semester, no midterm/final exam.

● For each lecture papers will be given to students to read for the next week.

● Students are supposed to read the paper and prepare for the next week.

● Some papers are freshly new papers [from the latest issues of Scientific Amerrcan], others are from previous years.

[Course requirements]

None

[Evaluation methods and policy]

● The method of evaluation merely comes from the interaction, participation and discussion in class.

[Textbooks]

Not used

[References, etc.]

（**Reference book**）

Introduced during class

[Study outside of class (preparation and review)]

● The students will be given a paper to read a week before class.

● Students are then supposed to learn the material [inside each paper] and be able to present to others, to discuss its content with others, and to answer questions regarding the paper itself.

[Other information (office hours, etc.)]

Lecture code: Z002004

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Frontiers of Earthquake Science（地震学の最前線） ILAS Seminar-E2 :Frontiers of Earthquake Science	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,ENESCU, Bogdan Dumitru

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	12 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Wed.5
Classroom	Room 152, Graduate School of Science Bldg No.1 (North Campus)			Language of instruction	English
Keyword	Earthquakes（地震） / Tsunami （津波） / Disaster Prevention （防災） / Volcanoes（火山）				

[Overview and purpose of the course]

We are going to read scientific papers related to important/frontier topics of Earthquake Science. The purpose is to understand the key-message of the paper, rather than the detailed technical background. To facilitate understanding, some materials/vocabulary in Japanese will be provided during the seminar.
日本語のキーワード等もだしますので、遠慮なく参加してください。楽しく最前線の科学の面白さを学びながら、英語の能力も向上しましょう！

[Course objectives]

The student will become familiar with current important topics of Earthquake Science. The seminar also aims enabling the student to discuss earthquake related research topics in English.

[Course schedule and contents)]

Each student is going to choose a paper in the field of Earthquake Science, and prepare a short report (few PowerPoint slides), summarizing the main ideas of the study. The paper can be chosen freely; some broad suggestions include:
- Megathrust earthquakes: physics and possibility of prediction;
- Tsunami: physics and early warning;
- The deep structure of the Earth 'illuminated' by seismic waves;
- Earthquake disaster prevention;
- Earthquake simulations and laboratory experiments;
- Artificial intelligence (AI) in Earthquake Sciences.

The first class will give students some broad options of topics/papers.
During the second class we will decide the paper that each student is going to present. I will exemplify with a research presentation during the third and fourth classes. Starting with the fifth class each student is going to present the chosen paper and get feedback for improving his report. In the examination day, each student should present briefly his updated/revised report.

Depending on the number of students and available time, we will visit the underground seismic base isolation at the "Kyoto University Clock Tower", go to the nearby Hanaore Fault and visit the Disaster Prevention Research Institute (DPRI), Kyoto University (Uji campus), to discuss with Professor Masumi Yamada on the

Continue to ILAS Seminar-E2 :Frontiers of Earthquake Science（地震学の最前線）(2)↓↓↓

Earthquake Early Warning system in Japan.

For students interested in more advanced topics, including computer programming (Python, Fortran, C, Matlab) for Geosciences, I can provide additional materials and guidance.

Note: there are 14 classes, one examination, and one feedback class.

[Course requirements]

None

[Evaluation methods and policy]

Grading will be based on attendance and participation (60%) and presentation of chosen paper (40%).

[Textbooks]

Not used

[Study outside of class (preparation and review)]

The student will have to prepare the assigned paper.

[Other information (office hours, etc.)]

- Students can meet me during office hours with prior appointment.
- Since we may go outside the campus during the class (see "Course schedule and contents"), I advice students on taking accident insurance (e.g. Personal Accident Insurance for Students Pursuing Education & Research).

Lecture code: Z002014

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Introduction to Human Genetics and Genetic Disease（人類遺伝学と遺伝病入門） ILAS Seminar-E2 :Introduction to Human Genetics and Genetic Disease	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Senior Lecturer,Marco,Marques Candeias		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	25 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Wed.5
Classroom	22, Yoshida-South Campus Bldg. No. 1	Language of instruction	English		
Keyword	Human Genetics / Genetic Disorders / Cancer Genetics / Genetics Research / Molecular Therapy				

[Overview and purpose of the course]

An overview of human genetic disorders and how current research is creating new treatments. Topics include: single gene disorders, multifactorial disorders; cancer genetics; identification and analysis of human disease genes. Students will learn from recent research articles as well as from a recent text book on human genetics. After learning about the several subjects, the students will present recent research in class and active discussion will be encouraged.

[Course objectives]

The classes will be interactive. Recent exciting research discoveries about human genetics and genetic disease will be introduced and discussed. The students will learn about gene structure and function, mutations and diversity, inheritance, detection and treatment.

[Course schedule and contents)]

The following topics will be viewed during a total of 14 classes:
1. The Human Genome: Gene Structure and Function
2. Human Genetic Diversity: Polymorphism or mutation?
3. The Chromosomal and Genomic Basis of Disease: Disorders of the Autosomes and Sex Chromosomes
4. Single-Gene Inheritance
5. Complex Inheritance (known and unknown molecular mechanisms) of Common Multifactorial Disorders
6. Genetic Variation in Populations
7. Identifying the Genetic Basis for Human Disease
8. The Molecular, Biochemical, and Cellular Basis of Genetic Disease
9. The Treatment of Genetic Disease
10. Developmental Genetics and Birth Defects
11. Cancer Genetics

(Total: 14 classes and 1 feedback)

Continue to ILAS Seminar-E2 :Introduction to Human Genetics and Genetic Disease（人類遺伝学と遺伝病入門）(2)↓↓↓

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on active participation (~20 %), assignments (~50 %) and quizzes/test (~30 %). Those who are absent more than four times will not be credited.

[Textbooks]

Robert L. Nussbaum, Roderick R. McInnes, Huntington F Willard 『Thompson & Thompson Genetics in Medicine』（Elsevier Health Sciences） ISBN:0323392067, 9780323392068

[Study outside of class (preparation and review)]

Some time will be necessary weekly to prepare for the class. Handouts will be available to help with the preparation. During the assignment weeks extra time will be necessary in order to prepare for the presentation in class.

[Other information (office hours, etc.)]

Questions and discussions during class are highly encouraged.
Questions and discussions will also be addressed, happily, any other time, even outside the official office hours.

Lecture code: Z002095

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Physiological Neuroscience（生理学的神経科学） ILAS Seminar-E2 :Physiological Neuroscience	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,RAUDZUS，Fabian

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Wed.5
Classroom	12, Yoshida-South Campus Academic Center Bldg. East Wing			Language of instruction	English
Keyword	Brain (脳) / Spinal cord (脊髄) / Neuron (ニューロン) / Neurogenesis (神経発生)				

[Overview and purpose of the course]

How does our brain work? How is it possible to think, see, hear, and move? The seminar "Physiological Neuroscience" introduces the principles and functions of our major control center. In the first few seminars, the fundamental structure of the brain and the basic properties of neurons will be examined. Based on this, we will look closely at neurons, especially their membrane proteins, such as ion channels and receptors. Subsequently, we will explore how the membrane is crucial for establishing ion gradients and how these can be turned into an electrical signal. After understanding these important mechanisms, we will consider how the propagation of these signals leads to neuronal communication. Seminars in the later part of the course will focus on how the brain develops and how neurons establish the proper "wiring". In the last three seminars, we will examine the functions of more complex structures and specialized neurons that enable us to see, hear, and sense, for example, pain. In every seminar, you will learn about the basic properties and functions of the brain and work on disturbances mediated by various diseases, medications, narcotics, or toxins, thereby deepening your understanding of the brain and acquiring the necessary tools to comprehend related issues.

[Course objectives]

After the successful completion of the seminar, you will have acquired the knowledge to understand the structure and functions of neurons, as well as their interactions, such as the transduction of signals. In addition, a consideration of related medical and biological issues will strengthen your understanding of cellular and molecular mechanisms in neuroscience. Finally, you will acquire the necessary skills to understand and discuss novel issues in neuroscience.

[Course schedule and contents)]

1. Introduction to neuroscience
2. What is a neuron?
3. The important role of ion channels
4. How can a neuron sense an external signal? Receptors
5. A matter of concentration: ion gradients and the membrane potential
6. Time for action: the action potential
7. Worksharing within the neuron: neuronal polarity and subcellular specialization
8. Neuronal chatter: how do neurons communicate?
9. How is the message delivered from one neuron to the other? Neurotransmitter

Continue to ILAS Seminar-E2 :Physiological Neuroscience（生理学的神経科学）(2)↓↓↓

10. The development of the brain: neurogenesis
11. How to connect the wires? Axon guidance and neuronal regeneration
12. From the eye to the brain: the visual system
13. Can you hear me? The auditory system
14. "Doctor, Doctor, it hurts!" How we sense pain
15. Current state and perspective of research
16. Feedback

Changes in order and/or content might occur.

[Course requirements]

The course is open to all students but a basic understanding in biology is recommended.

[Evaluation methods and policy]

Attendance and active participation: 20%
Midterm assignment: 40%
Presentation: 40%

[Textbooks]

Not used

[References, etc.]

（Reference book）

Mark F. Bear, Barry W. Connors, Michael A. Paradiso 『Neuroscience: Exploring the Brain』（Jones & Bartlett Learning, April 8, 2020）ISBN:9781284211283（Enhanced 4th Edition (English Edition)）
Additional literature and Massive Open Online Courses (MOOCs) will be introduced during the seminars.

[Study outside of class (preparation and review)]

Preparation and review are necessary for every seminar. This includes recapitulating the last seminar, solving questions, and self-studying as preparation for the upcoming topic. The amount of time required for preparation is about 60-90 min.
Attending the seminar "Disorders of the Nervous System" is recommended to get further insights into neuroscience.

[Other information (office hours, etc.)]

The seminar "Physiological Neuroscience" forms a complementary basis for the lectures "Introduction to Behavioral Neuroscience A" and "Introduction to Behavioral Neuroscience B".
If you have further questions, feel free to write me an email.

Lecture code: Z002090

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Psychology of Addiction（依存症の心理学） ILAS Seminar-E2 :Psychology of Addiction	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,SAHKER, ETHAN KYLE		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	10 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Wed.5
Classroom	26, Yoshida-South Campus Bldg. No. 1	Language of instruction	English		
Keyword	drugs / alcohol / gaming / internet / behavior				

[Overview and purpose of the course]

Addictive disorders like drug and alcohol dependence, internet addiction, and gambling disorders are a widespread problem affecting millions of people in Japan and across all cultures. Nearly everyone knows someone affected by addiction, from "kitchen drinkers" and methamphetamine use disorders, to those with video gaming addiction. This course is designed to help students understand why people become addicted, problems associated with addiction, and how recovery is conceptualized. This course will provide students with an understanding of how addictions develop and how they are maintained. Students will gain knowledge in the biological, psychological, and social factors of addiction. Then, they will learn about distinct types of addictive disorders. Further, students will gain knowledge in the methods of identification and behavioral concepts in addiction recovery. At the end of the course, students will understand how addictions are conceptualized and the processes involved with punishment and rehabilitation.

[Course objectives]

To gain basic knowledge of problems associated with addiction
To learn about the biological, psychological, and social factors of addiction
To understand the ethics considered in addiction
To understand the psychological concepts of addiction recovery

[Course schedule and contents)]

1. Addiction Background and Prevalence
2. Neurobiology of Addiction
3. Psychology of Addiction
4. Social Influences of Addiction
5. Substance Use Disorders (Alcohol and Drugs)
6. Behavioral Addictions (Technology and Gambling)
7. Assessment and Diagnosis
8. Laws and Ethics
9. Punishment and Rehabilitation
10. Clinical Access and Referral
11. Cognitive Behavioral Concepts
12. Motivational Interviewing, Support Groups, and Relapse Prevention

Continue to ILAS Seminar-E2 :Psychology of Addiction（依存症の心理学）(2)↓↓↓

ILAS Seminar-E2 :Psychology of Addiction（依存症の心理学）(2)

13. Presentations I
14. Presentations II
15. Final Exam
16. Feedback

[Course requirements]

None

[Evaluation methods and policy]

30% - Group Presentations
30% - Final Exam
20% - Short Personal Reflection Paper
20% - Attendance and Active Participation

[Textbooks]

Not used
No Textbook will be used. Materials will be provided in class.

[References, etc.]

（**Reference book**）
Introduced during class
Reference materials will be provided in class.

[Study outside of class (preparation and review)]

Students are expected to complete assigned readings and assignments before class.

[Other information (office hours, etc.)]

Students may contact the instructor if they have questions and they may schedule an in-person appointment by email.

Lecture code: Z002083

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Religion and Law（宗教と法） ILAS Seminar-E2 :Religion and Law	Instructor's name, job title, and department of affiliation	Graduate School of Law Program-Specific Associate Professor,ALVAREZ ORTEGA, Miguel

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	10 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Wed.5
Classroom	Seminar room 24, ILAS Bldg.			Language of instruction	English
Keyword	Law & Religion / Religious freedom / separation of Church & State / Religious arguments in the public sphere / Comparative Law				

[Overview and purpose of the course]

This seminar addresses the historical relationships and contemporary developments in the interaction between law and religion. Students will be invited to discuss a wide range of topics of their interest, namely religious freedom, the separation of Church and State, the use of religious arguments in the public sphere, and the rights of religious minorities. Different philosophical approaches and legal solutions will be covered, with an emphasis on the American model.

[Course objectives]

- to provide students with a historical and systematic background on the relationship between Law and Religion.
- to encourage students to critically reflect upon contemporary issues related to the place of religion in contemporary democracies.

[Course schedule and contents)]

1.Introduction
2.Conceptual introduction: defining “Law” and “Religion” (I)
3.Conceptual introduction: defining “Law” and “Religion” (II)
4.Religion and Law in pre-industrial societies
5.Theocracy: conceptualization
6.Theocracy: legal and political implementation
7.Religious Freedom and the Separation of Church and State: philosophical foundations and historical context
8.The American Model: historical origins and constitutional frame
9.The American Model: the non-establishment clause
10. The American Model: the free exercise clause
11.The French Model: historical developments of "Laicite."
12.The French Model: "Laicite" and Islam today.
13.Study case I: religious symbols in public schools (Italy)
14.Study case III: Sikhs exempted from wearing helmets (the UK v. Germany)
15.Appraisal and feedback

Continue to ILAS Seminar-E2 :Religion and Law（宗教と法）(2)↓↓↓

ILAS Seminar-E2 :Religion and Law（宗教と法）(2)

[Course requirements]

None

[Evaluation methods and policy]

Students are expected to present and debate specific materials for each session, which will constitute 40% of their grade.
A final paper on issues discussed in the syllabus will be submitted on week 14 (60% of the grade).

[Textbooks]

Not used
No single specific textbook will be followed. Specific papers and materials will be distributed each week.

[References, etc.]

（Reference book）
Russell Sandberg 『Law and Religion』（Cambridge University Press）ISBN:9780511976865
Students in need of a reference book may resort to the one here included.

[Study outside of class (preparation and review)]

Students are required to prepare texts for discussion on a weekly basis and be ready to present and discuss such material in class. They are also expected to critically reflect upon the addressed and discussed issues after class.

[Other information (office hours, etc.)]

Students may ask for an appointment and/or address their questions via e-mail.

Lecture code: Z002080

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Introduction to Probability（確率入門） ILAS Seminar-E2 :Introduction to Probability	Instructor's name, job title, and department of affiliation	Research Institute for Mathematical Sciences Associate Professor,Croydon, David Alexander		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	8 (8)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.4
Classroom	34, Yoshida-South Campus Academic Center Bldg. North Wing	Language of instruction	English		
Keyword	mathematics / probability / random variable / stochastic process / Markov chain				

[Overview and purpose of the course]

This seminar-style course will give students a chance to learn about some important models in applied probability. The focus will be on Markov chains, which are central to the understanding of random processes, and have applications in simulation, economics, optimal control, genetics, queues and many other areas. As well as introducing mathematical techniques, it will be a goal to show how these can be applied to understand certain random phenomena, such as the long-time behaviour of random walks, survival/extinction of branching processes, convergence of algorithms, and reinforcement.

[Course objectives]

- To understand basic models of applied probability, particularly Markov chains
- To apply mathematical techniques to understand random phenomena in applications
- To gain experience in reading and presenting mathematics in English

[Course schedule and contents)]

In the first lecture, the lecturer will introduce the topic, and basic aims of the course. For most subsequent weeks, the classes will consist of two parts:
- a part where students present their attempts to solve problems set by the lecturer in the previous class;
- a part where the lecturer introduces some new topics upon which the following week's student problems will be based.

The following indicates possible topics, though this may vary depending on the students' proficiency level and background.

(1) Introduction to applied probability and Markov chains [1 week]
Review of basic probability, definition of a Markov chain, outline of course
(2) Basic properties of discrete-time Markov chains [7 weeks]
Class structure, hitting times/probabilities, computations using probability generating functions
(3) Long-time behavior of discrete-time Markov chains [3 weeks]
recurrence/transience, invariant distributions, convergence to equilibrium, time reversal, ergodic theorem
(4) Applications [3 weeks]
Random walks, branching processes, urn models, queuing models

Continue to ILAS Seminar-E2 :Introduction to Probability（確率入門）(2)↓↓↓

Total: 14 classes and 1 week for feedback

[Course requirements]

None

[Evaluation methods and policy]

Students will be expected to participate in class, both by presenting material prepared in advance, and by discussing problems. Their performance in these aspects will contribute 70% of the final mark. There will also be a final exam, in which students will be asked to apply the techniques covered in the course, which will also contribute 30% of the final mark.

[Textbooks]

Norris 『Markov Chains』（University Press, 1997）
Grimmett and Stirzaker 『Probability and random processes』（Oxford University Press, 2001）
All the material needed for this course will be provided in the classes, and so there is no need to purchase the listed textbooks. However, they are both good sources for additional reading. Particularly, the course will follow quite closely Chapter 1 of the Norris book.

[Study outside of class (preparation and review)]

As noted in the course schedule, from the second week, students will be asked to prepare and present problem solutions. (Their efforts on such assignments form part of the assessment.) Details will depend on the number of students enrolled on the course, and will be discussed in the first class. Typically the lecturer would expect students to spend 1-2 hours per week on study outside the class.

[Other information (office hours, etc.)]

Lecture code: Z002091

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :A stroll around materials chemistry - Superconducting materials（材料化学の散歩道 - 超伝導体） ILAS Seminar-E2 :A stroll around materials chemistry - Superconducting materials	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Associate Professor,Yi Wei

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	11, Yoshida-South Campus Academic Center Bldg. West Wing			Language of instruction	English
Keyword	Superconductivity / Magnetic expulsion / High-temperature superconductors / Sensitive magnetometers / Superconducting electromagnets				

[Overview and purpose of the course]

Amazing superconducting materials are one kind of substance exhibiting zero electrical resistance and magnetic exclusion at certain conditions. They can be metals, ceramics, or organic materials. This course will introduce the superconducting properties (including discovery, phenomena, elementary properties), superconducting materials (conventional and high temperature superconductor), and superconductor applications. It is intended to equip students with a basic understanding of superconductivity, characteristics of various superconductors and advantage of applications. It also aims to encourage students to do active conversation about scientific concept in English.

[Course objectives]

This course aims to equip students with a basic understanding of the superconducting materials, including superconducting properties, phenomena, basic interpretations and applications. The classifications and characteristics of various types of superconductors will be comprehended.

[Course schedule and contents)]

The number of lectures as shown in【】.
1.Discovery and development【1】

2.Basic properties of superconductor【2】
Absolutely zero electrical resistance
Perfect diamagnetism

3.Superconducting phenomena and interpretation【4】
Critical phenomena in superconductor
Flux trapped in superconductor
Tunneling effect of supercurrent
Pairing electrons

4.superconducting materials【5】

Continue to ILAS Seminar-E2 :A stroll around materials chemistry - Superconducting materials（材料化学の散歩道 - 超伝導体）(2)↓↓↓

Elements and alloys superconductors
Superconducting MgB_2
Cu-based superconductors
Fe-based superconductors
Superconductors under pressure

5.Applications【2】
Superconducting magnet
Magnetic resonance imaging (MRI)
Sensitive magnetic detector
Energy storage and transmission

6.Feedback【1】

[Course requirements]

None

[Evaluation methods and policy]

Class attendance and participation (60%)
Homework(20%)
Presentation and discussion(20%)

[Textbooks]

Not used
Handouts will be provided as necessary

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Students are expected to participate in the conversations and presentations in class. Their own laptops (or ipads, smartphones, etc.) can be used to search for references and information during discussion sessions in class. It is around one hour to complete the assignments after class.

[Other information (office hours, etc.)]

Lecture code: Z002041

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Encounters with modern arithmetic（現代整数論との出会い） ILAS Seminar-E2 :Encounters with modern arithmetic	Instructor's name, job title, and department of affiliation	Research Institute for Mathematical Sciences Senior Lecturer,UEDA FUKUHIRO

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	36, Yoshida-South Campus Academic Center Bldg. North Wing			Language of instruction	English
Keyword	Galois theory / polynomials / modern algebra				

[Overview and purpose of the course]

It is a classical question from centuries ago whether a quintic (or of higher degree) polynomial equation is solvable in terms of its coefficients, with only use of the usual operations (addition, subtraction, multiplication, division) and application of radicals (square roots, cube roots, etc). It was French mathematician E. Galois who proposed the correct framework for such a question, the answer to which turns out to be negative in general. Nowadays, the theory of Galois has become an essential part of modern abstract algebra.

The so-called "fundamental theorem of Galois theory" is commonly considered as the summit of a course in (undergraduate) abstract algebra, which usually takes a year to complete. In this half-year course we start from the beginning of abstract algebra, with emphasis on the concepts and examples that shall help us reach Galois theory.

It is worth mentioning that abstract algebra has also found applications in science and engineering, e.g. in cryptography.

[Course objectives]

We will learn the basic concepts and theorems in group theory, ring theory, field theory, and Galois theory. As an application, we shall also be able to determine which polynomial equations are solvable in radicals.

[Course schedule and contents)]

We intend to cover a big chunk of modern algebra in a condensed and interesting way, to make it accessible to most undergraduate students. Both concepts and examples will be emphasized.

Below is the plan and contents of the course. (The lectures, as well as the order of the lectures, may be modified, depending on students' background and understanding of the course materials.)

- Set Theory [1 week]:
  Notion of sets, mappings, mathematical induction, Zorn's lemma.

- Group theory [3-4 weeks]:

Continue to ILAS Seminar-E2 :Encounters with modern arithmetic（現代整数論との出会い）(2)↓↓↓

  Definition and examples of groups, homomorphisms, abelian groups, Sylow's theorem.

- Ring theory [3-4 weeks]:
  Definition and examples, ideals, Euclidean domains, PIDs, UFDs, polynomial rings.

- Field theory [2-3 weeks]:
  Definition and examples, field extensions, polynomials, finite fields.

- Galois theory [2-3 weeks]:
  Galois extensions, roots of unity, solvability.

Total: 14 classes and 1 feedback

[Course requirements]

It is helpful to know basics in linear algebra, but not required.

[Evaluation methods and policy]

The evaluation consists of the following weighted parts:

- Performance in class (20%).

- Presentation (60%): Each student reviews a mathematical topic assigned by the instructor.

- Report (20%): An essay on the topic of presentation.

[Textbooks]

D. Dummit and R. Foote 『Abstract Algebra』（Wiley; 3rd edition）ISBN:9780471433347
There is no need to purchase the textbook in advance. The details will be explained in the first class.

[References, etc.]

（**Reference book**）
Other supplemental materials will be introduced during the classes.

[Study outside of class (preparation and review)]

Along with preparation and review, students are encouraged to form study groups.

[Other information (office hours, etc.)]

Lecture code: Z002019

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :How to Read a Scientific Paper（英語科学論文の読み方） ILAS Seminar-E2 :How to Read a Scientific Paper	Instructor's name, job title, and department of affiliation	Graduate School of Biostudies Associate Professor,GUY, Adam Tsuda		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	20 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	3C, Yoshida-South Campus Academic Center Bldg. North Wing	Language of instruction	English		
Keyword	English / Biology / Scientific literature / Critical analysis				

[Overview and purpose of the course]

Scientific literacy and critical analysis are essential skills for a career in science, and a valuable life skill even for those who choose a career path outside science. In this class, we will begin by studying an influential paper together. This will introduce students to a basic approach to reading primary scientific literature that will help you to reach your own conclusions about the data. Next, each student will search for and pick a paper, and in class, together, we will try to understand everything about it: concepts, methods, analysis, interpretation and significance. This will be an opportunity to learn some science, as well as to see how experiments are designed and how statistical analyses are applied. Students hopefully will use their chosen papers as a springboard to explore subjects that are of particular interest to them. The class structure will depend on how many students enroll.
This course is recommended for students who are planning on pursuing graduate studies in biology or other science subjects in the future.

[Course objectives]

Students will acquire the ability to read scientific papers on their own, becoming familiar with the technical writing and structure used in scientific journals.
Students will be shown how to track down additional information and search online databases for related or cited works.
Students will learn about some of the laboratory techniques and statistical analyses commonly used in biomedical research papers.
Most importantly, students will learn about the scientific principles of empiricism and skepticism, to perform their own critical analyses of scientific papers.

[Course schedule and contents)]

Students will learn some background about scientific discourse and publication in scientific journals. We will then read and analyse a landmark paper together in class. During each subsequent class, we will also spend a little time on each student's chosen paper. Students will learn by a combination of traditional class lecture and active learning methods such as small group work discussion, in-class quizzes, and one-on-one discussions with the instructor during this course.

1. Introductory Lecture

Continue to ILAS Seminar-E2 :How to Read a Scientific Paper（英語科学論文の読み方）(2)↓↓↓

2. Getting Started: Types of Scientific Communication, What is Scientific Discourse? How Peer Review Works. Short student survey.
3. Introduction of a landmark or recent paper to read together in class. Introduction to using PubMed as a resource to search for papers.
4. The Anatomy of a Scientific Paper. Short quiz.
5. The What? Why? How? of a Paper (in-class discussion and small group work)
6. Analysis of Methods, Figures and Results (small group work) Students should begin searching for a paper to analyse for their written assignment. I will discuss one-on-one about papers suitable for each student.
7. Analysis of the Discussion (small group work). Advice on Predatory Publishers and Paper Mills.
8. What is Critical Analysis? (in-class discussion)
9. Advice on writing your report. (in-class discussion, one-on-one work)
10. Basic Statistics. A discussion of Plagiarism. (in-class discussion)
11. Discussion of Writing Style, and some Advice. (in-class discussion, one-on-one work)
12. Class topics tailored to student needs (one-on-one work)
13. Class topics tailored to student needs (one-on-one work)
14. Class topics tailored to student needs (one-on-one work)
15. Exam day. Student written assignment due.
16. Feedback Class

This schedule is flexible, and will depend on how many students enroll in the course. The schedule also will depend on the types of papers that we are analysing.
The class is open to all 1st and 2nd year students, although the papers will mainly come from the field of my expertise, biology.

[Course requirements]

No requirement. However, an intermediate level of English speaking and writing ability is highly recommended, for presentation and reading comprehension.

[Evaluation methods and policy]

Grading will be based on attendance and active class participation (80%), and a written homework assignment (20%), which will be a critical analysis of a paper chosen by the student. The written assignment will be graded on the basis of student comprehension and critical analysis, rather than grammatical standards of English.

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
I will provide additional background material, depending on the topic of each paper that is chosen by students.

[Study outside of class (preparation and review)]

Out of class reading may take 2-3 hours per week, mostly looking up technical terms, learning about the background for the papers that are discussed during class, or searching online databases for papers to analyse.

[Other information (office hours, etc.)]

In principle, anytime. Please contact the instructor by e-mail if you have any questions. For consultations about course-related matters outside class hours, please make an appointment directly or by e-mail.

Lecture code: Z002022

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Introduction to Stem and iPS Cells（幹細胞とiPS細胞入門） ILAS Seminar-E2 :Introduction to Stem and iPS Cells	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Senior Lecturer,Marco,Marques Candeias

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	25 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	24, Yoshida-South Campus Bldg. No. 1			Language of instruction	English
Keyword	Stem Cell / iPS Cell / Cancer Stem Cell / Cell Therapy / Disease Modelling				

[Overview and purpose of the course]

How a single egg-cell can give rise to a tridimensional complex system of tissues and organs in the organism. Fundaments of Embryology (from the oocyte until gastrulation/neurulation) and Stem Cell Biology (ES, iPS, CSC) will be introduced. Students will learn from recent research articles (including the original Takahashi & Yamanaka paper) as well as from recent textbooks on Developmental Biology and Stem Cell Research. After learning about the several subjects, the students will present recent research in class and active discussion will be encouraged.

[Course objectives]

The classes will be interactive. Recent exciting research discoveries about iPS cells and cell replacement therapy will be introduced and discussed. The students will learn about stem cells, cell commitment and differentiation, iPS cells, cancer stem cells, disease modeling and personalized cellular therapy.

[Course schedule and contents)]

The following topics will be viewed during a total of 14 classes:
. Differential Gene Expression
. Fertilization: Beginning a New Organism
. Early Development in Mammals
. Embryonic Stem Cells
. Differentiation in Early Development
. Generation of Induced Pluripotent Stem (iPS) Cells
. Characteristics and Characterization of Pluripotent Stem Cells
. Cancer Stem Cells
. Neural Stem Cells: Therapeutic Applications in Neurodegenerative Diseases
. Use of Embryonic Stem Cells to Treat Heart Disease
. Insulin-Producing Cells Derived from Stem Cells: A Potential Treatment for Diabetes
. Stem Cells for the Treatment of Muscular Dystropy
. Cell Therapy for Liver Disease
. Skin Regeneration
. Embryonic Stem Cells in Tissue Engineering
. Adult Stem Cells in Tissue Engineering

Continue to ILAS Seminar-E2 :Introduction to Stem and iPS Cells（幹細胞とiPS細胞入門）(2)↓↓↓

. Stem Cell Gene Therapy
. iPS Cells in Disease Modelling and Drug Screening

(Total:14 classes and 1 feedback)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on active participation (~20 %), assignments (~50 %) and quizzes/test (~30 %). Those who are absent more than four times will not be credited.

[Textbooks]

Edited by:Robert Lanza and Anthony Atala 『Essentials of Stem Cell Biology (Third Edition)』（Academic Press）ISBN:9780124095038, 9780124104273（2013）
Scott F. Gilbert 『Developmental Biology 10th』（Sinauer Associates）ISBN:9780878939787（2013）

[Study outside of class (preparation and review)]

Some time will be necessary weekly to prepare for the class. Handouts will be available in advance to help with the preparation. During the assignment week extra time will be necessary in order to prepare for the presentation in class.

[Other information (office hours, etc.)]

Questions and discussions during class are highly encouraged.
Questions and discussions will also be addressed, happily, any other time, even outside the official office hours.

Lecture code: Z002017

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Introduction to Biomedical Presentation and Debate（医学英語入門-プレゼンテーションとディベート） ILAS Seminar-E2 :Introduction to Biomedical Presentation and Debate	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,Erik WALINDA		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	7 (7)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	22, Yoshida-South Campus Bldg. No. 1			Language of instruction	English
Keyword	Presentation / Debate / Biomedical Science				

[Overview and purpose of the course]

1. Presentation

Sadly, 95% of presentations are really not interesting.

Really?

No, it is actually 99%

In fact, when we attend a presentation, we often see members of the audience sleeping. This is a problem.

Most people <have to> give presentations at conferences or business meetings.

Unfortunately, most presentations are:
* long
* boring
* bad slides
* no meaning

What we actually <want> is:
* short
* simple
* easy to understand
* entertaining

In this class, students will learn what is important to give a great presentation. They will see that presentations can be <fun>.

Continue to ILAS Seminar-E2 :Introduction to Biomedical Presentation and Debate（医学英語入門-プレゼンテーションとディベート）(2)↓↓↓

2. Debate

Most Japanese students do not like debate. However, this can be fun, too, if you just it!
In the class, we will first find a topic, which the class is interested in.

Before the debate, students will research about the topic and chose their arguments.

Then, students will choose the Pro- or Contra- side (about 3 students each).

Next is the actual debate. Now, students in the pro- and contra-groups will deliver their speeches (about 2-3 minutes per speaker). The audience group will actively join the floor discussion.

At the end of the debate we will discuss, whether the pro- or the contra-group delivered the more convincing speeches.

[Course objectives]

This seminar focuses on developing the students' ability to present and discuss scientific matters in English. This class mainly aims at (i) raising the students' confidence in talking about non-trivial things in a foreign language, (ii) making sure that the points presented by the students are indeed logically connected and (iii) being able to deal with questions and answers.

[Course schedule and contents)]

1. Course Introduction [Weeks 1-2]

2. Presentation Preparation [Weeks 3-5]

3. Presentation Design [Weeks 6-8]

4. Presentation Delivery [Week 9]

5. Final Presentation by the Students (evaluation) [Week 10]

6. Debating [Week 11-14]

Total:14 classes and 1 feedback

[Course requirements]

None

[Evaluation methods and policy]

Active participation is absolutely required in this seminar. In the debating part, students are expected to talk about scientific matters in English. In the presentation section, not only the presenter, but all students are expected to ask questions or share their opinion about the subject in English.

Attendance and Active participation [60%]
Assignments (presentation and debate) [40%]

Continue to ILAS Seminar-E2 :Introduction to Biomedical Presentation and Debate（医学英語入門-プレゼンテーションとディベート）(3)↓↓↓

[Textbooks]

Instructed during class
We use a textbook called "Presentation Zen" and several other reference books but students do not have to buy them. These books will be introduced in the class and all of them are available in the library.

[References, etc.]

（Reference book）
Introduced during class

[Study outside of class (preparation and review)]

* Research on assigned presentation topics.
* Preparation of presentations.
* Research about debate topics.

[Other information (office hours, etc.)]

Office hour: any time (please send an email before coming to the office) or online (zoom etc.)

Lecture code: Z002018

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Introduction to the biology of nematodes（線虫の生物学入門） ILAS Seminar-E2 :Introduction to the biology of nematodes	Instructor's name, job title, and department of affiliation	Graduate School of Biostudies Associate Professor,CARLTON, Peter

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	10 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	Seminar room 22, ILAS Bldg.			Language of instruction	English
Keyword	biology / genetics / nematodes / 遺伝学 / 線虫				

[Overview and purpose of the course]

This class will introduce to students one of the most abundant forms of life on earth: the Nematodes or roundworms. The most famous of these is the useful model organism called Caenorhabditis elegans. The goal of the class is to provide both a survey of how scientists use these organisms to conduct research, demonstrate the worm's great importance to biology, and provide hands-on experience with simple worm manipulation.

Students will also learn directly about some of the current biological questions that are being addressed with this versatile model organism. We will also find wild nematodes around Kyoto, make scientific observations on them and use DNA sequencing to identify their species. Whether we find a new species, or identify new isolates of known ones, this class will introduce you to a new realm of life.

線虫学入門 - 生物学を学びながら新種の線虫を見つけよう!

線虫は動物の中で最も個体数の多い生物種です。線虫は土壌や植物から簡単に見つけることができ、分子生物学における重要なモデル生物の一つでもあります。2002年には、線虫を用いた細胞死の研究に対して、2006年には、線虫におけるRNA干渉の発見に対して、それぞれノーベル賞が贈られています。線虫が持つ遺伝子のうち、６０－７０％は私たち人間にも共通しているため、ヒトにも共通する様々な生体のメカニズムを理解することを目指して、飼育や遺伝子組み換えが容易な線虫が、実験材料として分子生物学では用いられます。

この授業では、各自、サンプルを持参して、そこから線虫を取り、それぞれの線虫のゲノムDNAの一部を増幅し、そのシーケンスを読むことによって、線虫種を同定します。

新種の線虫を発見する可能性もあり！新種の線虫の探索に加えて、分子生物学の研究において一般的に使われている野生株と変異株を用いた遺伝学実験、高解像度顕微鏡を用いた染色体構造の観察も行います。

[Course objectives]

-To understand the biology and diversity of nematodes
-To understand the uses of the nematode Caenorhabditis elegans in modern biological research

Continue to ILAS Seminar-E2 :Introduction to the biology of nematodes（線虫の生物学入門）(2)↓↓↓

-To understand the anatomy and life cycle of C. elegans
-To learn how to create new strains containing desired mutations by designing crosses between animals
-To acquire the knowledge and experience needed to begin genetic research with C. elegans

[Course schedule and contents)]

1 Overview of the course; nematodes and the place of C. elegans in the tree of life. Set up for worm collection.
2-3 Nematode development, anatomy, and life cycle
4-8 Wild Worms of Kyoto: worm observation and species identification
5 Basic worm genetics: selfing and crossing (with microscopy observation)
6-9 Genetics, meiosis, and sex chromosomes
10 Fluorescence microscopy of worm chromosomes
11-12 Genome sequence of C. elegans and its relatives
13 Selected topics in nematode research and application to human health
14 Presentation by each student on one topic (5 minutes, 1 A4 page)
15. Feedback

[Course requirements]

This is an introductory course. There are no requirements, but a basic familiarity with biology and genetics will be beneficial.

[Evaluation methods and policy]

Evaluations will be based on participation, short quizzes, and a final presentation, with contributions of 40%, 40%, and 20%, respectively, to the final grade.

[Textbooks]

Instructed during class

[References, etc.]

（**Reference book**）
Fay, Starr, Spencer, Johnson 『Worm Breeding for Dummies: A guide to genetic mapping in C. elegans』（PDF textbook）

[Study outside of class (preparation and review)]

Students will have to understand technical vocabulary in English. This may require studying outside of class hours.

[Other information (office hours, etc.)]

Office hours will be 1 hour once per week, schedule to be announced on the first day of class.

This class involves some genetic experiments on nematodes.
遺伝子実験：対象(ヒト以外の動物、植物、生物等)

Lecture code: Z002061

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Introduction to cross-cultural communication（異文化コミュニケーション入門） ILAS Seminar-E2 :Introduction to cross-cultural communication	Instructor's name, job title, and department of affiliation	Disaster Prevention Research Institute Senior Lecturer,LAHOURNAT，Florence

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	10 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	3A, Yoshida-South Campus Academic Center Bldg. North Wing			Language of instruction	English
Keyword	cross-cultural communication / cultural awareness / cultural competence				

[Overview and purpose of the course]

This seminar is designed as an introduction to cross-cultural communication with a focus on cultural awareness. The objective of this seminar is to provide students with knowledge and tools to reflect on and approach multi-cultural communication in a culturally-competent way:appropriately and effectively.

With an emphasis on approaching and understanding other cultures and communication without bias, it will cover basic concepts and principles necessary for the promoting and improving of cultural self-awareness and inter-group, cross-cultural communication.
With the basic question of what culture is as a starting point, we will explore the mechanisms of culture and inter-group relationships and their implications in our perceptions of ourselves and others along the following themes: cultural awareness, cultural identity, ethnocentrism and cultural relativism, stereotype and prejudice, cultural competence.

[Course objectives]

The objectives of this seminar are for students to:
- gain an understanding of the key notions related to culture, cultural awareness, the mechanisms of communication
- acquire awareness and understanding of cultural processes (including our own preconceptions), and the impact of culture on communication
- gain confidence formulating ideas and opinions, and engaging in discussions on specific topics.

[Course schedule and contents)]

This is a seminar-type class. Sessions will include a short lecture and rely on discussion and group work based on the week's topic and readings.

1- Orientation and overview
2- Deconstructing culture
3- Linking culture and communication
4- How communication works
5- Group work

Continue to ILAS Seminar-E2 :Introduction to cross-cultural communication（異文化コミュニケーション入門）(2)↓↓↓

6- Social and cultural identities
7- Bias, stereotype, prejudices
8- Models of culture
9- Group work
10- Language and verbal communication
11- Nonverbal communication
12- Towards cultural competence (P.1)
13- Towards cultural competence (P.2)
14- Final project

Total: 14 classes and 1 feedback

Note: The detailed definitive schedule will be handed out during the first class.

[Course requirements]

There are no specific requirements for taking this seminar.
However, students must be willing to prepare for each session by completing the weekly readings and assigned tasks, and to participate actively in class.

[Evaluation methods and policy]

Evaluation will be based on:
- class attendance (30%)
- active participation (30%),including group works and discussions
- weekly assignments (20%)
- final project and presentation (20%)

Active participation means actively engaging with the class content, participating during discussions and group work, and contributing to the class by sharing opinions, experiences and reflections.

Students absent 4 times or more will fail this class.
Tardiness (by 15 minutes or more) will be treated as absence.
Systematic tardiness and/or unexplained early departures will greatly reduce your attendance and participation grade.

[Textbooks]

There is no textbook for this seminar.
Weekly readings will be available for download.
Printing and preparing the material is the responsibility of the student.

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Students are expected to prepare for each class by reviewing their notes and completing the weekly readings and assigned tasks.

Continue to ILAS Seminar-E2 :Introduction to cross-cultural communication（異文化コミュニケーション入門）(3)↓↓↓

[Other information (office hours, etc.)]

- This is a seminar-type class, and as such will rely heavily on in-class discussion and student participation. It will be conducted in English. All readings and material will also be in English.

- As stated in the evaluation section, students are expected to engage actively during class.The level of engagement will greatly influence the final grade.

- Office hour is after class or by appointment.

Lecture code: Z002068

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Programming for data analysis（データ解析のためのプログラミング） ILAS Seminar-E2 :Programming for data analysis	Instructor's name, job title, and department of affiliation	Institute for Life and Medical Sciences Associate Professor,VANDENBON, Alexis

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5

Classroom	35, Yoshida-South Campus Academic Center Bldg. North Wing	Language of instruction	English
Keyword	Programming / R / Data analysis / Statistics		

[Overview and purpose of the course]

R programming language is a useful environment for statistical data analysis and machine learning. The R language is widely used in many fields of science, for data processing, analysis, and visualization. In this course, I will introduce basic R programming techniques. Using example applications, I will illustrate how to use R to process and manipulate data, to write your own functions, to perform statistical tests, and to make figures.

[Course objectives]

Students will learn the basic features of the R language for data manipulation, computation, and visualization. They will learn how to write your own code and functions, and how to use publicly available packages. Example applications introduced during the course will give students enough experience to use R for their own analysis.

[Course schedule and contents)]

Lecture 1: Introduction to R. We will introduce R, its main features, and advantages and disadvantages. Using R interactively we will introduce some simple data types and commands.
Lectures 2-3. Simple manipulations, numbers and vectors. In this session, we will continue introducing simple operations. We will also discuss vectors, how to access their elements, and how to manipulate them.
Lecture 4: Inspecting variables and the workspace. We will discuss the properties of different classes of variables, and how to manipulate variables and the workspace.
Lectures 5-6: We will cover how to make vectors, arrays and matrices, and how to apply commands on them. We will introduce ways to manipulate arrays and matrices, and how to store and access data in them.
Lecture 7: Lists and data frames. We will introduce lists and data frames, and their basic commands and features.
Lecture 8: Environments and functions. So far we have only used pre-defined functions. In these two lectures we will discuss how to write your own functions for manipulating and processing various types of data.
Lecture 9: Flow control and loops. We will introduce ways how to execute commands only when some conditions are met (if statements), and how to execute operations repeatedly (various types of loops).
Lecture 10: Packages. Apart from pre-installed functions, there are thousands of libraries and packages publicly available. Here we will discuss how to find such packages in the “Comprehensive R Archive

Continue to ILAS Seminar-E2 :Programming for data analysis（データ解析のためのプログラミング）(2)↓↓↓

Network” (CRAN), how to install them, find documentation, and use them.
Lecture 11: Getting data and cleaning data. We will discuss several ways of reading data from files, cleaning data, and how to save data in files.
Lecture 12: Data visualization. We will introduce 3 big approaches for making various types of plots and figures in R.
Lecture 13: Statistical tests and probability distributions. R is particularly useful for statistical analysis of data. We will introduce commands related to probability distributions, and commands for applying various widely used statistical tests.
Lecture 14. Review of course material.
Lecture 15: Feedback

[Course requirements]

None

[Evaluation methods and policy]

Grading: Active participation (20%) and small assignments (80%). In the assignments, students solve a number of practical problems by programming scripts in the R language.

[Textbooks]

Richard Cotton 『Learning R: A Step-by-Step Function Guide to Data Analysis (first edition)』（O'Reilly Media）ISBN:978-1449357108（The course lectures will roughly follow the content of this textbook. It will be supplemented with additional material, including an introduction to R available on the CRAN website (https://cran.r-project.org/manuals.html).）

[Study outside of class (preparation and review)]

The course will follow a textbook. At the end of each lecture I will specify the sections to read before the next lecture.

[Other information (office hours, etc.)]

It is strongly recommended to bring a laptop to the class.
No fixed office hours. Students are requested to make appointments directly or by email.

Lecture code: Z002050

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :The Invisible Universe （不可視の宇宙） ILAS Seminar-E2 :The Invisible Universe	Instructor's name, job title, and department of affiliation	Graduate School of Science Senior Lecturer,LEE, Shiu Hang		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	503, Faculty of Science Bldg. No.4 (North Campus)	Language of instruction	English		
Keyword	宇宙物理学 / 天文学				

[Overview and purpose of the course]

Our Universe is far beyond what our eyes can perceive. Hidden in the tranquil ocean of stars, nebulae and galaxies pictured by optical telescopes and cameras around the world everyday, extreme energetic phenomena that can only be observed through ‘invisible lights' (e.g., radio waves, X-rays, gamma-rays) or even messengers other than electromagnetic waves (e.g., cosmic-rays, neutrinos) are happening frequently here and there in the Cosmos. This seminar will bring students into this exciting world of the Invisible Universe. Students can carry out introductory research projects and/or study from a book in a subject of his/her interest under the guidance of the instructor.

Some projects pursued by past members:
1) Evolution of stars
2) Gamma-ray astronomy using a NASA satellite (Fermi Gamma-Ray Space Telescope)
3) Cosmic ray physics
4) Learn about astrophysics of blackholes, planetary nebulae, pulsar wind nebulae and other fascinating celetial objects

The way a student will proceed with her/his project varies depending on the subject. For example, the following methods were used by students in the past successfully:
1) Numerical simulations using open-source codes
2) Writing Python scripts for simple calculations and data visualization
3) Data analysis using mission-specific applications

Pre-requisite knowledge is not needed for this seminar. The students will be tutored according to their pre-knowledge levels on an individual basis.

[Course objectives]

1) To obtain basic knowledge and feel the excitement of forefront astronomy and astrophysics through a subject of a student's interest.

2) To briefly experience the everyday life of an astrophysicist nowadays through the process of guided independent research, report writing and an oral presentation.

Continue to ILAS Seminar-E2 :The Invisible Universe（不可視の宇宙）(2)↓↓↓

ILAS Seminar-E2 :The Invisible Universe（不可視の宇宙）(2)

[Course schedule and contents)]

In this seminar, besides a few introductory lectures on topics surrounding multi-wavelength astronomy, the students will either perform independent research on intriguing astrophysical objects of their choices, and/or study on a topics of their interests by reading a book under the guidance of the instructor. Research projects can be carried out in a group of 2 (or 3 at most) students if preferred.

This seminar will be in a casual format and conducted mainly in English (with occasional Japanese only when necessary). Students are encouraged to ask questions and discuss on topics with their peers and instructor spontaneously at each meeting.

Students will present their studies and findings through a written report and a short oral presentation during a seminar meeting.

Oral presentations will be scheduled flexibly between the instructor and the students in class.

Total：14 classes, 1 Feedback session

[Course requirements]

None

[Evaluation methods and policy]

Final grades will be assessed according to:
1) in-class participation (40%)
2) one written report (30%)
3) one oral presentation (30%)

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Independent research and/or book reading. Guidance will be given in each seminar meeting.

[Other information (office hours, etc.)]

No fixed office hour will be scheduled. Students can make appointment with the instructor in-person if necessary, or simply contact by Emails.

Lecture code: Z002052

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Wonders of semiconductor（半導体のふしぎ） ILAS Seminar-E2 :Wonders of semiconductor	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,DE ZOYSA，Menaka		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	31, Yoshida-South Campus Academic Center Bldg. North Wing	Language of instruction	English		
Keyword	Semiconductors / Physics / Electronics				

[Overview and purpose of the course]

The objective of this seminar is for students to understand the physics/working principle behind semiconductor devices such as solar cells, light-emitting diodes (LEDs), laser diodes (LDs), sensors, transistors, etc. Fabrication processes of some semiconductor devices (such as laser diodes, solar cells) will be also discussed. Some electronic-circuits will be designed and built to familiarize students with semiconductors devices.

[Course objectives]

・ Understand the physics/working principle behind semiconductors.
・ Understand the fabrication processes of semiconductor devices.
・ Learn the latest semiconductor technologies.

[Course schedule and contents)]

1. Overview of the course (1 week)
2. Introduction to semiconductor physics: basics to understand the working principles of semiconductor devices (3 weeks)
3. Learn about the working principles of solar cells, LEDs, laser diodes, and transistors (4 weeks)
4. Discuss the fabrication processes of some semiconductor devices (2 weeks)
5. Design and build electronic-circuits (2 weeks)
6. Learn the latest semiconductor technologies (2 weeks)
7. Feedback (1 week)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on participation (30%), discussion (30%), and short presentations (40%).

Continue to ILAS Seminar-E2 :Wonders of semiconductor（半導体のふしぎ）(2)↓↓↓

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Students are required to do their short presentations.

[Other information (office hours, etc.)]

Office hour: Anytime by email and appointments should be made via email or during the seminars.

Lecture code: Z002099

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Fundamentals of Earth's atmosphere dynamics and climate（地球大気の力学と気候の基礎） ILAS Seminar-E2 :Fundamentals of Earth's atmosphere dynamics and climate	Instructor's name, job title, and department of affiliation	Research Institute for Sustainable Humanosphere Professor,Luce,　Hubert

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	5 (5)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Fri.5
Classroom	Seminar room 21, ILAS Bldg.			Language of instruction	English
Keyword	Atmosphere / weather / climate				

[Overview and purpose of the course]

The state of the atmosphere affects all the human activities and the quality of life. For example, sudden weather changes can have strong impacts on agriculture and extreme weather conditions can produce human and material damages. This seminar proposes an introduction to atmosphere physics with the purpose to be understandable by everyone. Based on concepts and fundamental principles, it is made for all the students who wish to know the main atmospheric processes producing regional climates, weather systems and extreme events, without complex theoretical modellings.

[Course objectives]

In this seminar, the students will get insights into the main mechanisms responsible for the state and dynamics of the atmosphere and extreme weather conditions. They will also have the tools necessary to better understand certain aspects of the climate change, one of the objectives of the Sustainable Development Goals (SDG13: climate action) of the United Nations.

[Course schedule and contents)]

1. Composition and structure of the atmosphere
   - Composition of the air and its origins.
   - Temperature, density and pressure: the hydrostatic equilibrium

(Weeks 1-2)

2. Terrestrial and solar radiations: energetic balance
   - Electromagnetic radiation of a black body.
   - The radiative balance
   - Greenhouse effect: a simplified model
   - A complication: effects of convection
   - Latitude dependence and seasonal cycles.

(Weeks 3-5)

3. Contribution of water
   - The water in all its phases
   - Principle of saturation, latent heat.
   - Cloud formation and precipitation

Continue to ILAS Seminar-E2 :Fundamentals of Earth's atmosphere dynamics and climate（地球大気の力学と気候の基礎）(2)↓↓↓

   -Thermal gradient of the troposphere and stability.

(Weeks 6-8)

4. Atmospheric circulations and extreme weather conditions
   - The main features and prevailing winds
   - The intertropical convergence zone
   - The monsoons
   - The mid-latitude circulations
   - The cyclones and tornadoes

(Weeks 9-11)

5. Ocean-atmosphere coupling.
   - The role of the ocean in the climate system.
   - Example 1: El Nino-southern oscillation (ENSO)
   - Example 2: North Atlantic Oscillation (NAO)

(Weeks 12-13)

6. Cryosphere-atmosphere coupling.

- The role of the ice in the climate system.

-The impact of melting ice on the climate.

(Week 14)

Final Examination

(Week 15)

7. Feedback

(Week 16)

[Course requirements]

This lecture only requires scientific backgrounds in natural sciences of high school levels.

[Evaluation methods and policy]

Evaluation will be:
Active participation in class: 30 pts
Assignments/projects at home: 30 pts
Final examination: 40 pts

[Textbooks]

There is no specific textbook for this course. Its content will be based on multiple references (books, websites) that will be mentioned during the course.

[References, etc.]

（Reference book）

Introduced during class

[Study outside of class (preparation and review)]

Materials (pdf files) are made available before class.
Students are encouraged to study materials before and after each class for assimilating technical or uncommon words.
Depending on the topic, the study of the materials and the preparation of the report for the evaluation may take a few hours a week.

Continue to ILAS Seminar-E2 :Fundamentals of Earth's atmosphere dynamics and climate（地球大気の力学と気候の基礎）(3)↓↓↓

[Other information (office hours, etc.)]

Materials (pdf files) are available on Kulasis website. Communication by emails are possible for questions outside of class hours.

Lecture code: Z002089

Course number	U-LAS70 10002 SE50

Course title (and course title in English)	ILAS Seminar-E2 :How to make nano-machines（ナノマシンの作り方） ILAS Seminar-E2 :How to make nano-machines	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,BANERJEE, Amit
Group	Seminars in Liberal Arts and Sciences	Number of credits	2
Number of weekly time blocks	1	Class style	Seminar
Year/semesters	2023・First semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors
Days and periods	Fri.5	Classroom	25, Yoshida-South Campus Academic Center Bldg. North Wing
Language of instruction	English	Keyword	Nano / Nano-machine / Nano-technology / Internet of Things (IoT) / Artificial Intelligence (AI)

[Overview and purpose of the course]

Nanotechnology is revolutionizing human society. If you are curious how nano-machines are being developed, this seminar course will be very informative.

One of the greatest technological achievements of past few decades is our ability to make micro-meter scale 'machines'. These machines have become ubiquitous in our daily life, giving functional capabilities to our smart-phones, cars, digital projectors, medical devices, etc. In this technological revolution of extreme 'shrinking' of machines, we have entered an era where machines of only a few hundreds atoms wide can be built.

Have you ever wondered how do we build such small machines and make them function desirably in such small scale?

In this seminar course, I will reveal the tricks of the trade of fabricating micro / nanoscale machines. I will also elaborate the underlying physics (working principles) of micro / nano machines. This seminar course is based on my own research area, so I can show you pictures and videos of actual micro / nano machine fabrication and operation that I collect during my own research in Kyoto University.

[Course objectives]

Students will learn about nano-scale machines: how they work, how they are made, and their amazing applications.

[Course schedule and contents)]

1. Why do we want to make nano-machines?
Introduction to nano-machines and their advantages, examples of micro/ Nano-machines and their applications. (2 weeks)

2.How can we controllably create and sense motion at nanoscale?
Building blocks of nano-machines: actuators, motion sensors, etc. (3 week)

3. How do nano-machines work?

Continue to ILAS Seminar-E2 :How to make nano-machines（ナノマシンの作り方）(2)↓↓↓

Working principles of nano-machines: accelerometers, gyroscopes, pressure-sensors, ultra-sensitive mass and gas sensors, AI computing devices. (2 weeks)

4. How do we create nano-machines?
Material and methods for creating nano-machines: silicon, diamond, graphene, etc.; lithography, reactive-ion-etching, chemical-vapor-deposition, electron and ion-beam methods, etc. (5 weeks)

5. Discussion on current trends and future potentials of this research area. (2 weeks)

6. Feedback (1 week)

[Course requirements]

None

[Evaluation methods and policy]

Active participation (10%), submission of a final report (topics will be discussed during the lecture) (90%)

[Textbooks]

Instructed during class

[References, etc.]

（Reference book）

Introduced during class

[Study outside of class (preparation and review)]

Following lecture materials and reading recommended articles

[Other information (office hours, etc.)]

To be decided during lecture

Lecture code: Z002027

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Introduction to life science and scientific conversation （生命科学へのいざない） ILAS Seminar-E2 :Introduction to life science and scientific conversation	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,Erik　WALINDA

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	9 (8)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Fri.5
Classroom	23, Yoshida-South Campus Bldg. No. 1			Language of instruction	English
Keyword	Life / Simple biology / Simple chemistry / Simple biochemistry / Tutorial				

[Overview and purpose of the course]

This is an introductory course to life science (cellular biology and biochemistry).

It is a tutorial. That means, that after a short introduction by the instructor, students will study alone or in groups. Then we will discuss the studied material together. The material will be provided by the instructor; it is not necessary to buy any books for this class.

Discussions are in English and the instructor will provide additional explanations.

We will mostly use very simple English and we start at the very beginning, that is: high-school biology and chemistry. As such, students do not need to be afraid of anything too difficult.

But please be aware that there will be no Japanese used in this class.
Even though it may take longer, we will fight through the class in all English.

[Course objectives]

The goal of the course is to give first year students a chance to study the basics of life science - mainly chemistry and cell biology with a slice of physiology thrown into it - in simple English in an interactive way.

[Course schedule and contents)]

1. Course Introduction: Studying life. Homeostasis. Evolution.
2. Atoms and molecules
3. Macromolecules - the molecules of life
4. Proteins
5. Life in 3D - macromolecular structure
6. Carbohydrates
7. Lipids and cell membranes
8. Nucleic Acids
9. Vitamins
10. Cells

Continue to ILAS Seminar-E2 :Introduction to life science and scientific conversation（生命科学へのいざない）(2)↓↓↓

11. Organelles I
12. Organelles II
13. Cytoskeleton
14. Fluids and signals in the animal body

Total:14 classes and 1 feedback

[Course requirements]

None

[Evaluation methods and policy]

Attendance and Active participation [50%]
Assignments (Presentation) [40%]
Quizzes [10%]

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
David Sadava 『Life: the science of biology』
Guyton & Hall 『Textbook of medical physiology』

[Study outside of class (preparation and review)]

* Reading of scientific texts in English.
* Polishing scientific speaking skills by watching and listening to TED talks, Youtube, or even scientific/medical TV drama in English.
* Preparation of presentations.
* Repetition of class content to prepare for the next quiz.

[Other information (office hours, etc.)]

Office hour: any time (please send an email before coming to the office) or online (zoom etc.)

The class works both face-to-face and online and we will use whichever is necessary under the current regulations.

Lecture code: Z002086

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :It's a Bug's Life - bacteria and viruses（微生物の世界へようこそ） ILAS Seminar-E2 :It's a Bug's Life - bacteria and viruses	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Associate Professor,KIM MINSOO		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	12 (12)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Fri.5
Classroom	21, Yoshida-South Campus Bldg. No. 1	Language of instruction	English		
Keyword	Virus / Bacteria / Infection / Immunity / Vaccine				

[Overview and purpose of the course]

The human body has over 10 trillion cells, but it has 10 times that number of microbial cells living in and on our body. These microbes are therefore an important part of our body. Some commensal bacteria are beneficial to our health whereas new viruses and bacteria that continue to emerge and reemerge may result in unpredictable life-threatening epidemics. To overcome such infectious diseases, we need a better understanding of the molecular mechanisms of host-microbe interactions so as to develop new concepts for antibiotics or vaccines.
This course focuses on the basics of microbiology, immunology, and environmental microbes. Particular emphasis is placed on understanding viruses, bacteria, the interaction between microorganisms and host cells, and the identification of microorganisms in our environment. During the course, students will actively participate in discussions and in the exchange of ideas.

[Course objectives]

To identify and understand the major microbes that impact our lives.
To understand the infection phenomenon.
To enhance your critical thinking skills and effectively discuss scientific topics.

[Course schedule and contents)]

1. Introducing the invisible world
2. What is a microbe?
3. The basics of bacteria
4. Microbiota and human health
5. Soil bacteria and the environment
6. Identification of bacteria (field work 1)
7. Identification of bacteria (field work 2)
8. Diversity of viruses
9. Viruses and Cancer
10. Zoonotic viruses
11. Viruses in our environment
12. Recognition of microbes

Continue to ILAS Seminar-E2 :It's a Bug's Life - bacteria and viruses（微生物の世界へようこそ）(2)↓↓↓

13. Battle against microbes
14. Life with or without microbes
15. Student presentation
16. Feedback

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and participation (60%), and final presentation (40%).

[Textbooks]

Instructed during class

[References, etc.]

(Reference book)
Introduced during class

[Study outside of class (preparation and review)]

To achieve the course goals students review the course handouts.

[Other information (office hours, etc.)]

Please feel free to come to my office at any time.
Please take out the accident insurance of Personal Accident Insurance for Students Pursuing Ed. & Rsch. as needed.

Lecture code: Z002069

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Let's create 3D computer animations（三次元アニメーションを作ってみよう） ILAS Seminar-E2 :Let's create 3D computer animations	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Associate Professor,PATAKY，Todd		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	6 (6)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Fri.5
Classroom	Seminar room 2, 2F, School of Human Health Sciences,Faculty of Medicine (Faculty of Medicine/Pharmaceutical Science Campus/ University Hospital Campus)	Language of instruction	English		
Keyword	3D modeling / computer graphics / character animation / Blender				

[Overview and purpose of the course]

This course introduces the basics of computer-based 3D modeling (shape design, lighting, materials, surface textures) and animation (keyframes, object motion, camera zooming and panning, etc.). The free, open-source software “Blender” (blender.org) will be used for all lessons. Blender can be used on Windows, Mac and Linux for free. As a final project, you will create a short animated movie. Programming experience is recommended but not required.

[Course objectives]

Students will become familiar with the main concepts of 3D modeling and animation. They will learn how to reproduce simple example 3D models and animations. After some initial general assignments, focus will shift to Final Projects, which students will work on for most of the semester. The goal of Final Project is to create a 60 s (or longer) animation. The animation theme, style and techniques are all free, to be chosen by each student based on your interests. The instructor will help students to choose a Final Project that is challenging, but also achievable. The instructor will also help you solve Final Project modeling and animation problems as you encounter them.

[Course schedule and contents)]

The following weekly topics will be covered:

1) Introduction: 3D Modeling & Blender
2) 3D Modeling I: Importing & Creating Shapes
3) 3D Modeling II: Materials & Lighting
4) Animation I: Basics
5) Animation II: Camera Motion & Arranging
6) Project Presentations I: Initial Results
7) Character Modeling I: Armatures
8) Character Modeling II: Armature Animation
9) Character Modeling III: Skins & Deformations
10) Project Presentations II: Progress Report
11) Advanced Topics I: UV Editing

Continue to ILAS Seminar-E2 :Let's create 3D computer animations（三次元アニメーションを作ってみよう）(2)↓↓↓

12) Advanced Topics II: Environments
13) Advanced Topics III: Physics
14) Final Project Presentations & Future Learning
15) Feedback

[Course requirements]

There are no specific requirements for this class. However, students must be willing to work with open-source software, which is relatively poorly documented compared to commercial software. The class instructor will help with problems, but students are also encouraged to find solutions to their problems through internet searches.

[Evaluation methods and policy]

Students are expected to actively participate in class, to reproduce all examples discussed in class, and also to complete regular reports.

Evaluation will be based on the following criteria:

- Assignments (14%) [2 @ 7% each]
- Progress Presentations (14%) [2 @ 7% each]
- Project Progress Reports (42%) [6 @ 7% each]
- Final Project & Presentation (30%)

TOTAL: 100%

[Textbooks]

No specific textbook will be used. All necessary materials will be distributed electronically and will be discussed in class.

[References, etc.]

（Reference book）

A number of useful books and internet resources will be discussed for student self-learning.

（Related URL）

www.blender.org(Blender is free-and-open-source 3D modeling software that will be used in all lectures and all assignments.)

[Study outside of class (preparation and review)]

This course has a variety of out-of-class assignments (including a Final Project) and no exam. Students who do not pay attention to the lecture content during class will likely have difficulties completing the assignments.

[Other information (office hours, etc.)]

REASONS FOR CLASS SIZE RESTRICTION:
This class extensively uses Blender (blender.org), which is a professional, very powerful, and very complex software package. Every class requires one-on-one student support to understand and handle software problems that arise. A large class size is not feasible.

IN-CLASS ENVIRONMENT
This is a small seminar class, and active discussion is encouraged. Students are encouraged to ask questions,

Continue to ILAS Seminar-E2 :Let's create 3D computer animations（三次元アニメーションを作ってみよう）(3)↓↓↓

both of the instructor and of fellow students. We are all here to learn, so let’s work together to create the best results we can!

OFFICE HOURS:
Immediately before / after class or by appointment (pataky.todd.2m @ kyoto-u.ac.jp)

Lecture code: Z002056

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Regional Disaster Prevention（地域防災学） ILAS Seminar-E2 :Regional Disaster Prevention	Instructor's name, job title, and department of affiliation	Graduate School of Agriculture Program-Specific Assistant Professor,KOCH, Michael Conrad		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・First semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Fri.5
Classroom	W402, Faculty of Agriculture Main Bldg. (North Campus)	Language of instruction	English		
Keyword	soil mechanics / dam failure / earthquake / tsunami / disaster management				

[Overview and purpose of the course]

This course will take a case study approach to regional disasters. The course contents will include learning from past disasters through forensic analysis to determine the mechanism of failure. Such knowledge can be extremely valuable to inform future design. This will be supplemented with analysis of state-of-the-art research on disaster prevention technologies.

The course is intended to be a deep-dive into specific disasters like dam failure under heavy rainfall conditions, breakwater performance under tsunami impact etc. To this end, the course will introduce a few fundamental concepts in soil mechanics, engineering geology, hydraulics of groundwater as well as natural hazards. Along with such technical tools, students will also be introduced to the frameworks of vulnerability, risk assessment and disaster management.

[Course objectives]

After the successful completion of the course, students will be able (1) To understand fundamental physics concepts related to particular disasters, (2) to understand basic forensic analysis, (3) to analyse specific state of the art disaster mitigation technologies and (4) to perform basic vulnerability and disaster risk assessment.

[Course schedule and contents)]

The class in the first week will provide an overview of the contents of the course. As a general outline, the necessary concepts required to understand the basic mechanism of a particular disaster will be highlighted. Following this, students will work individually or in teams to analyze relevant case histories/experimental studies/research papers assigned to them. Students are expected to clearly (a) identify the problem (b) explain the failure mechanism or any other relevant result using the concepts taught and (c) provide critical comments wherever possible.

An indicative schedule for the course is as follows
(1) Introduction and highlights of case histories/experimental studies/research papers [1 week]
(2) Fundamental concepts related to regional disaster - 1 [3-4 weeks]
(3) Analysis of case history/experimental studies/research papers - 1 [2-3 weeks]
(4) Fundamental concepts related to regional disaster - 2 [2-3 weeks]
(5) Analysis of case history/experimental studies/research papers - 2 [2-3 weeks]

Continue to ILAS Seminar-E2 :Regional Disaster Prevention（地域防災学）(2)↓↓↓

(6) Understanding vulnerability: political, physical, social, economic and environmental factors [1 week]
(7) Disaster risk identification and assessment [1 week]
(8) Final presentation [1 week]
(9) Feedback [1 week]

Total: 14 classes and 1 feedback session

[Course requirements]

Beneficial but not mandatory: basic mathematics and physics (high school level). Students must be willing to work with basic mathematics.

[Evaluation methods and policy]

- Class participation (25%, students are expected to actively participate in discussion)
- Assignment report (30%)
- Oral presentation (45%)

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Budhu M 『Soil mechanics and foundations』（John Wiley & Sons）ISBN:13 978-0-471-43117-6
Journal papers related to case studies will be handed out during class.

[Study outside of class (preparation and review)]

Students are expected to be independent in finding online resources to attain relevant issues of discussion during seminar to enhance student interaction and understanding during classes.

[Other information (office hours, etc.)]

After class, student consultation will be arranged with prior notice.

Lecture code: Z002100

Course number	U-LAS70 10002 SE50
Course title (and course title in English)	ILAS Seminar-E2 :Experiential short training course in basic life sciences using marine organism (天然海洋生物を用いた基礎生命科学の体験型短期研修コース) ILAS Seminar-E2 :Experiential short training course in basic life sciences using marine organism
Instructor's name, job title, and department of affiliation	Graduate School of Pharmaceutical Sciences Program-Specific Associate Professor,Martin Robert Institute for Liberal Arts and Sciences Professor,DOI MASAO
Group	Seminars in Liberal Arts and Sciences
Number of credits	2
Hours	30
Class style	Seminar
Year/semesters	2023・Intensive, First semester
Quota (Freshman)	10 (10)
Target year	Mainly 1st year students
Eligible students	For all majors
Days and periods	Intensive Friday, Sept. 15 - Wednesday, Sept. 20
Classroom	Research Center for Marine Biology (RCMB)
Language of instruction	English
Keyword	biology / science / experience / marine biology / international

[Overview and purpose of the course]

Summary: A six-day intensive (September 15-20) and interactive camp-like scientific experience held at the Research Center for Marine Biology of Tohoku University in Asamushi (Aomori prefecture). The contents include multidisciplinary basic sciences including marine organism-based basic biology, cell biology, and physiology with related essential pharmacology concepts.

Understanding and practicing the scientific method, based on observation and experimentation, is important for any student in science and beyond. Using simple and easily accessible experimental models such as marine organism that can be directly collected from the natural environment offers a unique opportunity to develop skills toward that objective. Moreover, small group work in an international setting adds another layer for students to develop skills in collaboration and exchange which are other important aspects of science.

Students will learn the basis of scientific experimentation using small marine animals as an experimental model. Using seashells (貝) and sea roaches (フナムシ), students will study their basic behavioral physiology (行動生理学). Participants also have the chance to see the amazing process of sea urchin fertilization and early development (ウニの受精と発生) as well as collect plankton and observe its diversity (プランクトンの多様性). These are fundamental examples of approaches in life science research and in the study of living processes. Students can also investigate the effects of sea water ionic composition and osmotic pressure on the extrusion behavior of seashells and their importance in muscle contraction (イオン・浸透圧に基づく基礎生理学). Ion-mediated signaling pathways are common pharmacological targets and students can learn about some of these processes during the experiments. Overall, participants will learn basic principles of physiology and the scientific method, in a beautiful natural setting.

The course will be held entirely in English in collaboration with instructors of the Graduate School of Life Sciences, Tohoku University. In addition to students at Tohoku University and Kyoto University, the course will also be opened to participants from the University of Tokyo and Tsukuba University. Thus, participants

Continue to ILAS Seminar-E2 :Experiential short training course in basic life sciences using marine organism (天然海洋生物を用いた基礎生命科学の体験型短期研修コース)(2)↓↓↓

will enjoy an interdisciplinary and international experience in which students from many academic backgrounds and institutions learn together, interact, and exchange.

[Course objectives]

The main objective of the course is to learn the basics of the scientific method by performing simple ecology and cell biology experiments with marine organisms, in small groups.

Based on their own ideas, students will freely design and perform experiments to test their own hypotheses, collect data, analyze their results, and interpret them.

Students will learn through a trial-and-error process and develop problem solving skills.

Participants will develop skills in collaborative group work and in expressing themselves effectively in an international setting where students from different origins and academic backgrounds interact.

[Course schedule and contents)]

After receiving basic guidance and explanations, groups will be formed and students will collect marine organisms, plan, develop, and perform various experiments together.

Discussion and sharing of ideas/results and their interpretation will be encouraged and is an important activity. On the 5th day students will present in groups their main findings in the form of a short oral presentation and will be invited to evaluate the performance of other groups. Finally, students will prepare a report about their learning experience.

All activities including presentation and report are to be done in English.

Schedule (September 15-20, 2023)

Day 1
Getting to Asamushi, Aomori prefecture
Arrival at the Asamushi Research Center for Marine Biology
Orientation and course introduction. Welcome event.

Days 2-5
Main experimental program: field and laboratory work
Exploring seashell extrusion behavior or the walking behavior of sea roaches
Fertilization and early development of the sea urchin embryo
Off-shore activity or plankton collection, observation, and classification

Day 5 afternoon
Group presentations and closing social event

Day 6
Program wrap up
Checkout
Optional visit to the Asamushi aquarium
Return to Kyoto

Continue to ILAS Seminar-E2 :Experiential short training course in basic life sciences using marine organism (天然海洋生物を用いた基礎生命科学の体験型短期研修コース)(3)↓↓↓

[Course requirements]

None

[Evaluation methods and policy]

Attendance, active participation, and group presentation/evaluation (60%)

Individual report (40%)

The presentation and report will be assessed on the basis of the course objectives and specific criteria provided during the course.

[Textbooks]

Instructed during class
There is no textbook for this course. Handouts and other materials will be distributed to course participants.

[References, etc.]

（Reference book）

Resources will be introduced during course.
Please see the course web site below for more information.

（Related URL）

https://sites.google.com/kyoto-u.ac.jp/ebmbp2023/home(Course web site (2023))
https://drive.google.com/file/d/1hdthpPbR1wdOMjGELiVaLBmxHXESfapp/view?usp=sharing(Introductory video to the course and content (2022 edition))

[Study outside of class (preparation and review)]

No special preparation or background required.

All field activities, experiments, and the final presentation will be completed during the six-day course duration. A report will be due within about one week from the end of the course.

[Other information (office hours, etc.)]

An orientation period will be held in April 2023. Registered participants should attend then.

Important things to know:

Logistics
The course will be held at the Asamushi Research Center for Marine Biology, in Aomori prefecture, for six consecutive days on September 15-20, 2023. Students must therefore be available for the duration of the whole program (five nights and six days).

The course and accommodation are free. Participants will be accommodated in a dormitory-style shared room with multiple bunked beds and need only to pay the bed sheets cleaning fee of 410円 at the end or their stay. On-site daily meals will be served (lunch and dinner) for a total of about 5,200円 for the whole course. Special diets can be accommodated.

Because of the nature of the course, all participating students need to enroll in the Personal Accident Insurance plan following Kyoto University's policy.

Continue to ILAS Seminar-E2 :Experiential short training course in basic life sciences using marine organism (天然海洋生物を用いた基礎生命科学の体験型短期研修コース)(4)↓↓↓

Travel expenses
Participants will have to cover their travel expenses to Aomori. Because of the remote location, travel costs can be significant. Participants are invited to look for cheap means of transportation including local trains (青春18きっぷ) or highway buses. Combinations of local train lines and/or LCC carriers offering discount fares may provide reasonable alternatives and interested participants are invited to search on their own. Otherwise the regular (non-discounted) two-way fares between Kyoto and Aomori varies between about 32,200円 for a long highway bus journey to 54,000円 for the Shinkansen. Airfares for a direct flight from Osaka (Itami) to Aomori are highly variable (from very affordable to expensive depending on flight dates and period of booking).

Target audience
The course is developed for all first-year undergraduate students regardless of their academic program (humanities, economics, medicine, agriculture, science, or engineering, etc.). However, we also welcome more advanced students regardless of their academic year (B2-B4), especially full-degree and exchange international students (KUINEP program or other). The course emphasizes small group activities to promote interactions and discussion between international and Japanese students from different Japanese universities.

We welcome students interested in a unique international and interactive scientific camp-like experience on the beautiful seashore of Aomori prefecture.

Because this is an intensive course that will be held August or September students grade will be released later than for regular courses. Expect the announcement to be made about 1-2 weeks after course completion.

For additional information please contact: robert.martin.4m@kyoto-u.ac.jp

Lecture Code: Z002046

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Applying Data Science and AI to Healthcare - Novel Approaches in Modern Epidemiology（データサイエンスで見る医療ー進化している疫学の新たなアプローチ） ILAS Seminar-E2 :Applying Data Science and AI to Healthcare - Novel Approaches in Modern Epidemiology	**Instructor's name, job title, and department of affiliation**	Graduate School of Medicine Assistant Professor,LUO YAN

Group	Seminars in Liberal Arts and Sciences	**Number of credits**	2	**Number of weekly time blocks**	1
Class style	seminar	**Year/semesters**	2023・First semester	**Quota (Freshman)**	12 (10)
Target year	Mainly 1st year students	**Eligible students**	For all majors	**Days and periods**	Fri.5
Classroom	25, Yoshida-South Campus Bldg. No. 4			**Language of instruction**	English
Keyword	Healthcare / Epidemiology / Evidence-based medicine / Data science				

[Overview and purpose of the course]

Epidemiology studies of the patterns and determinants of health-related conditions in a defined population. With the great advancements in data science in recent years, epidemiology has evolved and adopted new approaches to tackle unresolved issues. This seminar will begin with the fundamentals of traditional epidemiology and explore how data science is helping improve healthcare. Topics covered will include clinical trial designs, big data analytics, precision medicine through machine learning techniques, data visualization, and advanced evidence synthesis. Real-world examples will be used for demonstration. Students will be encouraged to actively participate in discussions and analysis practice. Towards the end of the semester, students will present a topic of their interest, which may or may not be related to healthcare. Examples of the presentation include a description of a product (such as an R shiny app), an analysis, or opinions on any published studies or issues.

[Course objectives]

To learn about data science methods that are applied to modern epidemiology.
To gain a basic understanding of the mechanism, benefits and drawbacks of each approach, as well as how to conduct simple analyses.
To understand how data science can improve healthcare and how it may be misinterpreted.
To enhance problem-solving abilities and critical thinking skills.

[Course schedule and contents)]

In principle, the course will be offered according to the following plan. The order and content may be subject to slight changes.

1. Introduction of the course
2. Principle of epidemiology: Traditional approaches to solve healthcare problems
3. From traditional clinical trials to advanced trial designs
4. Big data analytics in healthcare: Pros

Continue to ILAS Seminar-E2 :Applying Data Science and AI to Healthcare - Novel Approaches in Modern Epidemiology（データサイエンスで見る医療ー進化している疫学の新たなアプローチ）(2)↓↓↓

5. Big data analytics in healthcare: Cons
6. Precision medicine: Prediction models and machine-learning methods (1)
7. Precision medicine: Prediction models and machine-learning methods (2)
8. Practice: Analyses using R
9. Data visualization: Supporting communication and decision-making
10.Practice: R shiny web application
11.Evidence-based healthcare: Synthesizing evidence from vast research
12.Practice: Read and discuss research papers on evidence synthesis
13.Presentation I
14.Presentation II
15.Feedback

[Course requirements]

Practice lectures will utilize the statistical software R.

[Evaluation methods and policy]

Attendance and active participation - 20%
Assignment - 20%
Presentation - 30%
Final report -30%

[Textbooks]

No textbook will be used. Materials will be provided in class or on PandA.

[References, etc.]

（References, etc.）
Materials will be provided in class or on PandA.

[Study outside of class (preparation and review)]

Students are expected to complete assignments after some lectures.

[Other information (office hours, etc.)]

Students may ask questions or request to schedule an in-person appointment via email.

Lecture code: Z002013

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :How to Study Atoms and Molecules with the Help of Light（光を使って原子や分子を調べる） ILAS Seminar-E2 :How to Study Atoms and Molecules with the Help of Light	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,THUERMER, Stephan		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Tue.5
Classroom	Seminar room 21, ILAS Bldg.	Language of instruction	English		
Keyword	Light / Colors / Laser / Molecule / Spectroscopy				

[Overview and purpose of the course]

Light lets you see and get to know the world around you. But we can only see a very small part of all the ‘light’ and it is impossible to see atoms and even big molecules with your eyes. In this seminar we will learn how different forms of light are used in physics and chemistry to ‘see’ the atoms, molecules, distant stars and the world around us. We will learn the fundamentals of light, get to understand light phenomena in your daily life and see how light can be used as a measurement tool in natural sciences. Students with any major are welcome.

可視光は私達の視覚に不可欠ですが、光あるいは電磁波は様々な波長やエネルギーを持ちます。電磁波は、原子や分子の構造や性質を調べる上で、最も強力な手段であり、分光学と呼ばれる手法は物理、化学、生物、工学のあらゆる分野で必要です。このセミナーでは、光の基礎的な性質から原子や分子を調べる方法までの基礎を、英語で学んで行きます。

[Course objectives]

Students will gain the following form this seminar:
- Interest and fun to learn more about phenomena in nature and study topics on their own.
- Knowledge about light as a measurement tool in chemistry, (astro-)physics and biology.
- The ability to understand difficult theoretical and ‘invisible’ phenomena in an intuitive way.
- The ability to express their ideas, discuss and present topics of natural sciences in English.

光の性質、光の吸収や散乱を利用した原子や分子の研究方法を学びながら、英語で科学を学習したり議論するスキルを身につける。

[Course schedule and contents)]

This seminar is held in a causal and interactive way! Students can influence the selection of topics based on their interest!

The course will work though fundamentals of light, the interaction of light with materials, and methods of spectroscopy, which include the following topics. The plan below is not strict and rather serves as a guideline.

Continue to ILAS Seminar-E2 :How to Study Atoms and Molecules with the Help of Light（光を使って原子や分子を調べる）(2)↓↓↓

1. Introduction - What is light and how to use it? (4 weeks)
We will learn about ‘light’, its fundamentals and properties such as ‘color’ and how we can make use of light as a measurement tool.

2. Apples are red and water is blue? (3 weeks)
We get to know light’s behavior when interacting with different materials. We learn about the ‘spectrum’ and the basics of spectroscopy. This knowledge answers questions like ‘why do things have color?’ or ‘what can we learn about distant stars?’

3. Laser beams and rainbows (4 weeks)
We see how light is generated in light bulbs, lasers and other light sources. This light then can be selected, modified and redirected with the help of various spectroscopic tools. The same knowledge helps us to understand light phenomena in daily life such as rainbows, anti-reflective glasses or mirrors.

4. Dancing molecules (3 weeks)
We learn how light interacts with atoms and molecules (and induces molecular vibration and rotation in the process), and what this tells us about the shape and properties of molecules. This knowledge is a first look into chemical analysis and studying fundamental physics questions.

5. Feedback and presentation (1 week)

Depending on the available time and interest of the students, we may also discuss the use of light in technical applications and astronomy as well as spectroscopic methods in physics and chemistry or the operation principles of advanced spectroscopic devices.

[Course requirements]

None

[Evaluation methods and policy]

Preparing homework (30%)
Small exercises during the seminar (30%)
Giving a short presentation at the end of the seminar (40%)

[Textbooks]

Not used
No textbook is used. Lecture notes will be provided during class.

[References, etc.]

（Reference book）

Simon Duckett, Bruce Gilbert, Martin Cockett 『Foundations of Molecular Structure Determination』（Oxford University Press）ISBN:9780199689446（This compact book gives a good overview over all relevant spectroscopic methods to study molecules）
J. Michael Hollas 『Modern Spectroscopy』（Wiley）ISBN:9780470844168（A more in-depth book about spectroscopy in general）
Ian A. Walmsley 『Light: A Very Short Introduction』（Oxford University Press）ISBN:9780199682690（A good read about light, which is the basis of most spectroscopies）

Continue to ILAS Seminar-E2 :How to Study Atoms and Molecules with the Help of Light（光を使って原子や分子を調べる）(3)↓↓↓

[Study outside of class (preparation and review)]

Students are expected to review the lecture handouts after each class and look up unknown English terms themselves. Homework assignments need to be prepared before the next lecture. It is also encouraged to refer to additional sources of information (books, websites) for the specific topics. If something is unclear or difficult, the instructor can be asked at any time.

[Other information (office hours, etc.)]

The lectures will be held in English, but some supporting material and explanations are also given in Japanese. Students are welcome to ask questions in English or Japanese during and after the class. Office hours are flexible. Appointments can be made directly or via email.

Lecture code: Z002016

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Frontiers in Theoretical Physics II （理論物理学最前線 II） ILAS Seminar-E2 :Frontiers in Theoretical Physics II	Instructor's name, job title, and department of affiliation	Yukawa Institute for Theoretical Physics Associate Professor,Antonio De Felice		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	12 (8)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Wed.5
Classroom	3A, Yoshida-South Campus Academic Center Bldg. North Wing	Language of instruction	English		
Keyword	Theoretical Physics / 理論物理学 / Astrophysics / 宇宙物理学				

[Overview and purpose of the course]

● New discoveries and problems arise constantly in theoretical physics.

● We will discuss about the latest achievements, puzzles in the class.

● We will then read each week a couple of recent papers appeared on “Scientific American” of the subject of astronomy, cosmology, theoretical physics or experiments in particle physics.

● Students are given a paper to discuss for the next week.

● The students will be divided into groups and will answer some questions regarding the paper.

● Each of the groups in turn will report their answers to everyone else.

[Course objectives]

● Students will develop critical thinking in a friendly environment.

● The point is to understand and think about the message which lies at the core of each paper.

● The discussion session will then be an arena to develop students’ skills to create their own scientific ideas.

● Students will be stimulated to have opinions, comments, criticism, questions.

Continue to ILAS Seminar-E2 :Frontiers in Theoretical Physics II（理論物理学最前線 II）(2)↓↓↓

[Course schedule and contents)]

● 14 lectures per semester, no midterm/final exam.

● For each lecture papers will be given to students to read for the next week.

● Students are supposed to read the paper and prepare for the next week.

● Some papers are freshly new papers [from the latest issues of Scientific Amerrcan], others are from previous years.

[Course requirements]

None

[Evaluation methods and policy]

● The method of evaluation merely comes from the interaction, participation and discussion in class.

[Textbooks]

Not used

[References, etc.]

（**Reference book**）

Introduced during class

[Study outside of class (preparation and review)]

● The students will be given a paper to read a week before class.

● Students are then supposed to learn the material [inside each paper] and be able to present to others, to discuss its content with others, and to answer questions regarding the paper itself.

[Other information (office hours, etc.)]

Lecture code: Z002033

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Biochemistry Principles （生化学の塾） ILAS Seminar-E2 :Biochemistry Principles	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,Erik WALINDA		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	13 (12)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	22, Yoshida-South Campus Bldg. No. 1	Language of instruction	English		
Keyword	Biochemistry / Molecular Biology / Chemistry / Physiology				

[Overview and purpose of the course]

To take this seminar, it is recommended to have some prior knowledge of either general chemistry, organic chemistry, biology or biochemistry or take the lecture [Introduction to biochemistry] given by Dr. Candeias on Tuesday. Otherwise, the student will be required to prepare very well before each class using the instructor' s notes, the textbook, or handouts of that lecture.

The content of the seminar will overall follow the course of that lecture. The difference is that, here we will take time to review and discuss the contents of the lecture. We will answer questions to make sure every student could understand everything they wanted to understand. We will do a lot of quizzes and exercises to dive deeper into the topic to deepen our understanding of the matter. This means that this seminar could be called a "tutorial" to the lecture. The Japanese subtitle 生化学の塾 emphasizes these points.

Students are welcome to ask any question at any time. Preferably in class, but also by e-mail, or in additional meetings with me or the teaching assistant (who isa Ph. D student).

This seminar is given in English and active student participation is highly encouraged.
It is not intended to be a passive class where the student just listens to the instructor's talk.

[Course objectives]

As all matter is composed of atoms, modern life science aims to explain all aspects of life comprehensively from the atomic level to that of the entire organism. In this seminar, students will attain a profound understanding of the atomic design of life, that is how (at the scale of individual atoms) biomolecules work and join forces to fulfill virtually all actions exerted by living beings in both health and disease.

[Course schedule and contents)]

1. Introduction to biochemistry
2. DNA, genes, and genomes
3. DNA replication and gene expression
4. Proteins
5. Protein structure
6. DNA isolation and analysis

Continue to ILAS Seminar-E2 :Biochemistry Principles（生化学の塾）(2)↓↓↓

7. DNA cloning and PCR
8. Protein methods
9. Enzymes
10. Enzyme kinetics
11. Carbohydrates
12. Lipids
13. Metabolism
14. Citric acid cycle and oxidative phosphorylation

Total:14 classes and 1 feedback

[Course requirements]

None

[Evaluation methods and policy]

Attendance and active participation [60%]
Homework assignments [40%]

[Textbooks]

Berg, Tymoczko and Stryer 『Biochemistry (any edition)』（W. H. Freeman and Co.）ISBN:978-1-4292-7635-1
You do not have to buy the textbook as it is available at the library.

[Study outside of class (preparation and review)]

Biochemical problem questions will be given as homework. In addition, students are invited to prepare their own questions to the instructor in advance.

[Other information (office hours, etc.)]

Office hour: any time (please send an email before coming to the office) or online (zoom etc.)

Lecture code: Z002034

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Introduction to the biology of nematodes（線虫の生物学入門） ILAS Seminar-E2 :Introduction to the biology of nematodes	Instructor's name, job title, and department of affiliation	Graduate School of Biostudies Associate Professor,CARLTON, Peter

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	10 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	Seminar room 22, ILAS Bldg.	Language of instruction	English		
Keyword	biology / genetics / genome / nematodes				

[Overview and purpose of the course]

This class will introduce to students one of the most abundant forms of life on earth: the Nematodes or roundworms. The most famous of these is the useful model organism called Caenorhabditis elegans. The goal of the class is to provide both a survey of how scientists use these organisms to conduct research, demonstrate the worm's great importance to biology, and provide hands-on experience with simple worm manipulation.

Students will also learn directly about some of the current biological questions that are being addressed with this versatile model organism. We will also find wild nematodes around Kyoto, make scientific observations on them and use DNA sequencing to identify their species. Whether we find a new species, or identify new isolates of known ones, this class will introduce you to a new realm of life.

線虫学入門 - 生物学を学びながら新種の線虫を見つけよう!

線虫は動物の中で最も個体数の多い生物種です。線虫は土壌や植物から簡単に見つけることができ、分子生物学における重要なモデル生物の一つでもあります。2002年には、線虫を用いた細胞死の研究に対して、2006年には、線虫におけるRNA干渉の発見に対して、それぞれノーベル賞が贈られています。線虫が持つ遺伝子のうち、６０－７０％は私たち人間にも共通しているため、ヒトにも共通する様々な生体のメカニズムを理解することを目指して、飼育や遺伝子組み換えが容易な線虫が、実験材料として分子生物学では用いられます。

この授業では、各自、サンプルを持参して、そこから線虫を取り、それぞれの線虫のゲノムDNAの一部を増幅し、そのシーケンスを読むことによって、線虫種を同定します。

新種の線虫を発見する可能性もあり！新種の線虫の探索に加えて、分子生物学の研究において一般的に使われている野生株と変異株を用いた遺伝学実験、高解像度顕微鏡を用いた染色体構造の観察も行います。

[Course objectives]

-To understand the biology and diversity of nematodes
-To understand the uses of the nematode Caenorhabditis elegans in modern biological research

Continue to ILAS Seminar-E2 :Introduction to the biology of nematodes（線虫の生物学入門）(2)↓↓↓

-To understand the anatomy and life cycle of C. elegans
-To learn how to create new strains containing desired mutations by designing crosses between animals
-To acquire the knowledge and experience needed to begin genetic research with C. elegans

[Course schedule and contents)]

Course Schedule and Contents
1 Overview of the course; nematodes and the place of C. elegans in the tree of life. Set up for worm collection.
2-3 Nematode development, anatomy, and life cycle
4-8 Wild Worms of Kyoto: worm observation and species identification
5 Basic worm genetics: selfing and crossing (with microscopy observation)
6-9 Genetics, meiosis, and sex chromosomes
10 Fluorescence microscopy of worm chromosomes
11-12 Genome sequence of C. elegans and its relatives
13 Selected topics in nematode research and application to human health
14 Presentation by each student on one topic (5 minutes, 1 A4 page)
15. Feedback

[Course requirements]

This is an introductory course. There are no requirements, but a basic familiarity with biology and genetics will be beneficial.

[Evaluation methods and policy]

Evaluations will be based on participation, short quizzes, and a final presentation, with contributions of 40%, 40%, and 20%, respectively, to the final grade.

[Textbooks]

Instructed during class

[References, etc.]

（Reference book）
Fay, Starr, Spencer, Johnson『Worm Breeding for Dummies: A guide to genetic mapping in C. elegans』(PDF textbook)

[Study outside of class (preparation and review)]

Students will have to understand technical vocabulary in English. This may require studying outside of class hours.

[Other information (office hours, etc.)]

Office hours will be 1 hour once per week, schedule to be announced on the first day of class.

This class involves some genetic experiments on nematodes.
遺伝子実験：対象(ヒト以外の動物、植物、生物等)

Lecture code: Z002036

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Introduction to Bird Study - Ornithology（鳥類研究のすすめ） ILAS Seminar-E2 :Introduction to Bird Study - Ornithology	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,BARNETT, Craig Antony

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Mon.5
Classroom	22, Yoshida-South Campus Bldg. No. 1			Language of instruction	English
Keyword	鳥類 / 行動 / 生態 / 進化				

[Overview and purpose of the course]

Birds fascinate people because they are everywhere, they are easy to see and hear, and they are beautiful. In this course we will examine birds by considering their defining characteristics, form and function, behaviour, life histories, ecology, and conservation. In doing so, the aim is gain a thorough understanding of this diverse and interesting group of animals.

[Course objectives]

1) Learn the evolutionary history of modern birds and their evolutionary relationships to other groups
2) Learn the characteristics of birds and the characteristics of the major avian groups
3) Learn the unique life history and behavioral traits of birds
4) Learn some aspects of avian ecology and conservation
5) Learning to identify different species of forest and aquatic birds around Kyoto

[Course schedule and contents)]

1) Course introduction
2) What are birds and are they feathered dinosaurs?
3) Feathers and flight exercise (video 1)
4) Museum visit and exercise
5) Avian communication exercise (video 2)
6) The annual cycle of birds and their migration exercise (video 3)
7) Avian movement
8) Birds in and around Kyoto University
9) Finding a mate and breeding systems exercise (video 4)
10) Avian reproduction
11) A trip to Takarageike Park to identify aquatic birds
12) Avian intelligence and video exercise (video 5)
13) What to eat. Foraging behavior of birds
14) Avian ecology and bird conservation

Continue to ILAS Seminar-E2 :Introduction to Bird Study - Ornithology（鳥類研究のすすめ）(2)↓↓↓

[Course requirements]

Understanding of high school biology is recommended.

[Evaluation methods and policy]

Assessment will comprise of end of year test.

[Textbooks]

Not used
No textbook is mandatory although we consult various readings throughout the course.

[References, etc.]

（**Reference book**）
D. Attenborough 『The Life of Birds: The Complete Series』（BBC）
F. B. Gill 『Ornithology 3rd Edition』（W.H Freeman and Company）
Scott, G 『Essential Ornithology』（Oxford University Press）

[Study outside of class (preparation and review)]

To achieve the course goals students should review the course materials plus optionally the recommended readings after each class.

[Other information (office hours, etc.)]

Lecture code: Z002037

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Earthquakes & Volcanoes - Prediction and Hazards（地震・火山噴火の予知及び防災） ILAS Seminar-E2 :Earthquakes & Volcanoes - Prediction and Hazards	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor,ENESCU, Bogdan Dumitru

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	12 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	Room 264, Graduate School of Science Bldg No.1 (North Campus)			Language of instruction	English
Keyword	Earthquakes （地震） / Volcanoes （火山） / Prediction （予知） / Hazard （ハザード）				

[Overview and purpose of the course]

We are going to read scientific papers related to a topic that is important both scientifically and socially. Is it possible to predict the occurrence of large earthquakes and volcanic eruptions? What are the current scientific advances in this field? We will also learn about earthquake and volcano hazard and discuss ways to reduce the risk of associated disasters.

[Course objectives]

The course aims to show students the importance of studying about natural disasters caused by earthquakes and volcanoes, which may help finding better ways to reduce their risk. To facilitate understanding, some materials/vocabulary in Japanese will be provided during the seminar.
日本語のキーワード等もだしますので、遠慮なく参加してください。近年重要度が高まっている地震・防災学を学びながら、英語の能力も向上しましょう！

[Course schedule and contents)]

Each student is going to choose a paper and prepare a short report (few PowerPoint slides), summarizing the main ideas of the study. The paper can be chosen freely; some broad suggestions include:
- The physics of great earthquakes (e.g., the 2011 M9.0 Tohoku-oki earthquake): any clues for predicting them?
- Large volcanic eruptions and possibilities of prediction;
- Earthquake and volcano hazard;
- Earthquake simulations and laboratory experiments;
- Artificial intelligence (AI) in Geosciences.

The first class will give students some broad options of topics/papers. During the second class we will decide the paper that each student is going to present. I will exemplify with a research presentation during the third and fourth classes. Starting with the fifth class, each student is going to present the chosen paper and get feedback for improving his report. In the examination day, each student should present briefly his updated/revised report.

Depending on the number of students and available time, we are going to visit the underground seismic base

Continue to ILAS Seminar-E2 :Earthquakes & Volcanoes - Prediction and Hazards（地震・火山噴火の予知及び防災）(2)↓↓↓

isolation at the "Kyoto University Clock Tower", the nearby Hanaore Fault and the Disaster Prevention Research Institute (DPRI), Kyoto University (Uji campus), to discuss with Professor Masumi Yamada on the Earthquake Early Warning system in Japan.

For students interested in more advanced topics, including computer programming (Python, Fortran, C, Matlab) for Geosciences, I can provide additional materials and guidance.

Note: there are 14 classes, one examination, and one feedback class.

[Course requirements]

None

[Evaluation methods and policy]

Grading will be based on attendance and participation (60%) and presentation of chosen paper (40%).

[Textbooks]

Not used

[Study outside of class (preparation and review)]

The student will have to prepare the assigned paper.

[Other information (office hours, etc.)]

- Students can meet me during office hours with prior appointment.
- Since we may go outside the campus during the class (see "Course schedule and contents"), I advice students on taking accident insurance (e.g. Personal Accident Insurance for Students Pursuing Education & Research).

Lecture code: Z002038

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Biochemistry Principles（生化学の塾） ILAS Seminar-E2 :Biochemistry Principles	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,Erik　WALINDA

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	13 (12)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Fri.5
Classroom	23, Yoshida-South Campus Bldg. No. 1			Language of instruction	English
Keyword	Biochemistry / Molecular Biology / Chemistry / Physiology				

[Overview and purpose of the course]

To take this seminar, it is recommended to have some prior knowledge of either general chemistry, organic chemistry, biology or biochemistry or take the lecture [Introduction to biochemistry] given by Dr. Candeias on Tuesday. Otherwise, the student will be required to prepare very well before each class using the instructor's notes, the textbook, or handouts of that lecture.

The content of the seminar will overall follow the course of that lecture. The difference is that, here we will take time to review and discuss the contents of the lecture. We will answer questions to make sure every student could understand everything they wanted to understand. We will do a lot of quizzes and exercises to dive deeper into the topic to deepen our understanding of the matter. This means that this seminar could be called a "tutorial" to the lecture. The Japanese subtitle 生化学の塾 emphasizes these points.

Students are welcome to ask any question at any time. Preferably in class, but also by e-mail, or in additional meetings with me or the teaching assistant (who isa Ph. D student).

This seminar is given in English and active student participation is highly encouraged.
It is not intended to be a passive class where the student just listens to the instructor's talk.

[Course objectives]

As all matter is composed of atoms, modern life science aims to explain all aspects of life comprehensively from the atomic level to that of the entire organism. In this seminar, students will attain a profound understanding of the atomic design of life, that is how biomolecules work and join forces to fulfill virtually all actions exerted by living beings.

[Course schedule and contents)]

1. Introduction to biochemistry
2. DNA, genes, and genomes
3. DNA replication and gene expression
4. Proteins
5. Protein structure
6. DNA isolation and analysis

Continue to ILAS Seminar-E2 :Biochemistry Principles（生化学の塾）(2)↓↓↓

7. DNA cloning and PCR
8. Protein methods
9. Enzymes
10. Enzyme kinetics
11. Carbohydrates
12. Lipids
13. Metabolism
14. Citric acid cycle and oxidative phosphorylation

Total:14 classes and 1 feedback

[Course requirements]

None

[Evaluation methods and policy]

Attendance and active participation [60%]
Homework assignments [40%]

[Textbooks]

Berg, Tymoczko and Stryer 『Biochemistry (any edition)』（W. H. Freeman and Co.）ISBN:978-1-4292-7635-1
You do not have to buy the textbook as it is available at the library.

[Study outside of class (preparation and review)]

Biochemical problem questions will be given as homework. In addition, students are invited to prepare their own questions to the instructor in advance.

[Other information (office hours, etc.)]

Office hour: any time (please send an email before coming to the office) or online (zoom etc.)

Lecture code: Z002045

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Critical thinking and Communication skills（批判的思考とコミュニケーション・スキル） ILAS Seminar-E2 :Critical thinking and Communication skills	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Program-Specific Assistant Professor,LUO YAN

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	10 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	
Classroom				Language of instruction	English
Keyword	Critical thinking / Communication / Academic writing				

[Overview and purpose of the course]

This course introduces the theory and practice of communication skills necessary for undergraduate students for the academic and scientific scholarship. The course will adopt the format of a “short-term research project” where students will be required to generate ideas around a topic of their choice through self-directed learning and in-class discussion. This unique approach will help students to build knowledge, vocabulary, and critical thinking skills that will enable them to develop ideas effectively communicate in English. Students will then have the opportunity to write short articles, provide peer feedback, and present their research in the classroom.

The course will include lectures on presentation skills, organizing scientific information, good writing principles, writing strategies faster and less anxiety, types and formats of scientific articles, and other skills necessary to communicate with different audiences effectively.

[Course objectives]

1. To define and describe the process of academic communication
2. To familiarize with the process of simple scientific inquiry, reasoning, and critical thinking
3. To comprehend and adapt styles of written and oral communication, including a systematic approach to drafting, revising, and editing, and the development of logical, clear, concise, balanced arguments
4. To develop cultural literacy skills by exploring principles of non-verbal communication and a range of strategies designed to overcome barriers to communication

[Course schedule and contents)]

In principle, the course will be offered as the following plan. However, it may change the order or the number of times for each theme depending on the progress of the course or the handling of current topics.

1. Course introduction
2. Organizing thoughts and ideas
3. Scientific methods, reasoning, and hypothesis formation
4. Critical thinking: Developing inferences skills
5. Critical thinking: Examining opinions and beliefs
6. Evaluating and assessing scientific evidence
7. The communication process and cultural literacy

Continue to ILAS Seminar-E2 :Critical thinking and Communication skills（批判的思考とコミュニケーション・スキル）(2)↓↓↓

8. Writing academic communications
9. Academic speaking strategies
10. One-to-one talk
11. Small group talk
12. Large group talk-Making academic presentations
13. Verbal & nonverbal communication skills
14. Visual aid in academic communications- Basics of slide design.
15. Feedback

[Course requirements]

None

[Evaluation methods and policy]

Active classroom participation: 30%
Written report: 35%
Presentation: 35%

[Textbooks]

Poudyal Hemant 『Developing Communication Skills: A Handbook for Japanese Speakers』 ISBN:978-1792706707
Poudyal Hemant 『What Makes an Academic Presentation Great? A complete guide for students, researchers, and educators.』（978-1070985534）

[References, etc.]

（**Reference book**）
Reference materials will be provided during the class.

[Study outside of class (preparation and review)]

Students are required to conduct a simple internet-based research activity for the duration of the course and present their findings.

[Other information (office hours, etc.)]

You may contact the instructor by email if you have any questions. The instructor will also be available for course-related consultation out of seminar hours if requested by the students. Please make an appointment by email (medsocio.kyodai@gmail.com).

Lecture code: Z002049

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Discussions in Biomechanics and Biophysics（バイオメカニクス・生物物理セミナー） ILAS Seminar-E2 :Discussions in Biomechanics and Biophysics	Instructor's name, job title, and department of affiliation	Kyoto University Not fixed

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	10 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Mon.5
Classroom	24, Yoshida-South Campus Bldg. No. 1			Language of instruction	English
Keyword	Biology / Physics / Biomedical / Engineering				

[Overview and purpose of the course]

May force be with you. This famous goodbye phrase from Star Wars summarises the important roles physical forces like gravity, friction etc play in our daily life. It turns out that living systems including our bones, muscles, cells and even proteins in our body depend a lot on physical forces to function properly. For example, why do astronauts become weak such that they are unable to walk after prololonged stay in space? Or, how do plants utilize photons of light to make glucose? Again, why are migratory birds able to sense their migration direction over long distances? These are just but a few examples highlighting how living systems on earth have adapted to physical forces such as gravity and electromagetic forces, etc. In this seminar, we will discuss some of the ground breaking discoveries and technological advances integrating biology, physics, and chemistry. Specifically, we will explore how living systems, including the human body, have adapted to and utilize physical forces to survive and function normally, and sometimes, abnormally. Also, we will discuss how we can mimic such adaptations for the benefit of society (biomimetics).

[Course objectives]

The ultimate goal of this seminar is to help students nurture a multidisciplinary approach to scientific discussions and problem solving in biology, medicine and engineering.

[Course schedule and contents)]

Discussions in this seminar will center on the impact of physical forces on living systems, and adaptive responses of such systems to acting forces. Some selected discussion topics are listed below, but students will be free to suggest a topic of interest for discussions in class.

1) Latest exciting discoveries in science with revolutionary societal impacts (3 weeks)
We will begin the discussion series by exploring ground-breaking discoveries in biology, chemistry, physics and/or engineering, and discuss their impacts on the society. Topics will be drawn from latest Nobel Prize winning researches which are expected to contribute significantly to advances in biology, medicine and/or engineering.

2) Connecting the dots: Exploring interconnectivity between physics and biology (3 weeks)

Continue to ILAS Seminar-E2 :Discussions in Biomechanics and Biophysics（バイオメカニクス・生物物理セミナー）(2)↓↓↓

Discussions here will explore interesting but rather puzzling phenomena involving the interaction between physical forces and living systems. We will discuss how living systems (including our body) sense and react to physical forces in the environment. Specific examples of adaptations to forces in biology will be drawn from plants, animals, and even from the human body. Importantly, the importance of force-mediated adaptation in health and disease will be explored.

3) May force be with you: Life in a force-ruled world (3 weeks)
Some forces like friction may sometimes be annoying, but equally important in our daily life. Our body itself is a force producing machine; our muscles contract, our hearts beat, our lungs expand and shrink, blood flow through our veins and arteries etc. This topic will explore how our bodies adapt and respond to forces at the cellular level, and how this is important to biology and medicine.

4) Role of forces in bone and muscle health (3 weeks)
Why do astronauts lose their ability to walk after staying in space for an extended period of time? Continuing the theme of the previous topic, this topic will look specifically into the role of physical forces in bones and muscles, including why lack of physical exercise or prolonged exposure to microgravity conditions may contribute to the weakening of muscles and bones.

5) Role of forces in wound healing and disease development (2 weeks)
This topic will introduce latest pioneering researches on the role of physical forces in wound healing and disease development, and how physical forces can be exploited to realize better treatment methods and improve quality of life.

6) Lecture review and student presentations (2 weeks)

[Course requirements]

None

[Evaluation methods and policy]

Class attendance and active participation: 60%, Discussions and presentations: 40%

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Rob Phillips , Jané Kondev and Julie Theriot 『Physical Biology of the Cell 2 Edition』（Garland Science）ISBN:9780815344506（OKEYO, Kennedy Omondi, MIYOSHI, Hiromi, ADACHI, Taiji, "Innovative Approaches to Cell Biomechanics-From Cell Migration to On-Chip Manipulation", Springer, ISBN 978-4-431-55163-8）

[Study outside of class (preparation and review)]

You may consider listening to TED talks to learn about some exciting science topics and how to give a nice presentation.

[Other information (office hours, etc.)]

Office hours will be annouced separately during class hours. However, you are free to contact me by email anytime.

Lecture code: Z002053

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :What is light?（光って何？） ILAS Seminar-E2 :What is light?	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,DE ZOYSA，Menaka		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	10, Yoshida-South Campus Bldg. No. 4	Language of instruction	English		
Keyword	Light / Optics				

[Overview and purpose of the course]

This seminar is for students to learn about the basics of light. The physics behind the reflection, transmittance, interference, diffraction, emission, and absorption will be explained. Front-line technologies related to light-control will be also discussed.

[Course objectives]

・ Understand the basics of light.
・ Learn about front-line technologies related to light-control.

[Course schedule and contents)]

1. Overview of the course, introduction to light (1 week)
2. Fundamentals of light, wave equation (4 weeks)
3. Physics behind the reflection, transmittance, total internal reflection (3 weeks)
4. Explanation of interference, diffraction, light absorption, and emission (2 weeks)
5. Introduction/discussion front-line light-control technologies (4 weeks)
6. Feedback (1 week)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on participation (30%), discussion (30%), and short-reports (40%).

[Textbooks]

Not used

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

Students are required to do their short-reports.

[Other information (office hours, etc.)]

Office hour: Anytime by email and appointments should be made via email or during the seminars.

Lecture code: Z002057

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Geo-Disaster Risk Reduction and Prevention（土砂災害の防災・減災学） ILAS Seminar-E2 :Geo-Disaster Risk Reduction and Prevention	Instructor's name, job title, and department of affiliation	Graduate School of Agriculture Program-Specific Assistant Professor,KOCH, Michael Conrad

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Fri.5
Classroom	W402, Faculty of Agriculture Main Bldg. (North Campus)			Language of instruction	English
Keyword	soil mechanics / landslide / earthquake / tsunami / disaster management				

[Overview and purpose of the course]

The first half of this course introduces students to the processes and mechanism of natural phenomena associated with environmental hazard and disaster. Being able to identify governing factors for the phenomena can help students find innovative solutions to prevent and reduce natural disaster risks. The course covers basic scientific theories and application that can enhance students' ability in modeling and analysis of the governing factors as well as the assessment of potential risk.

The second half of this course introduces frameworks for vulnerability assessment which dovetails into geohazard assessment and management practice. This section also covers the important concept of Environmental Impact Assessment as a means for anthropogenic disaster mitigation.

[Course objectives]

On successful completion of the course, students can be expected (1) to understand basic soil mechanics and hydraulics of groundwater, (2) to integrate these concepts to explain the failure mechanism of geo-disasters like landslides, (3) to analyze specific state-of-the-art disaster mitigation technologies and (4) to perform basic vulnerability, impact and disaster risk assessment.

[Course schedule and contents)]

1. Introduction to geo-disasters in the environment
2. Basic soil mechanics and hydraulics of groundwater (1)
3. Basic soil mechanics and hydraulics of groundwater (2)
4. Basic soil mechanics and hydraulics of groundwater (3)
5. Understanding mechanism of geo-hazard in the environment (1)
- landslide, ground subsidence, internal erosion beneath river embankments
6. Understanding mechanism of geo-hazard in the environment (2)
- landslide, ground subsidence, internal erosion beneath river embankments
7. Mechanism of earthquake-related geo-hazards
- liquefaction, tsunami
8. State-of-the-art disaster mitigation technologies
9. Understanding vulnerability: political, physical, social, economic and environmental factors

Continue to ILAS Seminar-E2 :Geo-Disaster Risk Reduction and Prevention（土砂災害の防災・減災学）(2)↓↓↓

10. Student presentation
11. Basic concepts of geo-hazard assessment and management
- mitigation, preparedness, response and recovery
12. Environmental Impact Assessment (EIA) for disaster mitigation (1)
13. Environmental Impact Assessment (EIA) for disaster mitigation (2)
14. Revision and self-learning week
15. Student presentation
16. Feedback

[Course requirements]

Beneficial but not mandatory: basic mathematics and physics (high school level). Students must be willing to work with basic mathematics.

[Evaluation methods and policy]

- Class performance (25%)
- Assignment report (30%)
- Oral presentation (45%)

[Textbooks]

Instructed during class
Additional study materials and handouts will be distributed.

[References, etc.]

（Reference book）
Introduced during class

[Study outside of class (preparation and review)]

Students are expected to be independent in finding online resources to attain relevant issues of discussion during seminar to enhance student interaction and understanding during classes. There will be penalty for failure to attend the course (up to three classes) on routine schedule.

[Other information (office hours, etc.)]

After class, student consultation will be arranged with prior notice.

Lecture code: Z002059

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Food Systems in Asia（アジアにおける食農システム） ILAS Seminar-E2 :Food Systems in Asia	**Instructor's name, job title, and department of affiliation**	Graduate School of Agriculture Associate Professor,Hart Nadav FEUER		
Group	Seminars in Liberal Arts and Sciences	**Number of credits**	2	**Number of weekly time blocks**	1
Class style	Seminar	**Year/semesters**	2023・Second semester	**Quota (Freshman)**	12 (8)
Target year	Mainly 1st year students	**Eligible students**	For all majors	**Days and periods**	Tue.5
Classroom	W302, Faculty of Agriculture Main Bldg. (North Campus)	**Language of instruction**	English		
Keyword	Food / Cuisine / Nutrition				

[Overview and purpose of the course]

This interactive seminar is about the contemporary transformation of food, nutrition, and agriculture in East and Southeast Asia. The content of the course will be both familiar and challenging to anyone who has eaten different cuisines in Asia. We will cover the development of local cuisines, the role of farmers, and the evolution of diet in modern society. The perspective will be both practical (How does society gather and eat?) and theoretical (Why food systems developed the way they did). Weekly activities involving food, such as tasting, smelling, cooking, are an important learning tool and a fun part of the seminar.

[Course objectives]

Students will learn how scientists understand and analyze global food trends from multiple perspectives. Students will also test their skills in an applied way by analyzing specific cuisines in East Asia and providing their own insight and analysis.

[Course schedule and contents)]

Module 1: Cuisines and agri-food systems in different regions
1. Introduction and Staple Foods
2. Rice food systems of East Asia
3. Wheat food systems of East Asia
4. Rice-based vs. Wheat-based Agrifood Systems

Module 2: Field Trip
5. Field Trip: Kobatake Farm near Sonobe. This event will take place on a weekend day (a Saturday or Sunday between the 4th and 6th class meeting, after consideration of student schedules). It will coincide with rice harvest period, and include some physical work on the farm. Students should be prepared for early departure and early evening return. Make sure to have clothing and shoes that can become dirty. For students who cannot join the field trip, an alternative class activity will be organized. Transportation costs may be free (shared van up to 9 students) or up to 1,180 yen (return train to Sonobe), depending on class size. Students are responsible for their own lunch. Effort will be made to enable participation in case of financial burden.

6. Field trip followup and Challenges of Traditional Farm Systems

Continue to ILAS Seminar-E2 :Food Systems in Asia（アジアにおける食農システム）(2)↓↓↓

Module 3: Food systems and cuisine
7. Rural food, urban cuisine, national cuisine
8. Taste, smell, chew: sensory skills of eating

Module 4: Learning about food
9. Food education and childhood
10. Nutrition of historical food systems
11. Food system disruptions

Module 5: Student Presentations (order selected later)
12. Cuisine of Korea
13. Cuisine of Vietnam
14. Cuisine of Malaysia

15. Essay and Feedback Period (details in class)

[Course requirements]

English proficiency suitable for understanding lectures, reading basic texts, and participating in class discussion.

[Evaluation methods and policy]

10% Attendance and active participation (Reduced after more than 3 absences without official excuse
15% Mini-essay assignments
15% In-class discussion and participation in activities
30% Final exam OR essay
30% Final group presentation

[Textbooks]

Not used
No textbook, but consultation of in-class materials and eBooks available at Kyoto University Library (see Reference book).

[References, etc.]

（**Reference book**）
Van Esterik, Penny 『Food Culture in Southeast Asia』（Greenwood）ISBN:9780313344190（eBook available from instructor）

[Study outside of class (preparation and review)]

Students will be expected to do short readings in preparation for class and discuss them the following week. Suitable readings for all English levels are available. Alternatively, students will do practical exercises which must be submitted the following week.

[Other information (office hours, etc.)]

Short meetings can be spontaneous or scheduled. Longer meetings scheduled only by email.

Concerning field trip participation: students should ensure that they join the necessary insurance, such as Personal Accident Insurance for Students Pursuing Education and Research (Gakkensai - 学研災)

Lecture code: Z002066

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Introductory Bioinformatics（バイオインフォマティクス入門） ILAS Seminar-E2 :Introductory Bioinformatics	Instructor's name, job title, and department of affiliation	Institute for Life and Medical Sciences Associate Professor,VANDENBON, Alexis

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	Seminar room 21, ILAS Bldg.			Language of instruction	English
Keyword	Bioinformatics / Computational biology / Sequence alignment / Evolution / Genomics				

[Overview and purpose of the course]

Bioinformatics is an interdisciplinary field in which statistics, machine learning and computer programming are applied to biological data. Nowadays, computational approaches such as bioinformatics have become an essential part of biological research. This course will offer an overview of bioinformatics techniques, including sequence alignment, comparative and evolutionary genomics, protein structure prediction, analysis of sequencing data, systems biology, widely used biological databases, and single-cell data analysis.

[Course objectives]

Students will gain insight into a variety of topics within the field of bioinformatics. By taking this course, students will acquire knowledge about fundamental bioinformatics analyses, and will gain understanding about how bioinformatics can contribute to studies in biology.

[Course schedule and contents)]

Lectures 1 and 2: Introduction to Bioinformatics. What is bioinformatics? We will introduce various topics in bioinformatics, from the use of sequence alignments in making phylogenetic trees, prediction of protein structure, to the modelling of a simple regulatory network.

Lectures 3 and 4: Genome organization and evolution. We will introduce the genomes of prokaryotes and eukaryotes and their content. Genome sequencing projects and metagenomics will be covered.

Lecture 5 and 6: Alignments. Aligning sequences is one of the fundamental tasks in bioinformatics. We will start with an introduction to alignment, from dotplots to a dynamic programming algorithm. The usage and interpretation of pairwise sequence alignments will be covered.

Lecture 7: Phylogenetics. We will extend pairwise alignments to alignments of multiple sequences. We will introduce methods for turning multiple alignments into phylogenetic trees. We will discuss different types of phylogenetic trees, their properties and interpretation.

Lectures 8 and 9: Structural bioinformatics. Starting from a review of the properties of amino acids, we will introduce protein structural alignments and approaches for predicting secondary, tertiary and quaternary

Continue to ILAS Seminar-E2 :Introductory Bioinformatics（バイオインフォマティクス入門）(2)↓↓↓

protein structure from amino acid sequences. In addition, we will briefly cover methods for predicting protein function.

Lecture 10: Systems biology. Complex systems have properties that cannot easily be inferred from their individual components. In this lecture, we will introduce holistic approaches to the study of biology. Especially, we will focus on biological networks and their properties.

Lecture 11: Metabolic pathways and Review of course material. We will introduce classification systems for enzymes, and popular databases of metabolic pathways.

Lecture 12: Gene expression and regulation. Introduction to so-called “next generation sequencing” (NGS, RNA-seq) approaches, and its applications. The information contained in a typical NGS dataset will be introduced, as well as practical steps in its processing, mapping, and interpretation.

Lecture 13: Single-cell data analysis. A brief introduction to approaches for sequencing RNA molecules in single cells (single-cell RNA-seq), and several topics related to the analysis of single-cell data. We will also briefly cover spatial transcriptomics, which are approaches that allow us to see where in a tissue each gene is being transcribed.

Lecture 14. Review of course material.

Lecture 15. Final examination, if the COVID-19 situation allows it. If a face-to-face examination is impossible, the final examination will be replaced by a number of smaller assignments.

Lecture 16. Feedback

[Course requirements]

Students are expected to have basic knowledge about molecular biology.

[Evaluation methods and policy]

Grading will be based on a final examination (50%) and small assignments (50%).

[Textbooks]

Arthur Lesk 『Introduction to Bioinformatics (5th edition)』（Oxford University Press）ISBN:978-0198794141（The course lectures will follow the content of this textbook, but it is not compulsory to buy the textbook.）

[Study outside of class (preparation and review)]

The course lectures will follow the content of this textbook, but it is not compulsory to buy the textbook. I will prepare slides for the content of every lecture.

[Other information (office hours, etc.)]

No fixed office hours. Students are requested to make appointments directly or by email.

Lecture code: Z002070

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Let's simulate human movement（コンピューターで人を動かしてみよう） ILAS Seminar-E2 :Let's simulate human movement	**Instructor's name, job title, and department of affiliation**	Graduate School of Medicine Associate Professor,PATAKY，Todd		
Group	Seminars in Liberal Arts and Sciences	**Number of credits**	2	**Number of weekly time blocks**	1
Class style	Seminar	**Year/semesters**	2023・Second semester	**Quota (Freshman)**	6 (6)
Target year	Mainly 1st year students	**Eligible students**	For all majors	**Days and periods**	Fri.5
Classroom	Seminar room 2, 2F, School of Human Health Sciences,Faculty of Medicine (Faculty of Medicine/Pharmaceutical Science Campus/ University Hospital Campus)	**Language of instruction**	English		
Keyword	3D modeling / computer animation / biomechanics				

[Overview and purpose of the course]

Computer animations of human movement help (a) clinicians understand movement disorders, (b) doctors make corrective surgery decisions, and (c) engineers design artificial limbs. This course will introduce you to human movement simulation from the perspectives of motion capture and animation. A variety of movements will be considered, ranging from simple single-segment motion to complex, natural 3D motion. We will use the free-and-open-source software "Blender" to create realistic animations of human movement. As a final project, students will generate a short animated movie, using animated movement to tell a story. Programming experience is useful but not required.

[Course objectives]

Students will learn about human modeling, animation and simulation. Students will also learn the fundamentals of motion capture, and how motion capture data can be used to drive the motion of 3D human models. In two classes students will work hands-on with expensive, Hollywood-grade motion capture equipment to support animation work. You will gain experience using open-source software, working in 3D software environments, and in planning and managing a relatively complex software project.

After some initial general assignments, focus will shift to Final Projects, which students will work on for most of the semester. The goal of Final Project is to create a 60 s (or longer) animation involving realistic human movement. The animation theme and specific techniques are free, to be be chosen by each student based on your interests. The instructor will help students to choose a Final Project that is challenging, but also achievable. The instructor will also help you solve Final Project modeling and animation problems as you encounter them.

[Course schedule and contents)]

The following weekly topics will be covered:

1) Modeling I: Introduction
3) Animation I: Basics
3) Modeling II: Armatures
4) Modeling III: Character Mesh

Continue to ILAS Seminar-E2 :Let's simulate human movement（コンピューターで人を動かしてみよう）(2)↓↓↓

5) Presentations I: Final Project Proposal
6) Animation II: Poses & Pose Libraries
7) Modeling IV: Rigging
8) Motion Capture I: Pilot Experiment
9) Motion Capture II: Using Motion Capture Data
10) Presentations II: Final Project Updates
11) Motion Capture III: Main Experiment
12) Animation III: Fine Tuning
13) Animation IV: Advanced Animation Topics
14) Presentations III: Final Projects
15) Feedback

[Course requirements]

There are no specific requirements for this class. However, students must be willing to work with open-source software, which is relatively poorly documented compared to commercial software. The class instructor will help with problems, but students are also encouraged to find solutions to their problems through internet searches.

[Evaluation methods and policy]

Students are expected to actively participate in class, to reproduce all examples discussed in class, and also to complete regular assignments.

Evaluation will be based on the following criteria:

- Assignments (70%) [10 @ 7% each]
- Final Project (30%)

TOTAL: 100%

[Textbooks]

Not used
No specific textbook will be used. All necessary materials will be distributed electronically and will be discussed in class.

[References, etc.]

（Reference book）

A number of useful books and internet resources will be discussed for student self-learning.

（Related URL）

http://www.blender.org(Blender is a free-and-open-source 3D modeling and animation software suite that will be used extensively in all lectures and all assignments.)

[Study outside of class (preparation and review)]

This course has a variety of out-of-class assignments (and no exam). Students who do not pay attention to the lecture content during class will likely have difficulties completing the assignments.

Additionally, there will be a Final Project that students are expected to complete outside of class, with in-class support.

Continue to ILAS Seminar-E2 :Let's simulate human movement（コンピューターで人を動かしてみよう）(3)↓↓↓

[Other information (office hours, etc.)]

REASONS FOR CLASS SIZE RESTRICTION:
This class extensively uses Blender (blender.org), which is a very powerful, and very complex software package. Every class requires one-on-one student support to understand and handle software problems that arise. A larger class size is not feasible.

IN-CLASS ENVIRONMENT
This is a small seminar class, and active discussion is encouraged. Students are also encouraged to ask questions, both of the instructor and of fellow students. We are all here to learn, so let’s work together to create the best results we can!

OFFICE HOURS:
Immediately before / after class or by appointment (pataky.todd.2m @ kyoto-u.ac.jp)

Lecture code: Z002072

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Understanding and critical appraisal of qualitative research methods in health care（ヘルスケアにおける質的研究） ILAS Seminar-E2 :Understanding and critical appraisal of qualitative research methods in health care	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Associate Professor,ANAGNOSTOU，Despoina

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	7 (7)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Tue.5
Classroom	32, Yoshida-South Campus Bldg. No. 1			Language of instruction	English
Keyword	qualitative research / research methods / quality criteria / interviews / publications				

[Overview and purpose of the course]

This seminar will enable students to develop critical understanding of a range of qualitative research methodologies. We will run both theory sessions and workshops to explore the key methods in qualitative research using real examples from research projects. Students will also experiment with conducting some research methods whilst applying them in different scenarios. The seminar will include reflective workshops where students will have the opportunity to apply the key principles of qualitative research from research design, data collection methods and data analysis. We will also run two journal club sessions, in which students will learn to critically evaluate the appropriateness of study designs, the quality of used methods and quality of results, as they are presented in internationally published papers. This seminar will enable students to develop understanding of the value of qualitative research, but also support the development of introductory skills of conducting qualitative research. Also, students will be able to develop critical skills in evaluating the quality of research evidence with a focus on health care.

[Course objectives]

To understand the concept of qualitative research/ versus quantitative research
To understand different methodologies in qualitative research
To explore different methods (data collection, data analysis) in qualitative research
To apply quality criteria of evaluation to qualitative research

[Course schedule and contents)]

Session 1: Introduction to the seminar and introductions of the members of the group
Session 2: Quantitative versus qualitative research- the two paradigms
Session 3: Definitions of qualitative research and key principles- Introduction to different qualitative research designs
Session 4: Exploring the ethnography design
Session 5: Journal club- Paper review workshop, using a published ethnographic study
Session 6: Key methods of data collection- interviews
Session 7: Workshop on Qualitative interviews- use of video material

Continue to ILAS Seminar-E2 :Understanding and critical appraisal of qualitative research methods in health care（ヘルスケアにおける質的研究）(2)↓↓↓

Session 8: Reflective learning- students will conduct a mini interview with a follow-up group discussion
Session 9: Key methods of data collection- Observation methods
Session 10: Reflective learning workshop: students will conduct a small observation experiment, class feedback
Session 11: Methods of qualitative analysis- thematic analysis
Session 12: Workshop on thematic analysis- we will conduct thematic analysis in class, using prior experiment
Session 13: Considering the quality of qualitative research. The session will include a journal club workshop- critically review of a qualitative paper in class
Session 14: Presentations- course feedback
Session 15: Feedback

[Course requirements]

- Good understanding of English language

- The seminar combines concepts from sociological theories, health care and research methods terminology. It is advisable to be considered for second semester and above.

[Evaluation methods and policy]

Students will be evaluated via presentation and participation in the workshops. Students will need to do an oral presentation as the final course assignment, which will include a report of the mini research project they will have conducted throughout the seminar.

Short assignments during the seminar will offer students the chance to practice different methods of data collection and analysis.

The total mark will consist of 30% of assignments throughout the course workshops and 70% of the final course presentation.

[Textbooks]

Not fixed
Recommendations and study material will be given during the course

[References, etc.]

（**Reference book**）
Introduced during class
References will be introduced during the course

[Study outside of class (preparation and review)]

Students will prepare for their presentations and they will be evaluated via them. This will include a report of the mini research project they will have conducted throughout the seminar.

A couple of published papers will be suggested prior to two sessions, for the students to read. The work of quality appraisal of the publications will take place during sessions.

Students will also engage into workshops of data collection and data analysis, which we will then discuss in class.

Continue to ILAS Seminar-E2 :Understanding and critical appraisal of qualitative research methods in health care（ヘルスケアにおける質的研究）(3)↓↓↓

[Other information (office hours, etc.)]

Teacher short lectures, discussion groups, student presentations, small group works during seminar session based on an issue specified by the teacher.

Students are advised to actively participate; make comments and ask questions to generate discussions

This class is conducted in a remote format where the instructor delivers classes from outside the classroom. So students are required to bring their own devices.

Lecture code: Z002074

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Radical Art and Politics in Japan 1960-70（1960年から70年の日本における前衛芸術と政治） ILAS Seminar-E2 :Radical Art and Politics in Japan 1960-70	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Professor,DANIELL，Thomas Charles

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	10 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Tue.5
Classroom	22, Yoshida-South Campus Bldg. No. 1			Language of instruction	English
Keyword	art / politics / Japanese history				

[Overview and purpose of the course]

This seminar will look at the convergence of radical art and radical politics in 1960s Japan, from the Anpo protests in 1960 to the university riots in the late 1960s and the Osaka Expo in 1970. We will examine the work and ideas of Art collectives such as the Neo Dadaism Organizers and Hi Red Center, events such as the Independents exhibitions, the rise of performance art and media art, and the contemporaneous writings of art critics.

[Course objectives]

By the end of this course, students will: Understand the historical development of art in postwar Japan; Understand the political and cultural factors that have influenced artists; Learn to make a critical response to the assigned readings; Learn to read, write, listen, and speak cogently; Present research findings to an audience.

[Course schedule and contents)]

Each week there will be a topic or text assigned for discussion, led by either the instructor or one of the students. The selection and order of texts may be altered during the semester.

01 Reportage painters
02 Anpo protests and the “Provoke” photographers
03 Genpei Akasegawa: from Hi-Red Center to Street Observation
04 Metabolist architects and Expo'70
05 Discussion text: Reiko Tomii, “Geijutsu on Their Minds: Memorable Words on Anti-Art”
06 Discussion text: Michio Hayashi, “Tracing the Graphic in Postwar Japanese Art”
07 Discussion text: Mika Yoshitake, “The Language of Things: Relation, Perception, and Duration”
08 Discussion text: Miryam Sas, “Intermedia, 1955 - 1970”
09 Discussion text: Ming Tiampo, “Decentering Originality”
10 Discussion text: William A. Marotti, “Simulacra and Subversion in the Everyday: Akasegawa Genpei’s 1000-yen copy, Critical Art, and the State,”
11 Discussion text: Angus Lockyer, “The Logic of Spectacle c.1970,”
12 Discussion text: Kuro DalaiJee, “Performance Collectives in 1960s Japan: With a Focus on the ‘Ritual

Continue to ILAS Seminar-E2 :Radical Art and Politics in Japan 1960-70（1960年から70年の日本における前衛芸術と政治）(2)↓↓↓

School’”
13 Discussion text: Midori Yoshimoto, “Women Artists in the Japanese Postwar Avant-Garde: Celebrating A Multiplicity”
14 Gunhild Borggreen, “Ruins of the Future: Yanobe Kenji Revisits Expo’70”
15 Feedback

[Course requirements]

No prior knowledge is required. Students should be able to participate in discussions with their classmates in English.

[Evaluation methods and policy]

The course comprises close readings of critical texts in the fields of art, architecture, design, music, and performance. Each student will be assigned a topic and related text. You must read and understand the assigned text, and lead a seminar in which you present the text to the rest of the class. There are three parts to the seminar: 1. You will write an illustrated summary of your assigned text, using the template provided, to be distributed to the other students (40 points); 2. You will give an illustrated lecture on the assigned text, lasting about 45 minutes. The content will be essentially the same as your essay (40 points); 3. You will lead a discussion on the topics raised, lasting about 45 minutes. You will be graded on your presence and participation in all the discussions (20 points). Attendance is mandatory. Students who are absent more than four times may not be credited. Students who submit work that is plagiarized or lacks proper citations may fail.

[Textbooks]

A PDF file containing the required readings will be provided.

[References, etc.]

（**Reference book**）
Doryun Chong (ed) 『From Postwar to Postmodern: Art in Japan 1945-1989』（MoMA）ISBN:978-0822353683
Michio Hayashi 『Tokyo 1955 - 1970: A New Avant-Garde』（MoMA）ISBN:978-0870708343
Thomas Daniell 『An Anatomy of Influence』（AA Publications）ISBN:978-1907896965

[Study outside of class (preparation and review)]

All students are expected to have read the assigned reading(s) before each class.

[Other information (office hours, etc.)]

By appointment.

Lecture code: Z002076

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Technology and Modern Society - A Historical Perspective（日本の工業技術史と現代社会） ILAS Seminar-E2 :Technology and Modern Society - A Historical Perspective	Instructor's name, job title, and department of affiliation	Graduate School of Engineering Senior Lecturer,ISLAM, A K M Mahfuzul		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	10 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Fri.5
Classroom	26, Yoshida-South Campus Bldg. No. 1	Language of instruction	English		
Keyword	Technology / Semiconductor industry / Modern society				

[Overview and purpose of the course]

We can describe human history in terms of the evolution of technology and how it shaped society. The course will discuss the evolution of different technologies and their impacts on society. The course will also try to predict the future, and what kind of new technologies may come. This course aims at developing analyzing ability by surveying the evolution of a particular technology and the impact on society. The students will give presentations on several topics. The course will be aiming at having the students to learn from each other, by presenting, commenting, and discussing the results.

[Course objectives]

1. To develop the ability to identify how art and technology contribute to modern society
2. Realize the meaning of active learning and learning through discussion
3. Understand the evolution of technology

[Course schedule and contents)]

1. Introduction [1 week]
2. Interaction between technology and society [3 weeks]
   2-a) Impact of the industrial revolution
   2-b) Impact of the digital revolution
   2-c) Impact of AI and robotics
   2-d) What is the role of humans in the future?
3. Evolution of user interfaces: from simple to automated [3 weeks]
   3-a) Mechanical interface
   3-b) Command-line interface
   3-c) Graphical user interface
   3-d) Touch-screen
   3-e) Voice and gesture
   3-f) Impact on society
4. Evolution of storage devices: from large wardrobe to tiny objects [3 weeks]
   4-a) Magnetic drums
   4-b) Floppy disks

Continue to ILAS Seminar-E2 :Technology and Modern Society - A Historical Perspective（日本の工業技術史と現代社会）(2)↓↓↓

   4-c) Hard disks
   4-d) Solid-state drives (SSD)
   4-e) Flash drives
   4-f) Cutting-edge technology
   4-g) Impact on society
5. Evolution of computing devices: from mechanical to electrical [3 weeks]
   5-a) Mechanical switch
   5-b) Bipolar transistor
   5-c) MOS transistor
   5-d) CMOS
   5-e) Cutting-edge technology
   5-f) Impact on society
6. Predicting the future [2 weeks]
   6-a) New technologies
   6-b) Future world

[Course requirements]

None

[Evaluation methods and policy]

Assignments (50%) and term-end report (50%)

[Textbooks]

Not fixed
Handouts will be given and online materials will be announced in the class.

[References, etc.]

（**Reference book**）
Introduced during class

[Study outside of class (preparation and review)]

The students are encouraged to actively participate in the discussions and share their opinions.

[Other information (office hours, etc.)]

Questions are always welcome. Appointments should be made by e-mail.

Lecture code: Z002087

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Encounters with modern arithmetic（現代整数論との出会い） ILAS Seminar-E2 :Encounters with modern arithmetic	Instructor's name, job title, and department of affiliation	Research Institute for Mathematical Sciences Senior Lecturer,UEDA FUKUHIRO

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	36, Yoshida-South Campus Academic Center Bldg. North Wing			Language of instruction	English
Keyword	Galois theory / polynomials / modern algebra				

[Overview and purpose of the course]

It is a classical question from centuries ago whether a quintic (or of higher degree) polynomial equation is solvable in terms of its coefficients, with only use of the usual operations (addition, subtraction, multiplication, division) and application of radicals (square roots, cube roots, etc). It was French mathematician E. Galois who proposed the correct framework for such a question, the answer to which turns out to be negative in general. Nowadays, the theory of Galois has become an essential part of modern abstract algebra.

The so-called "fundamental theorem of Galois theory" is commonly considered as the summit of a course in (undergraduate) abstract algebra, which usually takes a year to complete. In this half-year course we start from the beginning of abstract algebra, with emphasis on the concepts and examples that shall help us reach Galois theory.

It is worth mentioning that abstract algebra has also found applications in science and engineering, e.g. in cryptography.

[Course objectives]

We will learn the basic concepts and theorems in group theory, ring theory, field theory, and Galois theory. As an application, we shall also be able to determine which polynomial equations are solvable in radicals.

[Course schedule and contents)]

We intend to cover a big chunk of modern algebra in a condensed and interesting way, to make it accessible to most undergraduate students. Both concepts and examples will be emphasized.

Below is the plan and contents of the course. (The lectures, as well as the order of the lectures, may be modified, depending on students' background and understanding of the course materials.)

- Set Theory [1 week]:
Notion of sets, mappings, mathematical induction, Zorn's lemma.

- Group theory [3-4 weeks]:

Continue to ILAS Seminar-E2 :Encounters with modern arithmetic（現代整数論との出会い）(2)↓↓↓

Definition and examples of groups, homomorphisms, abelian groups, symmetric groups, Sylow's theorem.

- Ring theory [3-4 weeks]:
Definition and examples, ideals, Euclidean domains, PIDs, UFDs, polynomial rings.

- Field theory [2-3 weeks]:
Definition and examples, field extensions, finite fields.

- Galois theory [2-3 weeks]:
Galois extensions, roots of unity, solvability.

Total: 14 classes and 1 feedback

[Course requirements]

It is helpful to know basics in linear algebra, but not required.

[Evaluation methods and policy]

The evaluation consists of the following weighted parts:

- Performance in class (20%).

- Presentation (60%): Each student reviews a mathematical topic assigned by the instructor.

- Report (20%): An essay on the topic of presentation.

[Textbooks]

D. Dummit and R. Foote 『Abstract Algebra』（Wiley; 3rd edition）ISBN:9780471433347
There is no need to purchase the textbook in advance. The details will be explained in the first class.

[References, etc.]

（Reference book）
Other supplemental materials will be introduced during the classes.

[Study outside of class (preparation and review)]

Along with preparation and review, students are encouraged to form study groups.

[Other information (office hours, etc.)]

Lecture code: Z002088

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :How to make scientific Breakthrough- Learning from Nobel discoveries（基礎生物学の発見から疾患の理解へ） ILAS Seminar-E2 :How to make scientific Breakthrough- Learning from Nobel discoveries	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Associate Professor,KIM MINSOO		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	12 (12)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Fri.5
Classroom	21, Yoshida-South Campus Bldg. No. 1	Language of instruction	English		
Keyword	Medical science / Nobel prize / Drug discovery / Biotechnology / Human diseases				

[Overview and purpose of the course]

Since 1901, the Nobel Prize has served as an acknowledgement of major contributions to the life sciences. In this ILAS seminar, we will focus on several contributions to the fields of Medicine/Physiology and Chemistry that have been recognized by the Nobel Prize. The course will begin with two classes that review the philosophy and sociology of such scientific discoveries. Subsequent classes will shift to an exploration of the application of these theories to specific cases. By studying the work and careers of laureates, students will become familiar with the philosophies and methods that have led to great breakthroughs in twentieth-century science. The course will end with a discussion of the future prospects of medical innovations. During the course, students will practice to reading research papers and actively participate in group discussions.

[Course objectives]

To understand the philosophy and methodology of the Nobel laureates
To gain basic knowledge of the life sciences and biotechnology
To improve critical thinking skills and the discussion and presentation of scientific topics

[Course schedule and contents)]

Week 1. Introduction of course: Nobel lecture
Week 2. History of scientific discoveries
Week 3-6. Nobel stories of “Gene to Cell”: Chromosome, Reverse Transcription, Protein folding, Protein degradation, cell division
Week 7. Student practice: Let's make a "3D-DNA model"
Week 8. Novel biotechnology in medicine: RNA interference, polymerase chain reaction, green fluorescent protein
Week 9. Student practice: Reading Nobel papers
Week 10-13. Discovery of the causes of diseases (and therapies): tuberculosis (and streptomycin), malaria, cancer, immune cells, and immune therapy
Week 14. Innovations in medical sciences: What is the next innovation?
Week 15. Student presentations on selected Nobel prizes

Continue to ILAS Seminar-E2 :How to make scientific Breakthrough- Learning from Nobel discoveries（基礎生物学の発見から疾患の理解へ）(2)↓↓↓

Week 16. Feedback

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and participation (60%) and a final presentation (40%).

[Textbooks]

Instructed during class

[References, etc.]

（Reference book）
Bruce Alberts　et al.『Molecular Biology of the Cell』ISBN:978-0815344643

[Study outside of class (preparation and review)]

To achieve the course goals students review the course handouts.

[Other information (office hours, etc.)]

Please feel free to come to my office any time

Lecture code: Z002092

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Physics of Life（生命の物理学） ILAS Seminar-E2 :Physics of Life	Instructor's name, job title, and department of affiliation	Graduate School of Science Senior Lecturer,DECHANT，Andreas		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Wed.5
Classroom	23, Yoshida-South Campus Academic Center Bldg. West Wing	Language of instruction	English		
Keyword	Science / Physics / Biology				

[Overview and purpose of the course]

The purpose of this seminar is to learn about the various ways in which physics can be used to understand living matter, from the motion of small molecular machines in the cells of our bodies to the collective behavior of swarms of animals. We will also learn how the physical description of living matter can allow us to emulate it to develop new materials and devices.
In this seminar, we will learn about selected topics in biophysics by reading articles from scientific journals. For each topic, we will start with one or two weeks of lectures explaining the necessary background. After that, we will read a scientific article together. We will discuss the contents of the article and its importance for the field of biophysics. The following week, some students will be asked to give a brief presentation about a part of last week’s article.

[Course objectives]

- Understanding how living matter is different.
- Becoming familiar with some of the techniques currently used in biophysics.
- Learning to read scientific articles and present their contents.

[Course schedule and contents)]

Class 1-3: Motion and machines at small scales.
Class 4-6: Biological and artificial molecular motors.
Class 7-9: Randomness, noise, and fluctuations.
Class 10-11: Collective motion and swarming.
Class 12-14: Polymers and DNA.
Class 15：Feedback

[Course requirements]

Knowledge about statistical mechanics and/or thermodynamics is helpful but not required.

Continue to ILAS Seminar-E2 :Physics of Life（生命の物理学） (2)↓↓↓

[Evaluation methods and policy]

The students will be graded based on their participation in class (25%) and their presentation (75%). Students will need at least 60% in total to pass.

[Textbooks]

No textbook, articles will be given as handouts.

[Study outside of class (preparation and review)]

Each student will be asked to prepare a short presentation on a part of a scientific article once during the course.

[Other information (office hours, etc.)]

Office hour: Thu. 15:00-16:00

Lecture code: Z002094

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Climate change impacts on the humanosphere（気候変動が生存圏に与える影響） ILAS Seminar-E2 :Climate change impacts on the humanosphere	**Instructor's name, job title, and department of affiliation**	Research Institute for Sustainable Humanosphere Professor,Luce,　Hubert		
Group	Seminars in Liberal Arts and Sciences	**Number of credits**	2	**Number of weekly time blocks**	1
Class style	Seminar	**Year/semesters**	2023・Second semester	**Quota (Freshman)**	5 (5)
Target year	Mainly 1st year students	**Eligible students**	For all majors	**Days and periods**	Fri.5
Classroom	Seminar room 21, ILAS Bldg.			**Language of instruction**	English
Keyword	Climate change / environment / humanosphere				

[Overview and purpose of the course]

This seminar gives an overview about our knowledge on climate changes and their potential impacts on our environment (meteorology and climate, hydrosphere, biosphere, and so on). Within the frame of the Sustainable Development Goals (SDG13: climate action) of the United Nations, possible strategies either to adapt to climate changes or to mitigate them are proposed and discussions will be encouraged. The lecture will be partly based on information from Intergovernmental Panel on Climate Change (IPCC) reports and used in popular scientific works.

[Course objectives]

The students will acquire an in-depth knowledge of the climate change issue and will be able to discuss about it from an enlightened point of view in English. It is subject to individual or in group projects for focusing on a particular aspect tackled during the classes.

[Course schedule and contents)]

1. Human interaction with the environment and exploitation of the natural resources.
(Weeks 1-3)
2. Manifestations of the environmental crises
- How and when did we become aware of the environmental crises?
(Week 4)
  - atmosphere (climate evolution, atmospheric disasters, …)
  - oceans and cryosphere (sea level increase, acidification, ice melt, ...)
  - biosphere (biodiversity: loss on mammals, birds, insects, …)
  - land degradation and pollution
  - water issues (quality and quantity)
(Weeks 5-9)
3. The potentially most affected regions by the climate change:
  - The Polar regions
  - The coastal areas
  - The semi-arid regions
(Weeks 10-11)

Continue to ILAS Seminar-E2 :Climate change impacts on the humanosphere（気候変動が生存圏に与える影響）(2)↓↓↓

4. In depth analysis of the situation and prospective
  - Demography and impact on the environment
  - The energetic issue
    Consumption of fossil energies, and greenhouse gas effects
    Energy and global warming: predictions
    The possible renewable energies
(Weeks 12-13)
5. Solutions to reduce the climate change impacts on the humanosphere? (discussions)
(Week 14)
6. Final examination
(Week 15)
6. Feedback
(Week 16)

[Course requirements]

This seminar does not require prior knowledge on the topic and is mainly based on graphics and documents to interpret.

[Evaluation methods and policy]

Evaluation will be:
Active participation in class: 30 pts
Assignments/projects at home: 30 pts
Final examination: 40 pts

[Textbooks]

Not used. Slide handouts will be distributed.

[References, etc.]

（Reference book）
Mainly, Intergovernmental Panel on Climate Change (IPCC) reports.

[Study outside of class (preparation and review)]

Materials (pdf files) are made available before class.
Students are encouraged to study materials before and after each class for assimilating technical or uncommon words.
Depending on the topic, the study of the materials and the preparation of the report for the evaluation may take a few hours a week.

[Other information (office hours, etc.)]

Materials (pdf files) are available on Kulasis website. Communication by emails are possible for questions outside of class hours.

Lecture code: Z002096

Course number	U-LAS70 10002 SE50		
Course title (and course title in English)	ILAS Seminar-E2 :Disorders of the Nervous System（神経系障害） ILAS Seminar-E2 :Disorders of the Nervous System	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Assistant Professor,RAUDZUS，Fabian

Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	Seminar	Year/semesters	2023・Second semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Wed.5

Classroom	12, Yoshida-South Campus Academic Center Bldg. East Wing	Language of instruction	English

Keyword	Brain (脳) / Parkinson disease (パーキンソン病) / Alzheimer disease (アルツハイマー病) / Spinal cord injuries (脊髄損傷)

[Overview and purpose of the course]

The seminar "Disorders of the Nervous System" introduces the causes and therapies for different diseases resulting from neurodegeneration, the environment, genetics, or injury. These diseases are a burden for the affected person, the relatives, and society. For most of these diseases, no cure is yet available, and therefore, it is crucial to understand the underlying mechanisms to discover novel approaches. The seminar will introduce the peripheral and central nervous systems and the organization of the human brain. We will discuss the genetic and environmental reasons for these disorders. Subsequent seminars will focus first on neurodegenerative disorders, such as Alzheimer's disease, Parkinson's disease, and Huntington's disease, and later on disorders of the peripheral nervous system, especially the loss of sight and hearing. The seminars will be highly interactive: short presentations of topics by students will be extended to group discussions. After the background and causes of a disorder are discussed, each student will get the chance to work on selected literature to gain deeper insights into various current treatments and future perspectives.

[Course objectives]

The seminar will introduce you to common disorders of the nervous system. The necessary knowledge gained will enable you to understand current research progress in this field. By guided personal study of the primary literature, you will also gain further insights into current treatments and different methodologies. After finishing the seminar, you will be familiar with a large repertoire of skills that will enable you to understand, discuss, and evaluate disorders of the nervous system and their treatment.

[Course schedule and contents)]

1. Introduction to the peripheral and central nervous systems
2. Organization and function of the human brain
3. Genetic causes of diseases of the nervous system
4. Environmental causes of disorders of the nervous system
5. How Alzheimer's disease slowly destroys memory and thinking skills
6. Tremor, slowed movement, and rigid muscles: Parkinson's disease
7. Huntington's Disease: a progressive brain disorder with early-onset
8. Neurodegeneration due to misfolded proteins: Prion disease, Creutzfeldt-Jakob disease
9. Degeneration of the peripheral nervous system: example of Charcot-Marie-Tooth disease
10. Spinal cord injuries: what happens when the connection between brain and peripheral nervous system is

Continue to ILAS Seminar-E2 :Disorders of the Nervous System（神経系障害）(2)↓↓↓

damaged or destroyed?
11. Disorders of the brain due to excessive neuronal activity: Epilepsy
12. Diseases of the visual system: Glaucoma
13. Sensorineural hearing loss: Brown-Vialetto-Van Laer syndrome
14. Disorders caused by inflammation: Guillain-Barre syndrome
15. Current state and perspective of research
16. Feedback

Changes in order and/or content might occur.

[Course requirements]

The course is open to all students but a basic understanding in biology is recommended. In addition, it is recommended to attend the seminar "Physiological Neuroscience" to get introduced into the basic principles of neuroscience.

[Evaluation methods and policy]

Attendance and active participation: 20%
Midterm assignment: 40%
Presentation: 40%

[Textbooks]

Not used

[References, etc.]

（Reference book）
Mark F. Bear, Barry W. Connors, Michael A. Paradiso 『Neuroscience: Exploring the Brain』（Jones & Bartlett Learning, April 8, 2020）ISBN:9781284211283（Enhanced 4th Edition (English Edition)）

[Study outside of class (preparation and review)]

Preparation and review are necessary for every seminar. This includes recapitulating the last seminar, solving questions, and self-studying as preparation for the upcoming topic. The amount of time required for preparation is about 60-90 min.
The seminar "Physiological Neuroscience" is recommended as it gives you further insights into the basic principles of our nervous system.

[Other information (office hours, etc.)]

If you have further questions, feel free to write me an email.

Lecture code: Z003006

Course number	U-LAS70 10003 SB50				
Course title (and course title in English)	ILASセミナー（海外）：Conflict Management[Global Water Issues] ILAS Seminar (Overseas) :Conflict Management[Global Water Issues]	**Instructor's name, job title, and department of affiliation**	Disaster Prevention Research Institute Professor,SUMI TETSUYA Disaster Prevention Research Institute Associate Professor,Sameh Kantoush		
Group	Seminars in Liberal Arts and Sciences	**Number of credits**	2	**Hours**	30
Class style	Seminar	**Year/semesters**	2023・Intensive, First semester	**Quota (Freshman)**	5 (5)
Target year	Mainly 1st year students	**Eligible students**	For all majors	**Days and periods**	Intensive Intensive course in the first semester
Classroom	Kyodai-salon, 1st floor, Kyoto University Clocktower	**Language of instruction**	English		
Keyword	ベトナム(Vietnam) / 国際河川(Transboundary river basins) / 水資源(Water Resources) / コンフリクトマネジメント(Conflict Management) / ダム(Dam)				

[Overview and purpose of the course]

越境河川であるメコン川では、上流のダム建設に伴う下流への水量変化など、多国間の利害が対立する水管理問題が顕在化している。本講義では、このような越境河川の水管理問題の解決のために、国際協調の枠組みがいかに重要かについて、現地状況の把握を踏まえながら考える。
現地の受け入れ大学は、Ha Noi（ハノイ市）の Thuy Loi 大学(ベトナム水資源大学)であり、海岸浸食問題の生じているVu Gia-Thu Bon川のDa Nang（ダナン市）やHoi An（ホイアン市）およびDa Nang大学、メコンデルタの中心であるCan Tho（カントー市）、最後にThuy Loi大学の第二キャンパスのあるHo Chi Minh(ホーチミン市)を訪問し、講義受講や現地見学を通じて得られた情報をもとに、先方との学生を交えてミニワークショップを行う。

It is generally accepted that water resources are under increasing stresses from a number of players, forces and parameters visible in this century. In particular for the sovereign countries will deal with increasing scarcity shared river basins. Geography has important responsibility, with location in the basin (upstream/downstream) and in the environment (arid/semi-arid climate) regarded as key factors in future water conflict. Global warming is also thought to pose particular challenges to water-stressed societies and communities that must develop mitigation and adaptation mechanisms in order to survive. In transboundary river basins such as the Mekong, Brahmaputra, Nile, and Ganges Rivers, water conflicts are arising among related countries such as great impacts on water resources by new construction of large dams upstream. The aim of this intensive course is to study transboundary water conflict and importance of multi-lateral mechanism to solve such conflicts. Moreover, to develop generation with rich sense of international cultural works, and understand social and cultural values by introducing students to modern and traditional aspects of various cultures.

[Course objectives]

メコン川の現状、将来に向けた課題を理解する
国際河川のコンフリクトをテーマに、国際問題、さらに、その調整の難しさを理解する
国際問題に対する日本からの貢献の可能性を考える
自己の将来のキャリア形成の動機づけを行う
ベトナムの気候、風土、歴史、文化などを理解する
英語でのプレゼンテーション能力を高める

Continue to ILASセミナー（海外）：Conflict Management[Global Water Issues](2)↓↓↓

[Course schedule and contents)]

１．事前講義（6-7月に3回）
1) Introduction to Water Diplomacy
2) State of the Mekong River Basin
3) Water management in the Mekong Delta and the Development Projects

２．現地研修（9月上旬～9月下旬に10日間）
1)　Lectures
・Impacts of Climate Change on the Mekong River Basin Water Resources
・Integrated Management and Master Plan of the Mekong Delta
2) Field survey and practices
・Water resources management in the Mekong River Delta
・Water quality in the coastal zones of the Mekong Delta
3) Presentation
・Making report and presentation at the workshop

[Course requirements]

参加者は、海外渡航資金（約13万円）を工面できること。必要な資金の詳細は4月に行われるオリエンテーションの時に説明する。参加者は自己責任の原則を自分と両親が了承し、必要な保険等を掛けること、海外滞在リスクを充分認識し自らを律することができること。受講定員を超える受講申込があった場合は、選考を行う。受講希望者は、事前講義へ必ず参加すること。
安全講習の受講、学研災付帯海外留学保険への加入が確認できない学生は、ILASセミナー（海外）に参加することはできません。

[Evaluation methods and policy]

事前講義、現地研修への参加状況および研修レポートにより総合的に判断する。
詳細は講義で説明する。

[Textbooks]

Not used

[References, etc.]

（Reference book）

Shafiqul Islam, Lawrence E. Susskind 『Water Diplomacy: A Negotiated Approach to Managing Complex Water Networks』（RFF Press）ISBN:978-1617261039（国際的な水問題の解説）
Ben Boer, Philip Hirsch, Fleur Johns, Ben Saul, Natalia Scurrah 『The Mekong: A Socio-legal Approach to River Basin Development』（Routledge）ISBN:978-1138788459（メコン川の現状とコンフリクト問題の解説）
その他必要に応じてプリントを配布する。

（Related URL）

http://www.kyoto-u.ac.jp/ja/international/events_news/office/kyoiku-suishin-gakusei-shien/kokusai-kyoiku-koryu/news/2015/150911_3.html(2015年の実施報告（京大ＨＰ）)
http://en.tlu.edu.vn/Home.aspx(Thuy Loi 大学(ベトナム水資源大学))

[Study outside of class (preparation and review)]

メコン川の現状、将来に向けた課題を参考書などをもとに理解する。
国際河川のコンフリクトの問題と解決に向けた取り組みについて、メコン川やナイル川を例に理解

Continue to ILASセミナー（海外）：Conflict Management[Global Water Issues](3)↓↓↓

する。
英語でのプレゼンテーション資料の作成について予習しておく。

[Other information (office hours, etc.)]

本科目は、英語による討議、現地でのプレゼンテーションなど、学生側からの積極的な参加を期待している。
１回生のみならず、２回生以上の意欲ある学生の参加を大いに歓迎する。
採点報告日（８月中旬）以降に実施するため、成績報告が遅れる場合があります。

※本科目は、新型コロナウイルスの感染拡大の状況によっては、不開講となる可能性があります。

Lecture code: G107001

Course number	G-LAS00 80007 LE20				
Course title (and course title in English)	Research Ethics and Integrity (Science and Technology) Research Ethics and Integrity (Science and Technology)	Instructor's name, job title, and department of affiliation	Institute for Chemical Research Senior Lecturer,MURDEY，Richard James		
Group	Common Graduate Courses	Field(Classification)	Social Responsibility and Profitability		
Language of instruction	English	Old group		Number of credits	0.5
Hours	7.5	Class style	Lecture	Year/semesters	2023・Intensive, First semester
Days and periods	Intensive May 13, 20, 27, from 9:00 a.m. to 12:00 p.m. each day	Target year	Graduate students	Eligible students	For science students

[Overview and purpose of the course]

This course guides graduate students on how to act responsibly when performing, presenting, and publishing scientific research. Topics include data sharing, authorship, intellectual property, conflicts of interest, scientific misconduct, and the proper use of research funds. Representative case studies covering issues in ethics and research integrity are presented and discussed. The lectures are complemented by additional group work and in-class discussion.

[Course objectives]

Over three lectures, graduate students will learn how to make responsible decisions as a researcher working in the field of physical science. An e-learning course on research ethics and research integrity will check your understanding.

[Course schedule and contents)]

Lecture 1 (3h)

1. Data Handling and Management
2. Collaboration and Authorship
3. Publications and Peer Review

Lecture 2 (3h)

1. Scientific Misconduct
2. Intellectual Property
3. Conflicts of Interest

Lecture 3 (1.5h)

1. Industrial Collaboration
2. The Scientist in Society

Continue to Research Ethics and Integrity (Science and Technology) (2)↓↓↓

Research Ethics and Integrity (Science and Technology) (2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation is based on attendance and participation. At the end of the course, students must complete the Japan Society for the Promotion of Science e-learning course, " e-Learning Course on Research Ethics ".

[Textbooks]

Not used

[References, etc.]

（**Reference book**）

Shamoo, Adil E., and David B. Resnik 『Responsible conduct of research』（Oxford University Press）ISBN:978-0195368246
『科学の健全な発展のために— 誠実な科学者の心得—』（日本学術振興会）ISBN:978-4621089149（学術振興会のHP（https://www.jsps.go.jp/j-kousei/data/rinri.pdf）より、テキスト版をダウンロード）

池内 了 訳 『科学者をめざす君たちへ—研究者の責任ある行動とは』（化学同人）ISBN:978-4759814286

（**Related URL**）

https://www.jsps.go.jp/english/e-kousei/index.html(JSPS Research Integrity)
https://ori.hhs.gov/(The Office of Research Integrity)

[Study outside of class (preparation and review)]

Participation in the "e-Learning Course on Research Ethics" from the Japan Society for the Promotion of Science (JSPS)

[Other information (office hours, etc.)]

Lecture code: G107002

Course number	G-LAS00 80007 LE20		
Course title (and course title in English)	Research Ethics and Integrity (Humanities and Social Sciences) Research Ethics and Integrity (Humanities and Social Sciences)	Instructor's name, job title, and department of affiliation	Graduate School of Letters Assistant Professor,Campbell, Michael
Group	Common Graduate Courses	Field(Classification)	Social Responsibility and Profitability

Language of instruction	English	Old group		Number of credits	0.5
Hours	7.5	Class style	Lecture	Year/semesters	2023・Intensive, First semester
Days and periods	Intensive	Target year	Graduate students	Eligible students	For liberal arts students

[Overview and purpose of the course]

This course guides graduate students who are about to start their research what they should be prepared to do as a responsible researcher. Students will learn how to conduct research in accordance with the norms to be followed as a researcher and how to present research results appropriately. In particular, the lecture will show how misconduct in scientific research can hinder the development of sound science, and how to handle data correctly and present research results appropriately. In addition, students will learn about the appropriate use of research funds, plagiarism and conflicts of interest. In addition to the lectures, students will have group work to discuss the given issues.

[Course objectives]

To learn what it means to act responsibly as a researcher and to better understand the pressures which can cause research misconduct to occur. Through case studies of misconduct in scientific research, students will learn how to be a researcher who acts with integrity. Students will be invited to reflect on the virtues which make for a good researcher, the values which research encodes, and the potential ramifications of research misconduct. Finally, students will take an e-learning course on Research Ethics of JSPS to confirm their understanding.

[Course schedule and contents)]

Lecture 1: Professionalism in Research
1. What makes a good researcher?
2. Distinguishing mistakes from misconduct
3. What causes misconduct?
4. Whose responsibility is it?
5. What harm does misconduct do?

Lecture 2: Research Ethics and Integrity in Research and Publishing
1. Data collection and management in research activities
2. Misconduct in scientific research
3. Unprofessional research behavior
4. Inappropriate presentation methods
5. Methods and processes of publishing research papers

Lecture 3: Intellectual Property and Appropriate Use of Research Funds
1. Legal issues - plagiarism and copyright

Continue to Research Ethics and Integrity (Humanities and Social Sciences)(2)↓↓↓

Research Ethics and Integrity (Humanities and Social Sciences)(2)

2. Research funding and contracts
3. Conflict of interest and its avoidance
4. Appropriate handling of public research funds

Lecture 4: Fostering a Positive Research Environment
1. Discussion on what makes a good research environment
2. Responding to misconduct when it occurs
3. Complete the "e-Learning Course on Research Ethics" from the Japan Society for the Promotion of Science (https://elcore.jsps.go.jp/top.aspx)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation is based on attendance and participation. At the end of the course, students must work through "e-Learning Course on Research Ethics" of the Japan Society for the Promotion of Science (JSPS).

[Textbooks]

Not used

[References, etc.]

（**Reference book**）

JSPS 『For the Sound Development of Science -The Attitude of a Conscientious Scientist-』（available at https://www.jsps.go.jp/english/e-kousei/ethics.html）
日本学術振興会「科学の健全な発展のために」編集委員会編 『科学の健全な発展のために－誠実な科学者の心得－』（丸善出版、2015年）ISBN:978-4621089149
The National Academy of Sciences Engineering Medicine 『On Being a Scientist: A Guide to Responsible Conduct in Research: Third Edition』（available at https://www.nationalacademies.org/our-work/on-being-a-scientist-a-guide-to-responsible-conduct-in-research-third-edition）
米国科学アカデミー編、池内了訳 『科学者をめざす君たちへ－研究者の責任ある行動とは　第3版』（化学同人、2010年）ISBN:978-4759814286

[Study outside of class (preparation and review)]

Participation in the Japan Society for the Promotion of Science's "e-Learning Course on Research Ethics" (JSPS)

[Other information (office hours, etc.)]

Lecture code: G107003

Course number	G-LAS00 80007 LE20		
Course title (and course title in English)	Research Ethics and Integrity (Humanities and Social Sciences) Research Ethics and Integrity (Humanities and Social Sciences)	Instructor's name, job title, and department of affiliation	Graduate School of Letters Assistant Professor,Campbell, Michael
Group	Common Graduate Courses	Field(Classification)	Social Responsibility and Profitability

Language of instruction	English	Old group		Number of credits	0.5
Hours	7.5	Class style	Lecture	Year/semesters	2023・Intensive, Second semester
Days and periods	Intensive	Target year	Graduate students	Eligible students	For liberal arts students

[Overview and purpose of the course]

This course guides graduate students who are about to start their research what they should be prepared to do as a responsible researcher. Students will learn how to conduct research in accordance with the norms to be followed as a researcher and how to present research results appropriately. In particular, the lecture will show how misconduct in scientific research can hinder the development of sound science, and how to handle data correctly and present research results appropriately. In addition, students will learn about the appropriate use of research funds, plagiarism and conflicts of interest. In addition to the lectures, students will have group work to discuss the given issues.

[Course objectives]

To learn what it means to act responsibly as a researcher and to better understand the pressures which can cause research misconduct to occur. Through case studies of misconduct in scientific research, students will learn how to be a researcher who acts with integrity. Students will be invited to reflect on the virtues which make for a good researcher, the values which research encodes, and the potential ramifications of research misconduct. Finally, students will take an e-learning course on Research Ethics of JSPS to confirm their understanding.

[Course schedule and contents)]

Lecture 1: Professionalism in Research
1. What makes a good researcher?
2. Distinguishing mistakes from misconduct
3. What causes misconduct?
4. Whose responsibility is it?
5. What harm does misconduct do?

Lecture 2: Research Ethics and Integrity in Research and Publishing
1. Data collection and management in research activities
2. Misconduct in scientific research
3. Unprofessional research behavior
4. Inappropriate presentation methods
5. Methods and processes of publishing research papers

Lecture 3: Intellectual Property and Appropriate Use of Research Funds
1. Legal issues - plagiarism and copyright

Continue to Research Ethics and Integrity (Humanities and Social Sciences)(2)↓↓↓

2. Research funding and contracts
3. Conflict of interest and its avoidance
4. Appropriate handling of public research funds

Lecture 4: Fostering a Positive Research Environment
1. Discussion on what makes a good research environment
2. Responding to misconduct when it occurs
3. Complete the "e-Learning Course on Research Ethics" from the Japan Society for the Promotion of Science (https://elcore.jsps.go.jp/top.aspx)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation is based on attendance and participation. At the end of the course, students must work through "e-Learning Course on Research Ethics" of the Japan Society for the Promotion of Science (JSPS).

[Textbooks]

Not used

[References, etc.]

（Reference book）
（参考書）
JSPS 『For the Sound Development of Science -The Attitude of a Conscientious Scientist-』（available at https://www.jsps.go.jp/english/e-kousei/ethics.html）
日本学術振興会「科学の健全な発展のために」編集委員会編 『科学の健全な発展のために－誠実な科学者の心得－』（丸善出版、2015年）ISBN:978-4621089149
The National Academy of Sciences Engineering Medicine 『On Being a Scientist: A Guide to Responsible Conduct in Research: Third Edition』（available at https://www.nationalacademies.org/our-work/on-being-a-scientist-a-guide-to-responsible-conduct-in-research-third-edition）
米国科学アカデミー編、池内了訳 『科学者をめざす君たちへ－研究者の責任ある行動とは　第3版』（化学同人、2010年）ISBN:978-4759814286

[Study outside of class (preparation and review)]

Participation in the Japan Society for the Promotion of Science's "e-Learning Course on Research Ethics” (JSPS)

[Other information (office hours, etc.)]

Lecture code: G107004

Course number	G-LAS00 80007 LE20				
Course title (and course title in English)	Research Ethics and Integrity (Life Science) Research Ethics and Integrity (Life Science)		**Instructor's name, job title, and department of affiliation**	Institute for Chemical Research Senior Lecturer,MURDEY，Richard James	
Group	Common Graduate Courses	**Field(Classification)**	Social Responsibility and Profitability		
Language of instruction	English	**Old group**		**Number of credits**	0.5
Hours	7.5	**Class style**	Lecture	**Year/semesters**	2023・Intensive, First semester
Days and periods	Intensive June 3, 10, 17, from 9:00 a.m. to 12:00 p.m. each day	**Target year**	Graduate students	**Eligible students**	For science students

[Overview and purpose of the course]

This course guides graduate students on how to act responsibly when performing, presenting, and publishing scientific research. Topics include, data sharing, authorship, misconduct, and the protection of human and animal test subjects. The proper use of research funds is also covered. Representative case studies covering issues in ethics and research integrity are presented and discussed. Lectures are complemented by additional group work and in-class discussion.

This course guides graduate students on how to act responsibly when performing, presenting, and publishing scientific research. Topics include data sharing, authorship, intellectual property, conflicts of interest, scientific misconduct, and the protection of human and animal test subjects. Representative case studies covering issues in ethics and research integrity are presented and discussed. The lectures are complemented by additional group work and in-class discussion.

[Course objectives]

Over three lectures, graduate students will learn how to make responsible decisions as a researcher working in the field of life science. An e-learning course on research ethics and research integrity will check your understanding.

[Course schedule and contents)]

Lecture 1 (3h)
Data Handling and Management
Collaboration and Authorship
Publications and Peer Review

Lecture 2 (3h)
Scientific Misconduct
Human and Animal Testing
Ethical Implications of Genetic Testing

Lecture 3 (1.5h)
Conflicts of Interest
The Scientist in Society

Continue to Research Ethics and Integrity (Life Science)(2)↓↓↓

Research Ethics and Integrity (Life Science)(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation is based on attendance and participation. At the end of the course, students must complete the Japan Society for the Promotion of Science e-learning course, " e-Learning Course on Research Ethics ".

[Textbooks]

Not used

[References, etc.]

（**Reference book**）

Shamoo, Adil E., and David B. Resnik 『Responsible conduct of research』（Oxford University Press） ISBN:978-0195368246
『科学の健全な発展のために— 誠実な科学者の心得—』（日本学術振興会）ISBN:978-4621089149（https://www.jsps.go.jp/j-kousei/data/rinri.pdf）
池内 了 訳 『科学者をめざす君たちへ—研究者の責任ある行動とは』（化学同人）ISBN:978-4759814286
神里彩子、武藤香織 『医学・生命科学の研究倫理ハンドブック』（東京大学出版会）ISBN:978-4130624138

（**Related URL**）

https://www.jsps.go.jp/english/e-kousei/index.html(JSPS Research Integrity)
https://ori.hhs.gov/(The Office of Research Integrity)

[Study outside of class (preparation and review)]

Participation in the "e-Learning Course on Research Ethics" from the Japan Society for the Promotion of Science (JSPS)

[Other information (office hours, etc.)]

First semester of the 2023 academic year

Courses with codes highlighted in red meet multiple periods a week for a total of 2 units.

	Mon		Tue		Wed		Thu		Fri	
1	H708001	Introduction to Educational Studies I-E2	N251001	Advanced Course of Electromagnetism-E2	H281001	Japanese History I-E2	H712001	Introduction to Sociological Observation-E2:Understanding Environmental Challenges	N533001	Introduction to Earth Science A
	T065001	Introduction to Formal Languages-E2			H381001	Introduction to Linguistic Science-E2	Y208001	Chemistry, Society and Environment-E2		
					H727001	Pedagogy I-E2				
					H934001	Introduction to Economics-E2				
					N366003	Basic Physical Chemistry (quantum theory)-E2				
2	H165001	Ethics I-E2	H290001	Oriental History I-E2	H149001	The History of Eastern Thought I-E2	H161001	Japanese Philosophy I-E2	H275001	Western History I-E2
	H721001	Sociology I-E2	H283001	Japanese Intellectual History I-E2	H281003	Japanese History I-E2	H598003	Cultural Anthropology I-E2	N106001	Advanced Linear Algebra
	H919001	Introduction to Management-E2	H928001	Japan's Political Economy-E2	H292001	Japanese Popular Culture I-E2	H802002	Human Geography-E2	N162001	Function Theory of a Complex Variable-E2
	N371001	Essentials of Basic Physical Chemistry-E2	N157001	Calculus with Exercises A	H715001	Advanced Lecture for Pedagogy I-E2	N272001	Fundamentals of Materials I-E2	N923001	Fundamentals of Cell and Molecular Biology-E2
	N938001	Fundamentals of Organismal and Population Biology-E2	N159001	Linear Algebra with Exercises A	H808001	Food and Globalization I-E2	N368002	Basic Organic Chemistry I-E2	T056003	Practice of Basic Informatics-E2
	T057002	Fundamentals of Artificial Intelligence-E2	N178001	Mathematical Description of Natural Phenomena-E2	H936001	Economy and Society I-E2	Y213001	Introduction to Sustainable Development-E2	Y221001	Sustainable Forest Environment-E2
	T052003	Introduction to Algorithms-E2	N174002	Quest for Mathematics I-E2	N157001	Calculus with Exercises A				
	Y225001	Introduction to Biogeochemistry-E2	N809001	Basic Data Analysis-E2	N248001	Introduction to Cosmology-E2				
			N261002	Fundamental Physics A-E2	N391001	Outline of Chemistry II(Its History & Fundamentals)-E2				
			N492001	Principles of Genetics-E2	T051001	Basic Informatics-E2				
			N928001	Introduction to Biological Data Analysis-E2	U156001	Health Psychology I-E2				
			T056004	Practice of Basic Informatics-E2	W229001	Business Thinking-E3				
			W228001	Business English-E3						
3	H709001	Introduction to Educational Psychology I-E2	H151001	History of Modern Science-E2	H281002	Japanese History I-E2	H734001	Introduction to Ritual Studies-E2	H275002	Western History I-E2
	H598001	Cultural Anthropology I-E2	H739001	Psychoanalysis-E2	H744001	Psychology I-E2	H815001	Topics in Cultural Anthropology I-E2	H711001	Introduction to Educational Studies II-E2
	H919002	Introduction to Management-E2	H813001	Contemporary Japanese Architecture-E2	H724001	Introduction to Globalization Studies-E2	N174001	Quest for Mathematics I-E2	H589001	Environmental Anthropology-E2
	N159001	Linear Algebra with Exercises A	H591001	Introduction to Globalization I-E2	H806001	Introduction to Urban Planning-E2	N815001	Mathematical Statistics-E2	H946001	Introduction to Game Theory-E2
	N255001	Elementary Course of Physics A-E2	N168001	Mathematical Description of Natural Phenomena	H938001	Political Science I-E2	N937001	Introduction to Biology and Life Science-E2	N804001	Introductory Statistics-E2
	N263001	Introduction to Light Control-E2	N165001	Honors Mathematics B-E2	H917001	Contemporary Economics I-E2	N943001	Microorganisms in our Lives-E2	N374003	Fundamental Chemical Experiments-E2
	N365001	Basic Physical Chemistry (thermodynamics)-E2	N260002	Physics for All-E2	H948001	Democracy in Crisis-E2 :Government of, by, and for whom?	U145001	Biology and Sociology of Chronic Disease-E2	U148001	Structures and Mechanisms of Human Movement-E2
	N390001	Thermodynamics in Everyday Life-E2	N253001	A Guide to Modern Physics A-E2	N260003	Physics for All-E2			W236001	Scientific English II-E3(Presentation & Discussion)
	N496001	Conservation Biology-E2	N254001	Analytic Dynamics-E2	N374001	Fundamental Chemical Experiments-E2				
	N911001	Basic Biology-E2	N363001	Introduction to Inorganic Chemistry A-E2	N494001	Introductory Plant Ecology-E2				
			N491001	Introduction to Molecular Biotechnology-E2						
			U149001	Introduction to Basic Concepts of Health Psychology-E2:Communication Issues and Decision-making in Patient Care						

First semester of the 2023 academic year

Courses with codes highlighted in red meet multiple periods a week for a total of 2 units.

	Mon		Tue		Wed		Thu		Fri	
4	N385001	Chemistry for non-science majors I-E2	N368003	Basic Organic Chemistry I-E2	H394001	History of Oriental Art I-E2	H163001	Philosophy of Nature I-E2	H155001	Logic I-E2:Sentential Logic and Deductions
	N498001	Animal Behavior-E2	N932001	Introduction to Molecular Cell Biology-E2	H383001	Intercultural Communication I-E2	H814001	Introduction to Urban Geography-E2	H710001	Introduction to Educational Psychology II-E2
	T061001	Programming Practice (Java) -E2	T008001	Practice of Basic Informatics	H722001	Introduction to Comparative Psychology-E2	N175001	Quest for Mathematics II-E2	H946002	Introduction to Game Theory-E2
	W224001	Theory and Practice in Scientific Writing and Discussion (Pharmaceutical Sciences, English)A-E3			H917002	Contemporary Economics I-E2	N208001	Fundamental Physics A	N275001	Physics of Wave and Oscillation-E2
					H943001	International History 1900 to the Present-E2	N207001	Physics of Wave and Oscillation	N374003	Fundamental Chemical Experiments-E2
					N813002	Data Analysis Practice I-E2	N378001	Revisiting Basic Organic Chemistry II-E2	W231001	Digesting Scientific English-E3
					N374001	Fundamental Chemical Experiments-E2	N361001	Organic Chemistry of Life-E2	Y227001	Climate Change and Human Activities-E2:Introduction to Humanosphere
					N563001	How the Earth Works I-E2:Environmental Change	N559001	Introduction to Hydrology-E2		
					N565001	Introduction to General Astronomy-E2				
5	T018001	Information and Society-E2	H949001	Theories of Justice and Human Rights-E2	N169001	Advanced Calculus I-Vector Calculus	Y209001	Human-environmental Interactions-E2	N913001	Introduction to Behavioral Neuroscience A-E2
	T061001	Programming Practice (Java) -E2	N904001	Chromosome Biology-E2						
			N925001	Biological Sciences through Scientific Articles I-E2						
			T062001	Mathematics for Informatics I-E2						
			T063002	Programming Practice (Python) -E2						
			U104001	Basics of the Human Body-E2						

Intensive Lectures

G107001	Research Ethics and Integrity (Science and Technology)
G107002	Research Ethics and Integrity (Humanities and Social Sciences)
G107004	Research Ethics and Integrity (Life Science)

- Humanities and Social Sciences
- Natural Sciences
- Informatics
- Health and Sports
- Career Development
- Interdisciplinary Sciences
- Common Graduate Courses

Second semester of the 2023 academic year

Courses with codes highlighted in red meet multiple periods a week for a total of 2 units.

	Mon	Tue	Wed	Thu	Fri
1	T065002 Introduction to Formal Languages-E2		H282001 Japanese History II-E2	H728001 Pedagogy II-E2	
			H382001 Introduction to Japanese Linguistics I-E2	H817001 Topics in Human Geography VIII-E2 (Governing urban sustainability challenges)	
			H935001 Principles of Economics-E2	N815002 Mathematical Statistics-E2	
			N365002 Basic Physical Chemistry (thermodynamics)-E2		
			N560001 Introduction to Earth Science B-E2		
			N558001 Introduction to Mineral Resources-E2		
2	H166001 Ethics II-E2	H291001 Oriental History II-E2	H282003 Japanese History II-E2	H162001 Japanese Philosophy II-E2	H274001 Western History II-E2
	H920001 Contemporary Management-E2	H280001 Introduction to Asian Societies-E2	H150002 Science of Religion I-E2	H716001 Advanced Lecture for Pedagogy II-E2	N924001 Introduction to Plant Science-E2
	N273001 Fundamentals of Materials II-E2	H284001 Japanese Intellectual History II-E2	H293001 Japanese Popular Culture II-E2	H802003 Human Geography-E2	N566001 Science on Wate, Soil and Ecosystems-E2
	N366002 Basic Physical Chemistry (quantum theory)-E2	H929001 Japanese Politics-E2	H743001 Social Psychology-E2	H815002 Topics in Cultural Anthropology I-E2	
	N929001 Introduction to Plant Physiology-E2	N158001 Calculus with Exercises B	H718001 Introduction to Society and Community Studies-E2	N816001 Second course in Statistics-E2	
	N939001 Introduction to Ecology and Evolution-E2	N160001 Linear Algebra with Exercises B	H598004 Cultural Anthropology I-E2	N369002 Basic Organic Chemistry II-E2	
	T018002 Information and Society-E2	N804002 Introductory Statistics-E2	H809001 Food and Globalization II-E2	N384001 Outline of Chemistry I(Its History and Fundamentals)-E2	
	T057001 Fundamentals of Artificial Intelligence-E2	N271001 Elementary Course of Physics B-E2	H937001 Economy and Society II-E2	Y213002 Introduction to Sustainable Development-E2	
	T052002 Introduction to Algorithms-E2	N490001 Introduction to Biochemistry-E2	N158001 Calculus with Exercises B	Y212001 Introduction to Food Sustainability-E2	
		N490002 Introduction to Biochemistry-E2	N249001 Theory of Special Relativity-E2		
		T047001 Information Literacy for Academic Study-E2	N912001 Basic Genetic Engineering-E2		
			N562001 Field Earth Science-E2		
			W237001 Advanced Scientific English-E3 (Debate)		
3	H725001 Introduction to Social Research-E2	H154001 Philosophy of Modern Science-E2	H282002 Japanese History II-E2	H733001 Disaster and Culture-E2	H274002 Western History II-E2
	H598002 Cultural Anthropology I-E2	H740001 Psychoanalysis II-E2	H745001 Psychology II-E2	N174003 Quest for Mathematics I-E2	H947002 Applied Game Theory-E2
	H920002 Contemporary Management-E2	H812001 Theory of Landscape Design-E2 :House and Gardens of Kyoto	H726001 Sociology of Work and Organizations-E2	N264001 Fundamental Physics B-E2	H801001 Environmental Histories of South Asia-E2
	H952001 Local Government in Comparative Perspective-E2	H592001 Introduction to Globalization II-E2	H717001 Introduction to Risk Communication-E2	N277001 Thermodynamics-E2	N164001 Nonlinear Mathematics-E2
	N160001 Linear Algebra with Exercises B	N161001 Honors Mathematics A-E2	H939001 Political Science II-E2	N937002 Introduction to Biology and Life Science-E2	N814001 Data Analysis Practice II-E2
	N367001 Chemistry of Sustainable Energy-E2	N264002 Fundamental Physics-E2	H918001 Contemporary Economics II-E2	N942001 Introduction to Immunology-E2 :The body's defense system	N256001 Elementary Experimental Physics-E2
	N372001 Introduction to Surface Chemistry-E2	N211001 Advanced Dynamics	N374002 Fundamental Chemical Experiments-E2		N374002 Fundamental Chemical Experiments-E2
	N497001 Comparative Cognition-E2	N260004 Physics for All-E2	N495001 Principles of Horticulture-E2		T050001 Processing and Analyzing Data I-E2:Shell-based data processing fundamentals
	N901001 Introduction to Genetics and Evolution-E2	N269001 Introduction to Plasma Science=E2			
		N382001 Revisiting Basic Physical Chemistry (quantum theory)-E2			
		N364001 Introduction to Inorganic Chemistry B-E2			
		N490003 Introduction to Biochemistry-E2			
		N490004 Introduction to Biochemistry-E2			
		U154001 Cultural Aspects of Health Care-E2			

Second semester of the 2023 academic year

Courses with codes highlighted in red meet multiple periods a week for a total of 2 units.

	Mon	Tue	Wed	Thu	Fri
4	N386001 Chemistry for non-science majors II-E2	H279001 Religion in Contemporary Society-E2	H156001 Logic II-E2 :Quantificational Logic and Deductions	H164001 Philosophy of Nature I-E2	H947001 Applied Game Theory-E2
	N393001 Introduction to the Chemistry of Materials-E2	N276001 Advanced Dynamics-E2	H395001 History of Orienctal Art II-E2	H814002 Introduction to Urban Geography-E2	N256001 Elementary Experimental Physics-E2
	W225001 Theory and Practice in Scientific Writing and Discussion (Pharmaceutical Sciences, English)B-E3	N270001 Introduction to Quantum Physics-E2	H384001 Intercultural Communication II-E2	N175002 Quest for Mathematics II-E2	N374002 Fundamental Chemical Experiments-E2
		N369003 Basic Organic Chemistry II-E2	H723001 Introduction to Primate Behavior and Cognition-E2	N209001 Fundamental Physics B	U135001 Introduction to Medical Psychology-E2
		N387001 Chemistry on Natural and Human Environments-E2	H918002 Contemporary Economics II-E2	N362001 Everyday Life Chemistry-E2	W232001 Scientific Writing and Presenting in English-E3
		N941001 Basic Biology and Metabolism-E2	H944001 An International History of East Asia 1839-1945-E2	N377001 Revisiting Basic Organic Chemistry I-E2	Y226001 Environmental Monitoring for Humanosphere-E2:Introduction to Humanosphere
		T015001 Basic Informatics	N257001 Introduction to Statistical Physics-E2	N564001 How the Earth Works II-E2 :Earth's History	
			N374002 Fundamental Chemical Experiments-E2	W228002 Business English-E3	
			N940001 Introduction to Biosciences-E2	Y214001 Natural Disaster Science-E2	
			N927001 Introduction to Computational Molecular Biology-E2		
			W230001 Negotiation-E3		
5	N394001 Analytical Chemistry and Forensic Science-E2	H926002 Jurisprudence-E2	H949002 Theories of Justice and Human Rights-E2	T063002 Programming Practice (Python)-E2	N914001 Introduction to Behavioral Neuroscience B-E2
	T063001 Programming Practice (Python) -E2	N907001 Practical Computing for Biologists-E2	N170001 Advanced Calculus II-Differential Equations	Y102001 Interdisciplinary Sciences-E2 :Global Changes	T056001 Practice of Basic Informatics-E2
	T058001 Programming Practice (R)-E2:For managing and analysing data	N926001 Biological Sciences through Scientific Articles II-E2	N274001 Soft Matter Physics-E2:From Condensed Matter to Life		
		N537001 Introduction to Engineering Geology	T019001 Information Network-E2		
		T051002 Basic Informatics-E2			
		U106001 Introduction to Lifestyle Related Diseases-E2			
		U155001 Psychopathology I-E2			

Intensive lectures

N499001	Zoo Biology-E2
N561001	Advanced Practice of Earth Science-E2
G107003	Research Ethics and integrity (Humanities and social Science)

- Humanities and Social Sciences
- Natural Sciences
- Informatics
- Health and Sports
- Career Development
- Interdisciplinary Sciences
- Common Graduate Courses

ILAS Seminars / 1st semester of the 2023 academic year

	Mon		Tue		Wed		Thu		Fri	
4							Z002080	ILAS Seminar-E2:Introduction to Probability		
5	Z002075	ILAS Seminar-E2:Global Environmental Issues	Z002071	ILAS Seminar-E2:Clinical and ethical issues within palliative care- the European Context	Z002010	ILAS Seminar-E2:A Beginners' guide to Carrying out Field Surveys and Qualitative Research	Z002091	ILAS Seminar-E2:A stroll around materials chemistry - Superconducting materials	Z002099	ILAS Seminar-E2:Fundamentals of Earth's atmosphere dynamics and climate
	Z002002	ILAS Seminar-E2:Introduction to Logic, Proofs and Programs	Z002058	ILAS Seminar-E2:Food Systems in Asia	Z002093	ILAS Seminar-E2:Chaos theory	Z002041	ILAS Seminar-E2:Encounters with modern arithmetic	Z002089	ILAS Seminar-E2:How to make nano-machines
	Z002026	ILAS Seminar-E2:Methods in Ecology and Natural History	Z002073	ILAS Seminar-E2:History and Theory of Modern Architecture	Z002085	ILAS Seminar-E2:Computer simulations in Biology	Z002019	ILAS Seminar-E2:How to Read a Scientific Paper	Z002027	ILAS Seminar-E2:Introduction to life science and scientific conversation
	Z002003	ILAS Seminar-E2:The wonderful world of quantum physics	Z002084	ILAS Seminar-E2:Introduction to Organic Electronics	Z002097	ILAS Seminar-E2:Critical Thinking in Ethics	Z002022	ILAS Seminar-E2:Introduction to Stem and iPS Cells	Z002086	ILAS Seminar-E2:It's a Bug's Life - bacteria and viruses
	Z002039	ILAS Seminar-E2:Topics in Frontier Physics	Z002021	ILAS Seminar-E2:Logic, critical thinking and argument	Z002008	ILAS Seminar-E2:Frontiers in Theoretical Physics I	Z002017	ILAS Seminar-E2:Introduction to Biomedical Presentation and Debate	Z002069	ILAS Seminar-E2:Let's create 3D computer animations
			Z002078	ILAS Seminar-E2:Mental Health and Social Isolation in Japan	Z002004	ILAS Seminar-E2:Frontiers of Earthquake Science	Z002018	ILAS Seminar-E2:Introduction to the biology of nematodes	Z002056	ILAS Seminar-E2:Regional Disaster Prevention
			Z002079	ILAS Seminar-E2:Nanostructured Materials	Z002014	ILAS Seminar-E2:Introduction to Human Genetics and Genetic Disease	Z002068	ILAS Seminar-E2:Programming for data analysis	Z002046	Applying Data Science and AI to Healthcare - Novel Approaches in Modern Epidemiology
			Z002082	ILAS Seminar-E2:Sensors in Everyday Life	Z002095	ILAS Seminar-E2:Physiological Neuroscience	Z002050	ILAS Seminar-E2:The Invisible Universe		
			Z002031	ILAS Seminar-E2:What are Liquids? Answers from Physics, Chemistry and Engineering	Z002090	ILAS Seminar-E2:Psychology of Addiction	Z002052	ILAS Seminar-E2:Wonders of semiconductor		
					Z002083	ILAS Seminar-E2:Religion and Law	Z002061	ILAS Seminar-E2:Introduction to cross-cultural communication		

Intensive Lectures

Z002100	ILAS Seminar-E2 :Experiential short training course in basic life sciences using marine organism
Z003006	ILAS Seminar (Overseas)：Conflict Management[Global Water Issues]

ILAS Seminars / 2nd semester of the 2023 academic year

	Mon	Tue	Wed	Thu	Fri
5	Z002036 ILAS Seminar-E2:Introduction to Bird Study - Ornithology	Z002013 ILAS Seminar-E2:How to Study Atoms and Molecules with the Help of Light	Z002016 ILAS Seminar-E2:Frontiers in Theoretical Physics II	Z002033 ILAS Seminar-E2:Biochemistry Principles	Z002038 ILAS Seminar-E2:Biochemistry Principles
	Z002049 ILAS Seminar-E2:Discussions in Biomechanics and Biophysics	Z002059 ILAS Seminar-E2:Food Systems in Asia	Z002092 ILAS Seminar-E2:Physics of Life	Z002034 ILAS Seminar-E2:Introduction to the biology of nematodes	Z002057 ILAS Seminar-E2:Geo-Disaster Risk Reduction and Prevention
		Z002072 ILAS Seminar-E2:Understanding and critical appraisal of qualitative research methods in health care	Z002096 ILAS Seminar-E2:Disorders of the Nervous System	Z002037 ILAS Seminar-E2:Earthquakes & Volcanoes - Prediction and Hazards	Z002070 ILAS Seminar-E2:Let's simulate human movement
		Z002074 ILAS Seminar-E2:Radical Art and Politics in Japan 1960-70		Z002053 ILAS Seminar-E2:What is light?	Z002076 ILAS Seminar-E2:Technology and Modern Society - A Historical Perspective
				Z002066 ILAS Seminar-E2:Introductory Bioinformatics	Z002088 ILAS Seminar-E2:How to make scientific Breakthrough- Learning from Nobel discoveries
				Z002087 ILAS Seminar-E2:Encounters with modern arithmetic	Z002094 ILAS Seminar-E2:Climate change impacts on the humanosphere

Instructors

教員紹介

ALVAREZ ORTEGA, Miguel

Program-Specific Associate Professor
Graduate School of Law

- *Jurisprudence-E2 (page 107)*
- *Theories of Justice and Human Rights-E2 (page 136, 137)*
- *ILAS Seminar-E2: Religion and Law (page 359)*

Born and raised in Spain, after finishing my undergraduate studies in Law, I obtained an MA in International Law and a PhD in Legal Philosophy. In that period, my research focused on the legal-philosophical analysis of key concepts within democratic States, such as citizenship, legitimacy, or Indigenous peoples, as well as normative Ethics problems addressed from a Rawlsian perspective. I later tried to acquire a more interdisciplinary background studying Linguistics, Translation Studies, Buddhist Philosophy, and Classical Buddhist Languages. My latest research focuses on language rights and policies and, mainly, on Buddhism-based approaches to Law, Politics, and Justice in the Himalayan areas. These later projects led me to work as a visiting scholar in Auckland, Kathmandu and, for the last four years, Kyoto University, where I have been recently hired by the Law School.

In my classes, I try to encourage students to overcome reductionist visions that present Law as a sheer quasi-mathematical application of State-created rules and confront them with a more complex scenario in which moral values (Justice) and social praxis are intrinsically intertwined with the legal matter. With such a purpose, I provide students with theoretical and methodological tools to approach legal phenomena from a philosophical and critical perspective, working with primary sources and promoting on-going discussions. I teach general introductory courses on Jurisprudence and Theories of Justice and Human Rights, as well as a Seminar on Religion and Law.

ANAGNOSTOU, Despoina

Associate Professor
Graduate School of Medicine

- *Introduction to Basic Concepts of Health Psychology-E2: Communication Issues and Decision-making in Patient Care (page 301)*
- *Cultural Aspects of Health Care-E2 (page 309)*
- *ILAS Seminar-E2:Clinical and Ethical Issues within Palliative Care- the European Context (page 339)*
- *ILAS Seminar-E2:Understanding and Critical Appraisal of Qualitative Research Methods in Health Care (page 400)*

Profile: I am an associate professor at the Graduate School of Medicine. With a first degree in Nursing , I practiced clinically in various settings in Athens, Greece before moving to the UK, where I obtained an MSc form the University of Edinburgh, and a PhD from King's College London in Palliative Care. Subsequently I worked as a researcher in UK academic institutions in the field of cancer and palliative care, before moving to Japan to explore cross cultural issues in end-of-life care. My research interests include decision-making in palliative care, measuring quality of care, support systems for families and patients, and transcultural aspects of end-of-life care. My current research explores the challenges of advanced-care-planning in the intensive care units, and the effectiveness of palliative care interventions in the intensive care context.

Courses: Introduction to Health Psychology introduces concepts of integration of psychosocial and biomedical models of care and explores the impact of health psychology on the treatment of chronic illness, pain management and palliative care. Cultural Aspects of Health Care will enhance students' knowledge about the interplay between culture and health care and will examine concepts of medical authority, treatment compliance, decision-making, and communication styles in different cultural contexts. Palliative care within the European context will enable students to develop awareness of international approaches to palliative

care and the European attitudes to current ethical challenges. Critical appraisal of qualitative research will provide students with critical understanding of a range of qualitative research methodologies and of their application in health care.

The courses are designed to be interactive with short lectures, class discussion, student-led sessions and a variety of material, so that students are can engage actively in the class.

ARIVAZHAGAN, Rajendran

Senior Lecturer
Institute of Advanced Energy

- *Essentials of Basic Physical Chemistry-E2 (page 194)*
- *Basic Physical Chemistry (thermodynamics)-E2 (page 195)*
- *Basic Physical Chemistry (quantum theory)-E2 (page 198)*
- *Chemistry of Sustainable Energy-E2 (page 212)*

Profile: Arivazhagan Rajendran received his Master degree with specialization in Inorganic Chemistry from University of Madras, India. After completing his Master degree, he participated in many short-term research trainings at various institutes such as Tohoku University, Japan, Max Planck Institute for Bioinorganic Chemistry, Germany, and Central Leather Research Institute, India. He then began doctoral research in Bioanalytical Chemistry working with Prof. Norio Teramae at Tohoku University. After earning Ph.D. in 2008, he joined at Frontier Institute for Biomolecular Engineering Research, Konan University as a Postdoctoral Researcher. Then, he moved to Institute for Integrated Cell-Material Sciences, Kyoto University and worked on scaffolded DNA origami based Nano-Biotechnology. After working at Life Science Center of Tsukuba Advanced Research Alliance, University of Tsukuba as an Assistant Professor, in 2015 he joined at Institute of Advanced Energy, Kyoto University as a Junior Associate Professor.

Message to the students: The aim of the courses mentioned above is to teach the advanced energy science through fundamental physical chemistry starting from the structure and electronic properties of atoms. These basic courses will help the students to understand the chemistries involved in sustainable energy, energy production, storage, environmental issues, and so on. Besides the technical aspects, I can speak little Japanese which will greatly help me to communicate with the students.

BAARS, Roger Cloud

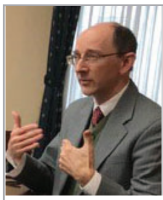
Senior Lecturer
Graduate School of
Global Environmental Studies

- ***Human Geography-E2 (page 91, 92)***
- ***Introduction to Urban Geography-E2 (page 101, 102)***

I am a Senior Lecturer at the Graduate School of Global Environmental Studies, Kyoto University. Originally from Hamburg (Germany), I have received my PhD in Human Geography from The University of Auckland, New Zealand. Before coming to Kyoto, I have held academic appointments at Goethe University Frankfurt (Germany) and The University of Auckland (New Zealand).

I am interested in the relationships between social change and governance particularly as they relate to politically desired social orders, values and practices. My research agenda is organised along the three interrelated themes of spatial identity and belonging, social change and reproduction and new forms of affective environmental governance.

My courses on Human and Urban Geography are concerned with the spatial organisation and transformation of human life. We will examine how most global phenomena are intrinsically spatial and how a geographical lens allows us to understand these global processes in a more comprehensive way.



BABER, William

Associate Professor
Graduate School of Management

- ***Business English-E3 (page 315, 316)***
- ***Business Thinking-E3 (page 317)***
- ***Negotiation-E3 (page 318)***

Will Baber has combined education with business throughout his career. His work has included economic development in the State of Maryland, language services in the Washington, DC area, supporting businessstarters in Japan, and teaching business students in Japan and Europe. Currently he is at Kyoto University teaching and researching negotiation and other topics as an Associate Professor in the Graduate School of Management. He is lead author of the 2015 textbook "Practical Business Negotiation".

BANERJEE, Amit

Senior Lecturer
Graduate School of Engineering

- ***Fundamental Physics B-E2 (page 169)***
- ***Advanced Dynamics-E2 (page 175)***
- ***Physics of Wave and Oscillation-E2 (page 177)***
- ***ILAS Seminar-E2: How to make nano-machines (page 375)***

Hello! I am an experimentalist who likes to understand how nature works at nano-scale. I received my PhD degree in Physics from Indian Institute of Technology Kanpur, India. Subsequently, I conducted postdoctoral research in City University of Hong Kong, Kyoto University, and Japan Advanced Institute of Science and Technology. I am currently a junior associate professor in the graduate school of engineering.

Message to students: making sense of how nature works is not only beneficial for humanity, but it's also a lot of fun! At first glance, many natural phenomenon look hopelessly complicated. It is amazing to see how starting from a simple model and gradually refining it can lead us close to a complete understanding of these phenomenon. Therefore, I believe, my goal as a teacher is to show you not only what physics can do but also how physics is done.

BARNETT, Craig Antony

Associate Professor
Graduate School of Science

- ***Fundamentals of Organismal and Population Biology-E2 (page 225)***
- ***Introduction to Ecology and Evolution-E2 (page 258)***
- ***ILAS Seminar-E2: Methods in Ecology and Natural History (page 336)***
- ***ILAS Seminar-E2: Introduction to Bird Study - Ornithology (page 389)***

I obtained my first degree in Zoology from Victoria University of Wellington and my M.Sc. degree also in Zoology from the University of Canterbury in Christchurch, which are both in New Zealand. I then completed a Ph.D. in the United Kingdom at Newcastle University. Since completing my Ph.D., I have worked as a researcher and professor in many countries including the United States, Japan, New Zealand, and China. My current research interests include the evolution of aposematism and cheating, the adaptive significance of animal personalities, animal communication, the relations between animal's behaviour and their physiology, and life history evolution.

I teach four courses for the Institute of Liberal Arts and Sciences: (1) Fundamentals of Organismal and Population Biology, (2) Introduction to Ecology and Evolution, (3) Methods in Ecology and Natural History (MENH), and (4) Introduction to Bird Study (Ornithology). I emphasise the importance of critical thinking, problem-solving, and team-work in my courses and many class exercises may incorporate these aspects. My overall aim is to design courses that are interesting and topical and also provide students with an opportunity to learn new skills.

BHATTE, Pallavi Kamlakar

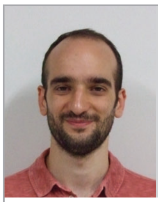
Senoir Lecturer
Graduate School of
Human and Environmental Studies

- *Western History I-E2 (page 43, 45)*
- *Western History II-E2 (page 47, 48)*

Dr. Pallavi Bhatte is a lecturer in Western and Contemporary History at the Graduate School of Human and Environmental Studies of Kyoto University. She graduated from the Faculty of Commerce, University of Bombay and arrived in Japan in the year 2000. She received a Bachelor of Arts in Japanese Language at the Department of Asian Studies, Faculty of International Culture, Tenri University. Thereafter, she obtained her Master and Doctoral degrees from the Department of Cultural Coexistence, Graduate School of Human and Environmental Studies, Kyoto University.

Research Interests:Contemporary History; Transnational History; South Asian History; Modern Indian History; British History; Empire; Imperialism; Colonialism; Nationalism; Nationalist Resistance Movements; Political History; Postcolonial Studies; 19th and 20th Century British Imperial and Commonwealth History; Diaspora Studies; Migration; Subaltern Studies; Colonial Discourse; South Asian Literature; World War I; Second World War; Interwar Years; Pan-Asianism; Japanese Studies

Message to Students: Learning and teaching is reciprocal. Motivation comes from willingness to do something. Learning history is not about memorizing dates. These courses are aimed at instilling the ability to think critically, develop a historical consciousness to gain a better understanding of humanity, society, and contemporary politics. Students from diverse disciplines are encouraged to join.



BRANDANI, Giovanni Bruno

Program-Specific Senior Lecturer
Graduate School of Science

- *Soft Matter Physics-E2: From Condensed Matter to Life (page 191)*
- *Introduction to Biology and Life Science-E2 (page 223, 224)*
- *ILAS Seminar-E2: Computer Simulations in Biology (page 352)*

After my undergraduate studies in physics in Italy, I moved to the UK for my PhD, where, working in close collaboration with experimentalists, I applied analytical and computational methods to understand how bacteria use specialized proteins to aggregate into strong communities. Here at the Department of Biophysics of Kyoto University, I use computer simulations to investigate the packing and organization of chromosomes into the Eukaryotic nucleus. I have always been fascinated by how theoretical approaches can contribute to our understanding of life on Earth, and by what can be achieved when researcher with different expertise and background join forces to tackle complex problems.

My courses also emphasize the interdisciplinary aspect of scientific discovery. “Introduction to Biology and Life Sciences” is directed to all students, even those without any background in biology but curious to learn how fascinating life can be. In “Soft Matter Physics”, we look more closely at many intriguing substances that can be found in our daily experience and inside cells. In “Computer Simulations in Biology”, students can learn how to code programs to observe the dynamics of living systems.

CAMPBELL, Michael

Assistant Professor
Graduate School of Letters

- *Ethics I -E2 (page 21)*
- *Ethics II-E2 (page 22)*
- *ILAS Seminar-E2: Critical Thinking in Ethics (page 367)*
- *Research Ethics and Integrity (Humanities and Social Sciences) (page 412)*

I am a moral philosopher specialising in issues at the intersection between meta-ethics and normative ethics. I received my PhD from King's College London. My research focuses in particular on the British post-war philosophers (including Philippa Foot, Bernard Williams and Peter Winch) as well as the Swansea School of Wittgensteinians (such as DZ Phillips and Rush Rhees). I am interested in understanding how conceptions of human nature inform ethics and morality, and how we can provide an account of moral evaluation which avoids crude reductionism but nevertheless pays due respect to the facts of our creaturely nature. In my most recent work I approach these issues through enquiring into what experiences of violence and trauma can teach us about the nature of the self.

CAMPBELL, Douglas Simon

Program-Specific Associate Professor
Graduate School of Pharmaceutical Sciences

- *Basic biology and Metabolism-E2 (page 228)*
- *Introduction to Molecular Cell Biology-E2 (page 248)*
- *Introduction to Biosciences-E2 (page 249)*
- *Theory and Practice in Scientific Writing and Discussion (Pharmaceutical Sciences, English)A-E3 (page 310)*

Douglas Campbell is currently an Associate Professor in the Graduate School of Pharmaceutical Sciences at Kyoto University. Having been fascinated by understanding the intricacies and complexities of life he read Biochemistry at the University of Oxford (UK) followed by a Ph.D. in Cellular and Developmental Neuroscience at the University of Cambridge (UK), which identified novel mechanisms such as local protein synthesis and degradation in neurones as a key player during their development leading to highly cited and influential publications. Prior to joining Kyoto University he performed postdoctoral research and teaching in the USA, Japan and Germany. Douglas is currently establishing the Department of Neuronal Remodeling laboratory which will study the cellular and molecular mechanisms of how neurones change during development and in degenerative conditions, leading to a better understanding and the identification of new pathways for treatments.

Basic Biology and Metabolism-E2 and its sequel Introduction to Molecular Cell Biology-E3 are intended to introduce students to the basics of cells, the fundamental building blocks of life, while Introduction to Bioscience-E2 is a more general introduction to the vastness of Biosciences, all of which are taught in English. A particular focus of the courses is to introduce the relevance of studying Cell Biology and Biology in general to our daily lives and to incorporate assignments based on current news or more specialised articles. Students with a strong interest in research may also be also be able to join the Department of Neuronal Remodeling laboratory for research internships.

CANDEIAS, Marco Marques

Senior Lecturer
Graduate School of Medicine

- *Introduction to Biochemistry-E2 (page 232, 234)*
- *ILAS Seminar-E2: Intorduction to Human Genetics and Genetic Disease (page 356)*
- *ILAS Seminar-E2: Intorduction to Stem and iPS Cells (page 364)*

Marco grew up in Portugal and DR Congo and did his graduate studies in France, where he obtained his PhD from the University of Paris 7, under the supervision of Robin Fahraeus who first described the human p53 isoform p53/47 (also known as delta40p53). Marco's PhD research led to the discoveries of the Internal Ribosome Entry Site (IRES) and the RNA non-coding functions in p53 mRNA. During his postdoctoral training and in collaboration between France's INSERM and Kyoto University, Marco further strengthened this new concept of mRNAs with non-coding trans-acting functions by showing that the p53 mRNA can sequestrate p53 protein's negative regulator MDM2 in the nucleolus. Marco is now a Junior Associate Professor in Kyoto University where he teaches Human Genetics and Genetic Disease, Developmental Biology and iPS Cells and Biochemistry. His most recent research interests include investigating the role of hotspot synonymous mutations and mRNA non-coding functions in cancer formation and development. For more information on Marco's research and educational activities please visit: areap53.com

Message to the students: In the Human Genetics and Genetic Disease classes the students will learn about genetics from examples of human genetic diseases. In Developmental Biology and iPS Cells the students will learn the basics of human development in order to understand the principles and functionalities of Stem and iPS Cells. For both courses we will choose diseases of interest to the students and discuss and present, in group, their genetic bases or therapeutic strategies, respectively.

CARLTON, Peter

Associate Professor
Graduate School of Biostudies

- *Chromosome Biology-E2 (page 252)*
- *Practical Computing for Biologists-E2 (page 254)*
- *ILAS Seminar-E2: Intorduction to the Biology of Nematodes (page 367, 388)*

Originally from the United States, I received my Ph.D. from the University of California at Berkeley, where I studied chromosomes and meiosis. I continued my studies as a researcher at UC San Francisco, where I began using advanced microscopy and image analysis tools that I still use daily in my own research. I came to Kyoto University in 2010 as a principal investigator in the Institute for Integrated Cell-Material Sciences, and now am located in the Graduate School of Biostudies.

The combination of biological and computational experimentation has become an essential part of modern research. My classes will introduce you to fascinating questions in diverse areas of biology, from both the "wet" side (how does a worm grow from an egg? how do our cells divide?) and the "dry" side (how can we use computers to design changes in DNA, or see objects smaller than light itself?). Hands-on experience and opportunities to observe biology in action will be provided as much as possible.

CATT, Adam Alvah

Associate Professor
Graduate School of Letters

- *The History of Eastern Thought I-E2 (page 25)*
- *Science of Religion I-E2 (page 26)*
- *Introduction to Linguistic Science-E2 (page 57)*
- *Introduction to Japanese Linguistics I-E2 (page 58)*

I grew up in rural Arkansas in the heart of the Ozark mountains. While this was a great place to spend my childhood, it wasn't until I was a freshman in college that I came into contact with people from other cultures and linguistic backgrounds. This experience prompted me to learn more about other languages, cultures, and religions. After spending three years in a Zen temple in Kyoto, I received my MA degree at Otani University in the field of Buddhist Studies. Most of my work involved Sanskrit, an important Indo-European language of India, and I became interested in how Sanskrit fit into the larger historical context of the Indo-European language family. I later received my MA and PhD in Indo-European historical linguistics from Kyoto University. My current research focuses on the history of the Indo-European languages, in particular the old languages of India and Iran, and how an understanding of these languages can help us interpret religious texts from ancient cultures.

Languages are curious entities. As children, we have no choice about what language(s) we will speak, and even though we learn to speak our native tongue with fluency, we often have little or no conscious awareness of what we are doing. Linguistics seeks to shed light on this area to reveal what it is we know when we say we "know" a language. I hope that students who come to my classes leave with a greater sense of wonder and curiosity about language and an understanding of how central language is for interpreting texts from other cultures and times.

CHANG, Kai-Chun

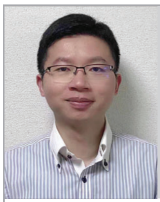
Senior Lecturer
Graduate School of Enginnering

- *Mathematical Description of Natural Phenomena (page 142)*
- *Advanced Linear Algebra (page 151)*
- *Basic Informatics (page 278)*
- *Advanced Sceintific English-E3 (Debate) (page 314)*

Dr. Kai-Chun Chang is a Junior Associate Professor in the Department of Civil Engineering and Earth Resources Engineering, Kyoto University (KU). His main research interests are in bridge structural health monitoring, bridge dynamics and vibrations, and data analysis techniques.

Chang received his Ph.D. degree from National Taiwan University (NTU) and worked at the same university as a postdoctoral researcher for two years. During his research career at NTU, he worked mainly on the vehicle-bridge interaction problems, especially on their application to extracting bridge dynamic characteristics. Currently he is working in the Lab of International Management of Civil Infrastructures, KU, and focusing on developing bridge structural health monitoring techniques and systems, solving bridge dynamics and vibrations problems, and many data-analyzing techniques that support the above tasks. He also worked in the Lab of Innovative Techniques for Infrastructures, KU, where his research interest expanded to elastic wave-based nondestructive inspections, especially for concrete structures.

Chang's lectures aim to bridge the gap between the courses in high school and university. In our classes, we have no complicated computations, but illustrative examples provided to link the high school mathematics with natural phenomena; no difficult vocabularies and grammars, but logical rules helpful to read and write scientific papers, and many others awaiting your discoveries.



CHU, Chenhui

Program-Specific Associate Professor
Graduate School of Informatics

- ***Practice of Basic Informatics-E2 (page 276)***
- ***Fundamentals of Artificial Intelligence-E2 (page 293, 294)***
- ***Information Literacy for Academic Study-E2 (page 295)***

Profile: Chenhui Chu received his B.S. in software engineering from Chongqing University in 2008, and his M.S. and Ph.D. in Informatics from Kyoto University in 2012 and 2015, respectively. After working as a researcher at JSPS and JST, and research assistant professor at Osaka University, he is currently a program-specific associate professor at Kyoto University. His research interests include natural language processing, particularly machine translation and multimodal machine learning.

To students: I am very happy to teach English courses in Institute for Liberal Arts and Sciences because I have been studying machine translation between English and other languages for more than ten years. In my Fundamentals of AI course, you will learn machine learning and deep learning, which promotes the recent success and penetration of artificial intelligence into our daily life. In my Information Literacy for Academic Study course, you will learn how to effectively identify, search, evaluate, use, and present information for decision making and problem solving in your academic studies. In my Practice of Basic Informatics course, you will learn information communication technology skills that are indispensable for efficient academic studies. Looking forward to seeing you in my courses.

COLLINS, Benoit Vincent Pierre

Associate Professor
Graduate School of Science

- ***Linear Algebra with Exercises A (page 140)***
- ***Linear Algebra with Exercises B (page 141)***
- ***Honors Mathematics B-E2 (page 155)***

Profile: I studied mathematics at ENS Paris and got my PhD degree from Universite Paris 6 in France. Before arriving in Kyoto, I held postdoctoral positions and visiting positions in Japan, and permanent academic positions in France and Canada.

Message: For mathematicians, English has become the standard communication language. In my experience, many students from non-english speaking countries get their first exposure to mathematical english by the time they actually need to start research. A sudden dive into a new world of research and into in a new language simultaneously is definitely double challenge. Fortunately, most students overcome it, but difficulties to communicate appropriately one's research at an international level sometimes remain.

One main purpose of my courses is to address this point by giving a chance to the students to get used to mathematics in English at an early stage, so that they can focus better on research in due time, without linguistic worries.

Excellent English skills are not a preliminary to join my class: I am not evaluating English skills, just mathematical skills — the contents and marking scheme are the same as the Japanese counterpart of my class. However, I expect that taking a mathematics class in English will be like killing two birds with one stone...

CROYDON, David Alexander

Associate Professor
Research Institute for Mathematical Sciences

- ***Mathematical Statistics-E2 (page 158, 159)***
- ***Second Course in Statistics-E2 (page 161)***
- ***ILAS Seminar-E2: Introduction to Probability (page 360)***

Profile: I am a mathematician specialising in probability theory. Having completed my undergraduate studies at the University of Cambridge and doctorate at the University of Oxford, I spent twelve years at the University of Warwick.

During this time, I enjoyed a number of academic visits to Japan, and am happy to now find myself at Kyoto University!

Message: Uncertainty is everywhere around us. Understanding this is crucial in many areas, including the natural sciences, engineering, economics and other social sciences, and there is a growing demand in industry and academia for people that have the ability to do so. Within my courses, students will be introduced to a mathematical approach for handling randomness through the study of some key aspects of modern probability and statistics.

DANIELL, Thomas Charles

Professor
Graduate School of Engineering

- ***Contemporary Japanese Architecture-E2 (page 96)***
- ***Theory of Landscape Design-E2: House and Gardens of Kyoto (page 97)***
- ***ILAS Seminar-E2: History and Theory of Modern Architecture (page 341)***
- ***ILAS Seminar-E2: Radical Art and Politics in Japan 1960-70 (page 402)***

Thomas Daniell is Professor of Architectural Theory and Criticism in the Graduate School of Engineering. He holds a B.B.Sc and a B.Arch with honors from Victoria University of Wellington, an M.Eng from Kyoto University, and a Ph.D from RMIT University. He is an external reviewer for ACSA (Association of Collegiate Schools of Architecture) and SAHANZ (Society of Architectural Historians of Australia and New Zealand), an Expert of International Standing for the ARC (Australian Research Council), and a founding board member of ADAN (Architectural Design Association of Nippon). A two-time recipient of publication grants from the Graham Foundation for Advanced Studies in the Fine Arts, he is author of FOBA: Buildings (Princeton Architectural Press, 2005), After the Crash: Architecture in Post-Bubble Japan (Princeton Architectural Press, 2008), Houses and Gardens of Kyoto (Tuttle, 2010, second edition 2018), Kiyoshi Sey Takeyama + Amorphe (Equal Books, 2011), Kansai 6 (Equal Books, 2011), and An Anatomy of Influence (AA Publications, 2018).

DE ALMEIDA, Igor

Program-Specific Assistant Professor
Kokoro Research Center

- *Psychology I-E2 (page 65)*
- *Psychology II-E2 (page 66)*
- *Social Psychology-E2 (page 69)*
- *Health Psychology I-E2 (page 300)*

I was born and raised in Sao Paulo, Brazil. I received my bachelor's degree from the University of Sao Paulo, mymaster's and doctoral degrees from Kyoto University. I am a social-cultural psychologist. My research revolvesaround cultures and how they influence people's psyche (emotions, cognition, behavior and so on).
My courses are in the field of psychology, we will be discussing the connection between science and the real world, inother words, how we can use scientific knowledge to improve society.

DE ANTONI, Andrea

Associate Professor
Graduate School of
Human and Environmental Studies

- *Cultural Anthropology I-E2 (page 87, 89)*
- *Topics in Cultural Anthropology I-E2 (page 93, 94)*

Profile: I am an Italian socio-cultural anthropologist with a main interest in religion and spirituality. My field is contemporary Japan, but I have carried out ethnographic research also in Italy and Austria. My research has focused on experiences with spirits and social suffering, especially in relation to the perception of space and place (particularly places related to death and the afterlife), rumors and discrimination, construction of social memory and "tradition", tourism and commodification, spirit possession, exorcism and religious/spiritual healing. From a theoretical perspective, I focus on the anthropology of the body, bodily perceptions, affect and emotions, as well as construction of identity and digital anthropology. I obtained my PhD at Ca' Foscari University of Venice and worked at Kyoto University, Doshisha University, Ritsumeikan University, and the University of Vienna.

Message to Students: During my courses, you will learn how to look at the world through an anthropological lens, how this is relevant in understanding contemporary globalizing societies, and to develop an acceptance and appreciation for cultural diversity. My courses are characterized by use of multimedia resources and by a high degree of interactivity and discussion. Therefore, while watching and discussing audiovisual material about a variety of practices and societies, you will also improve your logic, critical thinking and communication skills.

DE FELICE, Antonio

Associate Professor
Yukawa Institute for Theoretical Physics

- *Theory of Special Relativity-E2 (page 188)*
- *Introduction to Cosmology-E2 (page 193)*
- *ILAS Seminar-E2: Frontiers in Theoretical Physics I (page 354)*
- *ILAS Seminar-E2: Frontiers in Theoretical Physics II (page 386)*

My profile: My name is Antonio De Felice. I am a cosmologist, who has worked in several countries: USA, UK, Belgium, Japan, Thailand, and now, once more in Japan. I have learned many things by knowing so many different cultures. By meeting so many nice people in my work and life. In my free time, I like cooking Southern Italian bread, and making cheese.

My message: Cosmology is one of the most fascinating branch of theoretical physics. It tries to give a reason for the astonishing beauty of the cosmos, that we can already see by our own naked eyes, and an explanation for the evident majestic structure the universe endows. It studies the evolution of our universe, from its origins up to our time. In this course, I will give an introduction to this fascinating topic. We will study the big-bang model, its success and the most recent controversies in today's cosmological theories. I think that any student who is interested in understanding the beauty of our universe should attend this class. I will try to make it as exciting as it deserves to be, with your appreciated help.

DE ZOYSA, Menaka

Senior Lecturer
Graduate School of Engineering

- *Fundamental Physics B-E2 (page 168)*
- *Introduction to Light Control-E2 (page 186)*
- *ILAS Seminar-E2: Wonders of Semiconductor (page 372)*
- *ILAS Seminar-E2: What is Light? (page 394)*

I came to Japan after my high school. Finishing one year course of Japanese language at Tokyo University of Foreign Studies, I entered to the Kyoto University. I received the BSc., MSc. and Ph.D. degrees in Electronic Science and Engineering from the Kyoto University. After spending two years as a post-doctoral fellow, I joined the faculty of Kyoto University in 2014. My research focuses on light control to develop next generation optoelectronic devices such as high-power and high-quality lasers, high-efficiency solar cells and narrow-band thermal emission sources.

To the students: During my lectures, I will introduce the fundamentals of light. To obtain a better understanding of the concepts, some experiments will also be carried out during the lectures. I will also share my knowledge with the students about the cutting-edge technologies of light control. Students who would like to learn the basics of light, optoelectronic devices (LEDs, lasers, solar cells etc.) and cutting-edge technologies of light, are welcome.

DECHANT, Andreas

Senior Lecturer
Graduate School of Science

- ***Thermodynamics-E2 (page 171)***
- ***Physics for All-E2 (page 180)***
- ***ILAS Seminar-E2:Chaos theory (page 351)***
- ***ILAS Seminar-E2:Physics of Life (page 406)***

I am a lecturer at the graduate school of science at Kyoto University. I grew up in Augsburg in the southern part of Germany, where I also studied physics. After my PhD at Free University of Berlin, I worked as a postdoc in Germany and Israel. I came to Japan in 2015 as JSPS postdoc at Kyoto University, before becoming an assistant professor at Tohoku University. I returned to Kyoto University in 2020, where I am currently working as a lecturer.

My research interests are centered around non-equilibrium thermodynamics, for example in biological systems such as cells and molecular motors. What fascinates me about this research is how our everyday experience relates to the fundamental laws of physics: Even though the motion of atoms and molecules is extremely complicated, just the fact that we typically observe many of them, allows us to describe our world using simple rules. On the other hand, biological cells, whose individual motion follows simple rules, can behave in a complicated and hard-to-predict way when we put many of them together.

In my course "Physics for All", I hope to convey my fascination for the connections between physics and everyday phenomena to students who have little or no prior knowledge about physics. The course "Thermodynamics" explores the fundamental laws that tell us what can and cannot happen in our macroscopic world. The seminars "Physics of Life" and "Chaos Theory" are all about how complicated behavior can result from simple laws.

DOUGLAS, Li

Program-Specific Senior Lecturer
Graduate School of Informatics

- ***Quest for Mathematics I-E2 (page 144, 146)***
- ***Function Theory of a Complex Variable-E2 (page 152)***
- ***Nonlinear Mathematics-E2 (page 153)***

Dr. Li Douglas has received her Ph.D. in applied mathematics and computer science from the University of Electro-Communications (Tokyo). She worked for the Japan Research Institute for a number of years before taking academic positions in the United States.

Her primary research field is numerical analysis. One of her interests is in finite element modeling to minimize engineering related noises in moving objects (e.g., a car or train). She has a patent in Japan for an algorithm related to this topic. Another interest is creating computational models using remote sensor networks that run for quite long periods of time and self correct using data assimilation.

D'SOUZA, Rohan Ignatious

Associate Professor
Graduate School of Asian and African Area Studies

- ***History of Modern Science-E2 (page 27)***
- ***Philosophy of Modern Science-E2 (page 28)***
- ***Environmental Anthropology-E2 (page 98)***
- ***Environmental Histories of South Asia-E2 (page 104)***

As an environmental historian, my early research and publications were devoted to discussing the emergence of modern flood control and water management in South Asia. At heart, most of my early efforts were aimed at debating the political and environmental consequences of large dams in the Asian sub-continent.

In our contemporary globalized world, riven as it is by anxieties about global warming and abrupt climate change, scholarship today is drawn towards an interdisciplinary mood. The "two cultures'' of science and the humanities are now more than ever required to find a shared vocabulary with which to debate political solutions and explore imaginations for sustainability at the planetary level.

The courses in the History of Modern Science, Philosophy of Modern Science, Environmental Anthropology, and Environmental Histories of South Asia are intended to explore these big questions of our time by reviewing cutting edge perspectives in history, philosophy, ecology and anthropology.

ENESCU, Bogdan Dumitru

Associate Professor
Graduate School of Science

- ***How the Earth Works I-E2:Environmental Change (page 263)***
- ***How the Earth Works II-E2:Earth's History (page 264)***
- ***ILAS Seminar-E2: Frontiers of Earthquake Science (page 355)***
- ***ILAS Seminar-E2: Earthquakes & Volcanoes - Prediction and Hazards (page 390)***

Profile: My field of study is Geophysics, in particular Earthquake Science. I got my Ph.D. degree from Kyoto University in 2004 and afterwards did research in Japan, Germany, and US. I am interested to understand the physics of earthquakes and find ways to reduce the earthquake risk.

Message to students: During classes and seminars we will explore together how the Earth works. You are going to learn about scientific topics that are both fascinating and have an important social impact: the climate change and global warming, the formation of the Solar System and the Earth, the birth and evolution of Life. You will find out about frontier research topics in Earthquake & Volcano Science, as well as Disaster Prevention and Management. I welcome anyone interested to attend.

Teaching style: English is nowadays the main language used to communicate Science. Nevertheless, it can be challenging at times to learn and communicate in a non-native language. I will therefore adjust lectures to address the learning needs of all students and use graphic-rich teaching materials during classes. Keywords will be provided in both English and Japanese.

EPRON, Daniel

Professor
Graduate School of Agriculture

- *Introduction to Plant Physiology-E2 (page 257)*
- *Programming Practice (R)-E2: For Managing and Analysing Data (page 290)*
- *Introduction to Biogeochemistry-E2 (page 331)*
- *ILAS Seminar-E: Global Environmental Issues (page 334)*

Daniel Epron is plant ecophysiologist. He has developed research projects related to the adaptation of trees to environmental changes, and to the carbon budget of forests and tree plantations, both in temperate and tropical areas, with a special attention to environmental controls and to carbon partitioning among ecosystem compartments. He has a long experience of teaching plant physiology and ecology to undergraduate and graduate students.

To the students: the courses Daniel Epron give for the Institute of Liberal Arts and Sciences focus on plant physiology, biogeochemistry, global environmental issues and programming for statistical analyses using R, with a special attention to questions related to environment, agriculture and forestry. He is convinced that sound scientific knowledges, logical reasoning and rigorous analyses are required to propose appropriate policies and sustainable management options to address the major environmental issues facing our planet and jeopardizing our future.

EVEN, Jani Juhani Luc

Program-Specific Senior Lecturer
Graduate School of Informatics

- *Basic Informatics-E2 (page 280)*
- *Mathematics for Informatics I-E2 (page 283)*
- *Programming Practice (Python)-E2 (page 285)*
- *Programming Practice (Java)-E2 (page 289)*

I am a lecturer at the Graduate School of Informatics. I received my Ph.D. degree in signal processing from the Joseph Fourier University in Grenoble, France in 2003. In 2004, I moved to Japan as a post-doctoral fellow of the Japanese Society for the Promotion of Science to work on control at the Nara Institute of Science and Technology (NAIST). In 2007, still at NAIST, I started working on speech processing for robotics applications. In 2009, I became a researcher at Advanced Telecommunications Research Institute in Kyoto. There, I first developed microphone array based signal processing techniques for sensor network before starting applying these techniques to mobile robots from 2012 and social robots from 2015. Finally, in 2018, I moved to Kyoto University where my research focuses on human-robot interactions.

Message to students: Nowadays, a basic level of information literacy is expected for most vocations. However, I believe that getting a better understanding of informatics is highly beneficial for reasoning and problem solving (Basic Informatics-E2, Mathematics for Informatics I-E2). In addition, learning one of the popular programming languages is a great investment as it opens many possibilities (Programming Practice (Java)-E2, Programming Practice (Python)-E2).

FEUER, Hart Nadav

Program-Specific Senior Lecturer
Graduate School of Agriculture

- *Food and Globalization I-E2 (page 105)*
- *Food and Globalization II-E2 (page 106)*
- *ILAS Seminar-E2: Food Systems in Asia (page 340, 396)*

When I grew up in Portland, Oregon (USA), I met many immigrant families that encouraged me to learn languages, travel, and be a thoughtful person. This led me to study and live in many places, but especially in East Asia. Now as a specialist of Southeast Asian agriculture and food, I hope I can share with you how beautiful, healthy, and tasty the cuisines of this region are, and how important it is to understand and support the farmers who have made it possible.

The lessons I teach, ‘Agri-Food Systems in Asia’ and ‘Food and Globalization’, explore history, economics, nature, and culture and will help students learn the skills to understand their own country’s and others’ food and farm systems. My teaching draws on my background as a student and researcher in Lafayette College (Pennsylvania, USA), Oxford University (England), University of Bonn (Germany), Tel Aviv University (Israel), the Center for Khmer Studies (Cambodia) and here in Kyoto. I hope this worldwide view brings students a unique and fun learning experience, and will also make you a bit hungry!

FORTE, Erika Angela

Professor
Institute for Research in Humanities

- *Oriental History I-E2 (page 41)*
- *Oriental History II-E2 (page 42)*
- *History of Oriental Art I-E2 (page 55)*
- *History of Oriental Art II-E2 (page 56)*

Erika Forte specialized in East Asian studies and archaeology at the University of Rome “La Sapienza” (Italy) and at the Northwest University (Xi’an, China).

Her main research focuses on cultural flows and visual communication across Asia in the 1st millennium CE. Her methodology combines the study of archaeological evidence with that of Chinese textual sources.

In the course of her career she joined international archaeological excavation projects in Nepal and in China and traveled extensively, especially in Northwest China and Xinjiang (along the oases of the so-called Silk Road), visiting and studying ancient Buddhist remains. She conducted research at different academic institutions in Italy, Japan, China, Germany and Austria, where she also lectured on a variety of topics, such as Chinese history of art, Buddhist art and architecture, and the archaeology along the Silk Road.

In her teaching she puts a particular focus on sharing the experience gained in the course of her extensive and diverse working career. Her overall aim is to encourage her students to develop an independent and critical approach to scientific problems, and to stimulate them to thinking actively instead of acquiring notions passively. She tries to offer a well-balanced mixture of theory and practice and expose students to a varied set of useful methodologies and approaches in the study of the topics at hand.

GAO, Si

Senior Lecturer
Graduate School of Engineering

- ***Fundamentals of Materials I-E2 (page 184)***
- ***Fundamentals of Materials II-E2 (page 185)***
- ***Outline of Chemistry I (Its History and Fundamentals)-E2 (page 206)***
- ***ILAS Seminar-E2: Nanostructured Materials (page 345)***

I received my Bachelor degree in materials physics from Lanzhou University, China in 2009, master and PhD degree in material science and engineering from Kyoto University in 2013 and 2016. Since 2016, I started working as a post-doctoral researcher in the department of materials science and engineering, Kyoto University. My research work has been focusing on understanding the relationship between microstructures and mechanical properties of the structural metallic materials such as steels and aluminum alloys, in order to design stronger and tougher metallic materials that are important to our social infrastructure.

My lecture <Fundamental of Materials I & II> is a two-semester introductory course that gives concise but comprehensive knowledge of all main classes of materials: metals, polymers, ceramics and composites. The ILAS seminar <Nanostructured materials> aims to introduce the frontier research of the nanostructured metallic materials having various unexpected physical properties that the conventional metallic materials do not. <Elements, Matter and Materials> intends to introduce the chemical elements and matter in the natural world, as well as the man-made materials composed of those elements. I hope these courses will satisfy your curiosity and interests in materials science!

GUY, Adam Tsuda

Associate professor
Graduate School of Biostudies

- ***Basic Biology-E2 (page 243)***
- ***Basic Genetic Engineering-E2 (page 244)***
- ***Introduction to Genetics and Evolution-E2 (page 245)***
- ***ILAS Seminar-E2 :How to Read a Scientific Paper (page 363)***

I am originally from the United Kingdom. After completing my undergraduate degree at London University's School of Pharmacy, I obtained my PhD at University College London, studying developmental neurobiology using fate-mapping, live-imaging and transgenic zebrafish. Before coming to Kyoto University, I was a researcher at the Institute of Physical and Chemical Research (RIKEN) Center for Brain Science, where I conducted research into the role of radial glia in axon guidance during nervous system development.

I teach introductory courses and seminars in basic biology, genetics and scientific literacy. These are suitable for students who may not have a strong background in science but are interested in gaining fundamental knowledge in biology, genetics and related topics, or as a foundation for more advanced studies in science subjects in the future.

HADFI, Rafik

Program-Specific Associate Professor
Graduate School of Informatics

- ***Practice of Basic Informatics-E2 (page 277)***
- ***Basic Informatics-E2 (page 279)***
- ***Information and Society-E2 (page 281, 282)***

I obtained my Ph.D. in Computer Science and Engineering from the Nagoya Institute of Technology in 2015. I then held postdoctoral positions in Japan and Australia before joining the Graduate School of Informatics at Kyoto University in December 2020. My research focuses on understanding the agency mechanisms that govern economic, social, and biological systems and on developing intelligent agents that could be used, for example, in automated decision-making or social simulations.

The courses I will take charge of cover topics ranging from the basics and practices of informatics to the relationships between information and society. In my approach to teaching, I value curiosity as an essential component of effective learning. Therefore, I encourage students to ask questions, share their perspectives, and explore new ideas on engaging topics. My ultimate goal is to equip my students with the conceptual and technical skills to succeed in their future ventures.

HEIM, Stephane

Associate Professor
Graduate School of Letters

- ***Sociology I-E2 (page 68)***
- ***Introduction to Globalization Studies-E2 (page 77)***
- ***Introduction to Social Research-E2 (page 78)***
- ***Sociology of Work and Organizations-E2 (page 79)***

I received my PhD degree in Sociology at Strasbourg University (France) in 2011, and I am currently Associate Professor at the Faculty of Letters, Department of Sociology (since March 2015). Previously, I was Research Engineer at GERPISA (http://gerpisa.org/en), the international network of social scientists on the automotive industry hosted by Paris-Saclay University, ENS Cachan, France. I am, among others, member of the GERPISA's international steering committee, of the International Journal of Automotive Technology and Management's Editorial Board (http://www.inderscience.com/jhome.php?jcode=ijatm), and my current main research interests cover the development of Asian automotive industries, the Japanese higher education system, and the Japanese welfare regime.

In the lecture Sociology I, we will explore the social construction of reality and society. In the lecture Introduction to Globalization Studies, we will focus on the economic, social and political dimensions of globalization. In the lecture Introduction to Social Research, students will learn the basic knowledge to become social scientists. In the lecture Sociology of Work and Organizations, we will put the emphasis on work as a central institution of our contemporary societies. In my courses, I aim at providing students with basic knowledge on each field, while enabling them to express themselves freely in English on each topic. I am looking forward to teaching these topics and learning from students in Japan.

Link towards my homepage: https://kyouindb.iimc.kyoto-u.ac.jp/e/dA1lS

HIJINO, Ken

Professor
Graduate School of Law

- *Japan's Political Economy-E2 (page 129)*
- *Democracy in Crisis-E2: Government of, by, and for Whom? (page 130)*
- *Japanese Politics-E2 (page 132)*
- *Local Government in Comparative Perspective-E2 (page 133)*

Lecturer profile: I am a political scientist with an MPhil and PhD in Japanese Studies from Cambridge University (UK) and a BA in East Asian history from Wesleyan University (USA) with a short career as Tokyo correspondent for the Financial Times of London. My current research interests include local election campaigning and discourse, local and central government conflict, urban-rural cleavages, market pressures and local politics, and "repopulation" policies by local government in depopulating rural areas.

"Japan's Political Economy". This class presents an overview of Japan's post-war modern history and investigates select issues in its political economy. The class is organized into two parts: 1) an analysis of the politics, economics, and society in Japan's post-war history (1945-2020) and 2) an exploration of Japan's industrial relations, gender equality, demographic changes and inter-generational conflicts, centre-local relations, environmental issues et al. as analyzed through the interactions of political forces/institutions and market forces/economic institutions.

"Japanese Politics in Comparative Perspective". This is an introductory course on Japanese politics which considers the nature of Japan's political institutions from a comparative perspective. The

course will analyze how variation in key political institutions (such as the electoral system) affects political outcomes in Japan and other democracies. The course is organized into three parts: 1) a brief survey of Japanese political history from the Meiji era to the present 2) a description and comparison of Japan's key political institutions 3) investigation into a number of political themes in post-war Japan.

"Democracy in Crisis: Government of, by, and for whom?" I teach how to read critically and think about democracy by weekly readings of quality articles/book reviews/journalism (Foreign Affairs, Economist, London Review of Books, New York Review of Books, etc.) We consider the following questions about democracy What is democracy? How is it under threat? How does free-market capitalism/ globalization/ class, race, and territorial divisions affect the health and viability of democratic processes? Is there an alternative to democracy? How might democracy end? Can it stop/survive climate change and other planetary catastrophes?

ISLAM, A. K. M. Mahfuzul

Senior Lecturer
Graduate School of Engineering

- *Mathematical Description of Natural Phenomena-E2 (page 143)*
- *Physics for All-E2 (page 179)*
- *Practice of Basic Informatics-E2 (page 275)*
- *ILAS Seminar-E2: Technology and Modern Society - A Historical Perspective (page 403)*

My research field is in the large-scale integrated circuit. My research interest is in exploring new circuit theories for low-power sensors, high-speed analog-to-digital converters, and design methodologies for high reliability. We design analog and digital circuits, perform statistical analysis, analyze electromagnetic interference as part of the research process. I came to Japan in 2003 after high school. Since then, I have been living in Japan. I obtained a bachelor's degree, a master's degree, and a Ph.D. all from Kyoto University. From 2015 to 2018, I have been a research associate at the Department of Informatics and Electronics in the Institute of Industrial Science of the University of Tokyo. I have been a Junior Associate Professor since October 2018.

I am passionate about teaching. I believe teaching should encourage students to think from different angles. In my courses, I try to focus on the philosophy of different concepts, techniques, and phenomena so that students can create knowledge and understanding on their own. I believe in seeing is believing. Therefore, I always try to present the concepts visually. I always ask why first and then show different paths that lead to different solutions. Students are encouraged to explore different paths and think from outside the box. Students are strongly encouraged to learn a programming language and use programming as a tool. Using programming, we can play with the mathematical models, do simulations, create animations, and many more things. If you want to free your mind and strengthen your thinking power, I believe my courses will help you achieve those qualities.

JANSSON, Jesper

Program-Specific Associate Professor
Graduate School of Informatics

- *Introduction to Algorithms-E2 (page 296, 297)*
- *Introduction to Formal Languages-E2 (page 298, 299)*

Message to students: Every field of science tries to answer some fundamental questions such as "What's the structure of the universe?", "Why do we dream?", "What surprising properties do the prime numbers have?", "What is life?", etc. Such questions have inspired researchers for generations and have led to a deeper understanding of the world around us. In the ILAS courses that I will be teaching at Kyoto University, the underlying fundamental questions being asked (and that we hope to at least partially answer) are "Why are some problems harder to solve than others?", "What can be computed?", and "What is information?". Please join us if you would like to think about these kinds of topics.

Profile: Dr. Jesper Jansson received the Ph.D. degree in Computer Science from Lund University, Sweden. His main research areas are graph algorithms, data structures, computational complexity, and bioinformatics, and he is especially interested in combinatorial problems from the biological sciences that can be expressed elegantly and solved efficiently using graphs and tree structures. He enjoys doing research together with his students and has co-authored many papers with undergraduate and graduate students from all over the world. Dr. Jansson is currently the Section Editor-in-Chief for the "Analysis of Algorithms and Complexity Theory" section of the MDPI open-access journal "Algorithms".

KANTOUSH, Sameh

Associate Professor
Disaster Prevention Research Institute

- ***Introduction to Hydrology-E2 (page 270)***
- ***Interdisciplinary Sciences-E2 :Global Changes (page 321)***
- ***Natural Disaster Science-E2 (page 333)***
- ***ILAS Seminar (Overseas) :Conflict Management[Global Water Issues] (page 409)***

I have joined Kyoto University at the capacity of an Associate Professor at Disaster Prevention Research Institute. I received my BSc degree in Civil Engineering from Alexandria University in Egypt. I pursued my MS in civil engineering and PhD in environmental engineering at Saga University in Japan and EPFL in Switzerland, respectively. Prior to joining Kyoto, I worked at The German University in Cairo in the Civil Engineering Program. My research interests span dam impacts, and water resources management.

My teaching style is centered around grooming my students with solid knowledge and broad background in multidisciplinary areas -primarily environment, human health and engineering. In the classroom, I am generally energetic and prefer interactive teaching style especially during my seminar course on Dams and Reservoirs. I am also teaching Introduction to Hydrology course, where students learn and understand how elementary concepts and interdisciplinary subjects are related to their lives. Natural Disaster Science and Conflict Management in Global Water Issues courses are designed to promote independent reading and critical analysis for case studies. This is believed to sharpen students' soft skills including presentation, writing reports, leadership, innovation and critical thinking. I encourage students to openly discuss and formulate water- and environmental-related problems either of local or global nature. In delivering such curriculum, I balance between theory and practice via interactive learning, hands-on experimentation, field trips, and project-based learning.

In conclusion, I strive to equip my students for the competitive job market through practical assignments-that build on the fundamental concepts. This will require promoting their soft skills and practice leadership, and innovation. My research in the area of integrated river basin and sediment management is pivotal for maintain sustainable reservoir and river basin environment. Such challenge shall be bravely taken to endure changing water supply storage, flood control, irrigation and power generation. It is hoped that my academic expertise and potential contribution encourage the university body to engage and collaborate in areas of common interest.

KIM, Sunmin

Associate Professor
Graduate School of Engineering

- ***Advanced Dynamics (page 174)***
- ***Physics of Wave and Oscillation (page 176)***
- ***Advanced Scientific English-E3 (Debate) (page 314)***

Dr. Sunmin Kim got his doctoral degree at Department of Urban and Environmental Engineering of Kyoto University after he finished his undergraduate and master course at Chungnam National University, Korea. His research background is based on civil engineering and hydrology specializing in water resources management and flood risk management. He is interesting in solving various types of international water problems from an engineering aspect considering environmental change and climate change. He is giving several lectures for undergraduate course with subjects related to physics and engineering mathematics, which are Physics of Wave and Oscillation, Probabilistic and Statistical Analysis and Exercises, Advanced Dynamics, Scientific English 1B. Feel free to come to his exciting classes and enjoy his energetic lectures.

KIM, Minsoo

Associate Professor
Graduate School of Medicine

- ***Microorganisms in our Lives-E2 (page 259)***
- ***Introduction to immunology-E2:The body's defense system (page 260)***
- ***ILAS Seminar-E2: It's a Bug's Life - bacteria and viruses (page 377)***
- ***ILAS Seminar-E2:How to make scientific Breakthrough - Learning from Nobel discoveries (page 405)***

Originally from Korea, I received my Ph.D. from the Tokyo University, where I start to study a small protein called "Ubiquitin". Ubiquitin is covalently attached to the substrate protein and regulates various cellular processes and contribute to disease development. I am focusing on the ubiquitin system related to cancer and infectious disease.

To the students – During my courses, I will introduce the fundamentals of microorganisms and the host defense system. I want my students to feel from my class that "Science is very close to us. It is fun, and it is not difficult". Welcome to students who would like to learn microbes in our daily life and feel science together.

KNAUDT, Till

Associate Professor
Institute for Research in Humanities

- ***Japanese History I-E2 (page 38)***
- ***Japanese History II-E2 (page 40)***

Till Knaudt specializes in Modern Japanese History with focus on twentieth-century history of ideas, social history, and history of technology. He took his PhD in 2014 at Heidelberg University (Germany), writing on the history of the Japanese New Left from the 1960s and to early the 1970s. While continuing to work on this topic, he is also interested into the social history of post-war Hokkaidō, the socialist Left in the 1920s and 1930s, and the history of (home-)computerization in 1980s Japan. Since March 2019 he is an Associate Professor at the Institute for Research in Humanities (Jinbun kagaku kenkyūjo) at Kyōto University.

In the Class "Japanese History I" the participants will engage into learning about the history of modern Japan, from the last years of the Tokugawa-era to the end of the Second World War. Special emphasis will be put on analyzing key texts from English-language research literature, discussing methology and the logic of the argument, as well as on analyzing primary sources. By doing so the participants will work on questions of Meiji-era nation building and political representation, post-World War I industrialization and its social impact, and politics and culture in Japanese Empire in times of peace and total war.

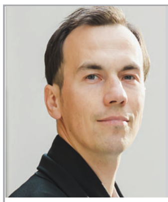
KOCH, Michael Conrad

Program-Specific Associate Professor
Graduate School of Agriculture

- *Science on Water, Soil and Ecosystems-E2 (page 266)*
- *Sustainable Forest Environment-E2 (page 330)*
- *ILAS Seminar-E2: Regional Disaster Prevention (page 380)*
- *ILAS Seminar-E2: Geo-Disaster Risk Reduction and Prevention (page 395)*

I am an Assistant Professor at the Graduate School of Agriculture. After pursuing a degree in civil engineering, I completed my Master's degree in geotechnical engineering at the Indian Institute of Technology Guwahati. I began my research career at the Rock Mechanics laboratory at The University of Hong Kong, where I investigated the internal response of rock formations in oil and gas reservoirs to hydraulic fracturing/ fracking at a micro scale. This led to a fascination with the determination of the internal structure of soils and rocks, which motivated me to pursue a PhD in computational inverse problems in geotechnical engineering at the Graduate School of Agriculture, Kyoto University. Working in a Bayesian framework, I have developed statistical algorithms to image anomalies (faults, fracture networks, mineral deposits etc.) in the interior of geological entities through non-invasive techniques. These algorithms function on a combination of physics-based numerical models and field data to map the subsurface and can provide valuable insight in construction and mining industries, and also aid disaster prevention through early detection of internal zones of weakness.

My courses will focus on a study of the mechanisms of natural processes occurring on earth, e.g. the movement of water and nutrients through soils, and use such concepts to understand how sustainable initiatives can be developed for forest ecosystems. Apart from the fundamentals, students will also learn methods to quantify different natural phenomena. Following an engineering approach in the ILAS seminars, basic mechanics will be used to explain why disasters such as landslides occur and also understand how state-of-the-art disaster mitigation technologies actually work. Through these courses, I hope to provide a soft introduction to the mechanics of different earth processes and also help students develop English communication skills through presentations and discussions.



KUZMIN, Arseniy Aleksandrovich

Senior Lecturer
Graduate School of Engineering

- *Quest for Mathematics I-E2 (page 145)*
- *Elementary Course of Physics B-E2 (page 173)*
- *Introduction to Quantum Physics-E2 (page 190)*
- *Introduction to Plasma Science-E2 (page 192)*

Originally from Russia, I received my Ph.D. from Moscow Engineering and Physics University. There I studied plasma-material interactions. In Japan I worked as a researcher on two big experimental devices: spherical tokamak QUEST in Kyushu University and Large Helical Device in Gifu prefecture. These devices are devoted to the development of the electrical powerplants based on the thermonuclear fusion.

In my introductory lectures for all majors, "Quest for Mathematics" and "Introduction to Plasma Science", there will be no need for complicated computations and any students are welcome. I will explain main concepts of complex numbers and how to understand and to use them. In the "Introduction to Plasma Science" you will learn about various types of plasma and I will share some of my experiences. The lecture "Elementary Course of Physics B" is oriented for those who did not learn physics at high school. This course covers Electrostatics and Thermodynamics. The course "Introduction to Quantum Physics" covers development of quantum mechanics and will introduce essential concepts and tools, such as wave functions and Schrodinger equation.

LAHOURNAT, Florence

Senior Lecturer
Disaster Prevention Research Institute

- *Introduction to Ritual Studies-E2 (page 83)*
- *Disaster and Culture-E2 (page 84)*
- *Interdisciplinary Sciences-E2 :Global Changes (page 321)*
- *ILAS Seminar-E2: Introduction to Cross-Cultural Communication (page 368)*

Florence Lahournat is a junior associate professor at the Disaster Prevention Research Institute. Her research interest is in cultural anthropology and material culture studies, with a special focus on Japan. She holds a PhD from the National Institute of Oriental Languages and Civilizations (Paris, France). As a cultural anthropologist, she is interested in the mechanisms of culture, particularly the adaptive nature of cultural practices: how human rituals – from habits to local traditional practices, adapt to changing circumstances. Part of her current research focuses on the link between local traditions and disaster-affected communities.

Message to the students: I have designed these courses as interactive spaces where students are expected to engage actively with the content and take an active part in the class experience. We will use class discussion, readings, student-led sessions and a variety of materials and activities to make the most of our time together. The objective of this interactive approach is for you to master new knowledge, as well as develop your communication skills. While no prior knowledge is required for these courses, an open-mind and the willingness to participate are expected.

LANDENBERGER, Kira Beth

Senior Lecturer
Graduate School of Engineering

- *Fundamental Chemical Experiments-E2 (page 203, 204)*
- *Revisiting Basic Organic Chemistry I-E2 (page 213)*
- *Revisiting Basic Organic Chemistry II-E2 (page 214)*

Profile: Kira Landenberger is currently pursuing research as well as teaching at Kyoto University in the Graduate School of Engineering in the Department of Polymer Chemistry as a Lecturer. She was born and raised in Michigan in the United States and earned her Ph.D. in Materials Chemistry at the University of Michigan studying the cocrystallization of small molecules under Professor Matzger. After completing her doctorate, she started post-doctoral research at Osaka University under Professor Aoshima studying the precision synthesis of stimuli-responsive polymers using living cationic polymerization. Her research interests include the synthesis, self-assembly and application of stimuli-responsive, functional polymer systems.

To the students: Revisiting Basic Organic Chemistry I and II are intended to follow the courses as provided one semester earlier and to give students a chance to review the information again in English. The seminar entitled "Smart Materials: Innovations in Materials Chemistry" is intended to equip students with a basic understanding of what might be defined as a smart material and how these materials are present in current research and applications and to inspire students to pursue creativity in future research or studies.

LEE, Shiu Hang

Senior Lecturer
Graduate School of Science

- *Elementary Experimental Physics-E2 (page 170)*
- *Introduction to General Astronomy-E2 (page 265)*
- *ILAS Seminar-E2: The Invisible Universe (page 371)*

I am an astrophysicist and a brand new staff member at the Department of Astronomy. Born in Hong Kong, I obtained my Bachelor degree from the Hong Kong University of Science and Technology (HKUST), and my PhD in Physics from Stanford University in the sunny California. I mainly study exploded stars (supernova!) and the beautiful nebulae they leave behind, among other cool things like cosmic-rays.

Message to students: my introductory lecture will bring you to the fascinating world of modern astronomy and astrophysics. We will start from our Solar neighborhood, and gradually depart into the vast interstellar space, seeing many awesome astrophysical objects en route through our Milky Way galaxy. We will then charge forward to encounter other galaxies and ultimately have an outlook over the Universe itself. Let's enjoy the cosmic journey together!

LIM, Sunghoon

Senior Lecturer
Graduate School of Engineering

- *Fundamental Physics A-E2 (page 166)*
- *Elementary Experimental Physics-E2 (page 170)*
- *Advanced Course of Electromagnetism-E2 (page 178)*

Sunghoon Lim has been a junior associate professor in Graduate School of Engineering, Kyoto University since June 2020. He recieved his Ph.D. degree from the Department of Automotive engineering at Hanyang University in Korea and worked at Kyoto University from 2017 to 2020 as a program specific researcher and specific assistant professor. His research is focused on the development of structural design method and optimization of high-efficient electromagnetic systems.

To the students: My classes are designed to help you understand basic concepts of dynamics and electromagnetism, and you will acquire the necessary mathematical background and specialized science knowledge to conduct your future research. The classes will not be difficult, but there will be a lot of participation from you. The classes will not be fast, but there will be a lot to think about. I hope to see you in class.

LINTULUOTO, Juha

Associate Professor
Graduate School of Engineering

- *Basic Organic Chemistry I-E2 (page 199)*
- *Basic Organic Chemistry II-E2 (page 201)*
- *Fundamental Chemical Experiments-E2 (page 203, 204)*

I studied organic chemistry at The University of Helsinki in Finland to obtain M.Sc. After working for a while in petrochemical industry, in 1993 I entered Kyoto University Graduate School of Engineering and later obtained PhD in Synthetic and Biological Chemistry. I have practiced a wide variety of chemistry, and involved in teaching of subjects such as engineering project management and economics. I am also teaching presentation skills for engineering students.

The above listed courses are (or will be) taught for undergraduate students on 2017.

I also teach Engineering Economy for Engineering Undergraduate Students, and Advanced Engineering Economy and Engineering Project Management for Graduate School Students. Also, in the future I will teach Supramolecular Chemistry for Graduate School Students (the course preparation is underway).

LOPEZ, Mario Ivan

Associate Professor
Center for Southeast Asian Studies

- *Cultural Anthropology I-E2 (page 88,90)*
- *Introduction to Globalization I-E2 (page 99)*
- *Introduction to Globalization II-E2 (page 100)*

I am a cultural anthropologist who works on transnational migration, care for ageing societies and sustainability issues in Southeast Asia and the Asian pacific region.

My introduction to globalization courses offer students the chance to engage and discuss core processes that underlie present day human movement and also learn about issues that impact contemporary societies. A series of themes act as stepping-stones for students to learn and explore the different aspects of globalization that play out in Asia-pacific, Southeast Asia, and other regions in the world. Students will look at themes such as modern-day migration, prosperity and growth, ageing, global consumption and our core values as a species.

My cultural anthropology courses offer students a chance to see how anthropology can have practical relevance in understanding modern day societies and cultures. Students will be introduced to the discipline's basic core concepts and all classes engage with real life examples to place the study of cultures and societies and issues in identifiable contexts with the aim of deepening student's knowledge and interest of other societies and cultures. One course will focus specifically on the broad diversity of gender experiences available in contemporary societies. It hopes to provide students with an analytical framework to contextualize gender diversity and its continual transformation over the past couple of centuries to situate our own experiences.

LUCE, Hubert

Professor
Research Institute
for Sustainable Humanosphere

- *Climate Change and Human Activities-E2 (page 327)*
- *Environmental Monitoring for Humanosphere-E2:Introduction to Humanosphere (page 329)*
- *ILAS Seminar-E2: Fundamentals of Earth's atmosphere dynamics and climate (page 373)*
- *ILAS Seminar-E2: Climate change impacts on the humanosphere (page 407)*

I obtained my Ph.D. in 1996 at the University of Toulon (France) in radar measurement physics. I then held two postdoctoral positions in Japan until 2002 before obtaining a permanent teaching position at the University of Toulon until 2020. I have been a professor at the Research Institute for Sustainable Humanosphere (RISH) since April 2021. My research aims to better understand dynamical processes in the atmosphere and to quantify small-scale turbulence using experimental approaches based on remote sensing and in situ measurement techniques. Better characterization of atmospheric turbulence is necessary for many aspects of the humanosphere.

The lectures and seminars focus, in part, on the problems of climate change and environmental degradation caused by human activities. They also describe the main mechanisms responsible for climate and weather, the impacts of their changes on the humanosphere and provide an overview of environmental monitoring to preserve the environment and protect life. The proposed courses are prepared and given in the spirit of encouraging interactivity and thus developing communication skills in English. No prior knowledge other than that acquired in high school for scientific and mathematical aspects is necessary.

MA, Teng

Program-Specific Senior Lecturer
Graduate School of Economics

- *Contemporary Economics I-E2 (page 117, 118)*
- *Contemporary Economics II-E2 (page 119, 120)*

I am a senior lecturer at the Graduate School of Economics, Kyoto University. I received my Ph.D. degree in Economics from the Kobe University. My field of interest includes environmental economics and energy economics. My recent research focuses on promotion of renewable energy in electricity market, and air pollution control in the thermal power sector.

Message to students: Contemporary Economics I & II are two-semester introductory courses that teach the fundamentals of macroeconomics and microeconomics. Both macroeconomics and microeconomics are the really crucial aspect of economics, while macroeconomics takes a topdown approach and looks at the economy as a whole, and microeconomics focuses on supply and demand, and other forces that determine price levels, making it a bottom-up approach. After completing this course, I hope students should have developed a range of skills enabling them to understand economic concepts and use those concepts to analyze specific questions.

MACINTOSH, Andrew

Associate Professor
Primate Research Institute

- *Conservation Biology-E2 (page 237)*
- *Animal Behavior-E2 (page 238)*
- *Comparative Cognition-E2 (page 240)*
- *Zoo Biology-E2 (page 242)*

I am a behavioral ecologist at Kyoto University's Wildlife Research Center working on a range of topics related to animal behavior, wildlife disease and behavioral and ecological complexity. I'm a graduate of Kyoto University (DSc) and the University of Calgary (MA, BSc) in my home country of Canada. My work has taken me to field sites in Central America, West Africa, East and Southeast Asia, including Japan, and even Antarctica. I teach a variety of courses related to behavioral biology and am a strong proponent of critical thinking, analytical reasoning, and the communication of science. My courses are all about the scientific study of animals, their behavior and ecology, their conservation, and the mechanisms underlying their activities, from their genes to their minds. As a long-time student of animal behavior myself, I really look forward to embarking on these journeys with students enrolled in the courses. Watching animals in nature, at zoos or aquariums, at wildlife parks or sanctuaries, or even in the backyard is always rewarding, but discovering why animals do what they do or think what they think can bring our animal encounters to new heights. Join these courses if you want to learn more about the science of animal behavior, about the threats pushing animals across the planet towards the brink of extinction, and about how zoos and conservationists are using science to protect natural areas and endangered species before they are lost, so that we can all enjoy the natural world for generations to come.

MANALO, Emmanuel

Professor
Graduate School of Education

- *Introduction to Educational Psychology I-E2 (page 73)*
- *Introduction to Educational Psychology II-E2 (page 74)*
- *Introduction to Educational Studies I-E2 (page 75)*
- *Introduction to Educational Studies II-E2 (page 76)*

I am a New Zealander and a professor at the Graduate School of Education of Kyoto University. I completed a PhD in psychology at Massey University in New Zealand, and have previously held academic appointments at the University of Auckland in New Zealand and Waseda University in Tokyo. My research area is educational psychology: much of my research has focused on student use of learning strategies, like critical thinking, mnemonics, and diagrams in problem solving and communication. I have over a hundred research publications – including, recently, articles in journals like Quarterly Journal of Experimental Psychology; Thinking Skills and Creativity; and Mind, Brain and Education.

I have designed the courses I teach so that students will not only learn content about the education-related topics covered in those courses, but also develop their thinking and communication skills. Thus, in those courses, students do not just listen to me talking – they also have to complete various tasks, work collaboratively with other students, and report back on what they have achieved and opinions they have formed. I provide detailed information about the requirements and expectations of each course, and how exactly students will be assessed and graded.

MCLELLAN, Benjamin

Professor
Graduate School of Energy Science

- *Introduction to Mineral Resources-E2 (page 269)*
- *Introduction to Sustainable Development-E2 (page 323,324)*
- *Chemistry, Society and Environment-E2 (page 325)*
- *ILAS Seminar-E2: Logic, Critical Thinking and Argument (page 343)*

The courses I teach are described briefly below, but in general aim to bridge the natural and social sciences – hopefully providing useful alternative perspectives for students of both areas.

Introduction to Sustainable Development: Sustainability is a globally important, locally relevant, concept covering a broad range of academic disciplines and reflecting various aspects of society, environment and economy; and a critical issue of our time. This course encourages students to start the journey of understanding sustainability in context.

Chemistry, Society and Environment: This class will introduce some of the important chemical processes and products that shape modern society, as well as examining the influence that they have on the environment. Students will understand the importance of chemistry and its role in the modern world.

Logic, critical thinking and argument: It is important to be able to process information that is presented to us with an understanding of the implications of certain arguments – both the stated and the unstated. Moreover, it is important to be able to present our own information clearly, with justifiable conclusions. Students will participate in extracting themes, understanding bias in documents and in their own work, and in critically analysing documents to develop their writing skills.

Introduction to Minerals Resources: Many of the products and services that we use today rely heavily on minerals extracted from the Earth`s crust. This subject will help students understand how these minerals are geologically accumulated and industrially extracted, so that they can understand the limitations and potential of these resources. It will also address the social, economic and environmental implications of these resources and processes.

MURDEY, Richard James

Senior Lecturer
Institute for Chemical Research

- *Analytical Chemistry and Forensic Science-E2 (page 217)*
- *Introduction to the Chemistry of Materials-E2 (page 218)*
- *ILAS Seminar-E2: Introduction to Organic Electronics (page 342)*
- *Research Ethics and Integrity (Science and Technology) (page 411)*
- *Research Ethics and Integrity (Life Science) (page 414)*

I grew up in Canada and England. I speak English and Japanese. Problem solving, investigation, insight, and curiosity are important skills for scientific research. I would like to teach you those skills - and help you improve your English abilities! - while you learn about science. In my two regular courses, Introductory Analytical Chemistry and Introductory Electrochemistry, these relatively advanced subjects will be broken down into smaller, more manageable 'bite-sized' parts which you don't have to be a chemistry major to understand. They will focus on modern techniques and topics. The ILAS Seminar course on Organic Electronics seminar is more about technology and applications. We will look at a topic like "Let's make a light emitting diode from conductive plastics!" and illustrate how these electronic devices work and how they are made. Want to know how your iPhone display works? My ILAS seminar would be the place to learn that.

MURPHY, Mahon

Associate Professor
Graduate Shool of Law

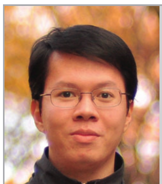
- *Japanese Popular Culture I-E2 (page 53)*
- *Japanese Popular Culture II-E2 (page 54)*
- *International History 1900- to the Present-E2 (page 134)*
- *An International History of East Asia 1839-1945-E2 (page 135)*

Originally from Ireland, I completed my PhD in International History at the London School of Economics and Political Science (LSE). I am a global historian focused on the First World War with a particular interest in international law and the changing nature of imperialism during warfare.

The first course I teach an International History of the modern world from the beginning of the twentieth century to the present focusing on the main developments that have shaped the present such as the rise and fall of Communism, decolonization in Africa, Europe's trajectory from Fascism to integration, the current 'war on terror' and of course the two World Wars.

Second, I teach on the international history of East Asia from 1839-1945. This traces the global entanglements that shaped East Asian history from the first 'Opium War' in 1839 to Japan's defeat in the Second World War. It will look at Empire building and the resistance to it from the perspectives of the main geographical players.

Lastly, I teach two courses on Japanese popular culture in the modern period. Both courses look at popular culture as a site for struggle over personal and collective identities, international interaction, gender values, and how Japan's international image constantly shifted throughout the modern period. The first course focuses on popular culture from the Meiji period up to the Second World War. The second starts with the immediate post-war period up to the present day.



NGUYEN, Thanh Phuc

Senior Lecturer
Graduate School of Engineering

- *Basic Physical Chemistry(thermodynamics)-E2 (page 196)*
- *Basic Physical Chemistry(quantum theory)-E2 (page 197)*
- *Fundamental Chemical Experiments-E2 (page 203, 204)*

Profile: I was born and grew up in Hanoi, Vietnam. I came to Japan after my high school for further studies. After finishing one-year course of Japanese language at Osaka University of Foreign Studies, I entered the University of Tokyo. I received the BSc., MSc. and Ph.D. degrees in Physics from the University of Tokyo. After spending two years as a post-doctoral researcher at RIKEN and three years as an assistant professor at Institute for Molecular Science, I joined the faculty of Kyoto University in 2020. My research focuses on theoretical studies of physical and chemical properties of complex atomic and molecular systems.

To the students: Basic Physical Chemistry (Thermodynamics & Quantum Theory) are intended to introduce to students the basic knowledge of two fundamental and important subjects in the field of physical chemistry that studies the formation of molecules and substances, the nature and characteristics of chemical bonds and molecular structures, chemical equilibrium and chemical reactions. The knowledge learned from his course will be the foundation for studying all areas of chemistry as well as other related science and engineering disciplines.

PATAKY, Todd

Associate Professor
Graduate School of Medicine

- *Data Analysis Practice II-E2 (page 163)*
- *Structures and Mechanisms of Human Movement-E2 (page 302)*
- *ILAS Seminar-E2: Let's Create 3D Computer Animations (page 378)*
- *ILAS Seminar-E2: Let's Simulate Human Movement (page 398)*

Profile: I am from Toronto, Canada's largest city and only 14 hours from Japan. I studied Kinesiology (Human Movement Science) and Mathematics as an undergraduate student at the University of Western Ontario from 1995 to 1999. I obtained a Ph.D. in Kinesiology and Mechanical Engineering from the Pennsylvania State University, USA in 2004. I then held postdoctoral research positions in functional neuroimaging and biomechanical simulation in Japan and the UK. At Kyoto University I am developing techniques to simulate, quantify, and objectively analyze complex three-dimensional human joint motion.

Lecture content: My lectures will cover a variety of topics related to my research including: human functional anatomy, computer modeling, numerical simulation, applied statistics and data science. Most of the skills you will learn can be applied to other courses, and also to a variety of real-world problems.

Message to students: In my lectures I aim to create an open environment, where students interactively work to solve problems based on fundamental concepts from lectures. Let's learn together, and let's build skills together! I'll do my best to give you a challenging but also enjoyable and memorable experience. I look forward to seeing you in class!

PERRON, Amelie

Senior Lecturer
Institute for Chemical Research

- *Basic Organic Chemistry I-E2 (page 200)*
- *Basic Organic Chemistry II-E2 (page 202)*
- *Everyday Life Chemistry-E2 (page 210)*
- *Organic Chemistry of Life-E2 (page 221)*

I am a Senior Lecturer at the Institute for Chemical Research of Kyoto University. After completing a Ph.D. in Neuroscience at McGill University (Canada), I have spent over ten years in Japan conducting research on fluorescent probes and transcription factor inhibitors at the Institute for Cell-Material Sciences (iCeMS) and RIKEN Brain Science Institute. My current research focuses on small chemical tools to better understand biology and control cell behavior.

My courses are intended for Japanese and international students interested in learning chemistry in English. "Basic Organic Chemistry I" and "Basic Organic Chemistry II" cover the fundamental concepts of organic chemistry, while "Organic Chemistry of Life" highlights revolutionizing ideas at the interface between chemistry and biology to spark off your creative power and make you generate your own ideas. Last but not least, "Everyday Life Chemistry" will explain the chemistry behind coffee, bacon, chocolate, shampoo and much more!

PETERS, Robert

Senior Lecturer
Graduate School of Science

- *Elementary Course of Physics A-E2 (page 172)*
- *Introduction to Statistical Physics-E2 (page 187)*
- *Analytic Dynamics-E2 (page 189)*
- *ILAS Seminar-E2: The Wonderful World of Quantum Physics (page 337)*

I am a Lecturer at the Kyoto University in the Graduate School of Science. I studied physics at the University of Göttingen, which became famous as one of the birth places of quantum mechanics 100 years ago. After my time in Göttingen, I worked in Kyoto and at RIKEN as a researcher. In my research I am interested in quantum theory, especially in quantum manybody phenomena. Bringing together many quantum particles at one place, fascinating and unimaginable things can occur. If you cool certain materials and put them above a magnet, the electrons in the material will arrange themselves, and the material begins to levitate. In other materials the electrons align when being cooled, and the material becomes a magnet. In my courses I will explain how to understand such phenomena. While in the courses of "Elementary Physics", "Analytic Dynamics", and "Introduction to statistical Physics" we will use mathematics to understand and predict the behavior of classical objects, in the seminar "The wonderful world of quantum physics" we will forget (nearly) all mathematics and learn about the fascinating phenomena possible in the quantum world.

PILLER, Garry John

Associate Professor
Graduate School of Agriculture

- *Introductory Plant Ecology-E2 (page 235)*
- *Principles of Horticulture-E2 (page 236)*
- *Introduction to Food Sustainability-E2 (page 332)*

I joined the Graduate School of Agriculture in April 2012, with teaching responsibilities in sustainable agriculture and scientific communication.

Prior to this, my career spanned from horticultural research in a research institute to agricultural extension in both the public and private sector. The latter was mainly undertaken in a developing country context. This extensive field experience brought home to me the value of mastering basic concepts, as well as the adaptability to quickly self-learn new skill sets, when and where needed. These two values underline my passion for my role (as I see it) here at Kyoto University as a "facilitator for capacity building" in the field of plant science.

My personal philosophy on education: "Education is not about content delivery, or teaching students "everything they need to know", but about capacity building: enabling students to become skilled, flexible, self -propelled learners, capable of taking on the next unknown challenge around the corner".

PINCELLA, Francesca

Senior Lecturer
Institute for Chemical Research

- *Chemistry for Non-Science Majors I-E2 (page 208)*
- *Chemistry for Non-Science Majors II-E2 (page 209)*
- *Chemistry of Natural and Human Environments-E2 (page 211)*
- *ILAS Seminar-E2: Sensors in Everyday Life (page 346)*

I am from Italy and my background is in experimental physics, more specifically colloidal science and optical spectroscopy. I have received my B.Sc. and M.Sc. in Physics at the University of Parma, Italy. In 2011, I moved to NIMS in Tsukuba, where I studied metal nanoparticles for photocatalysis and optical biosensors and in 2014 I earned a PhD in Materials Science and Engineering. In 2016 I moved from NUS Singapore to Kyoto University to work on nanoparticles catalysts for the valorization of woody biomass, a material with a great potential to replace fossil fuel as a future energy source.

In my classes I want to help students that are enrolled in non-science major programs to appreciate the importance, pervasiveness and beauty of chemistry. In Chemistry for non-science majors I and II, we will explore interactively how chemists come out with new theories. We will discuss every chemical concept introduced in the class, which is developed from the analysis of classical and beautiful experimental results. Students engagement will be highly encouraged. In Chemistry on Natural and Human Environments the students will learn the basics of environmental chemistry, and the importance of our daily actions to preserve our planet. In Sensors in Everyday Life, we will investigate the sensors we encounter in our daily lives and the new frontiers in chemo- and bio-sensors.

QURESHI, Ali Gul

Associate Professor
Graduate School of Engineering

- *Advanced Calculus I – Vector Calculus (page 149)*
- *Advanced Calculus II – Differential Equations (page 150)*
- *Fundamental Physics A (page 165)*
- *Fundamental Physics B (page 167)*
- *Advanced Scientific English-E3 (Debate) (page 314)*

Profile: Dr. Qureshi has earned a doctoral degree in Engineering from Department of Urban Management, Kyoto University. He has also got a Master of Engineering degree from the Asian Institute of Technology, Thailand, and a Bachelor of Engineering degree from Mehran university of Engineering and Technology, Pakistan.

Message and Courses Specialization (Liberal Arts and Sciences): A sound knowledge of advanced mathematics and basic sciences such as physics, are vital to be successful in a wide range of fields of studies in science including many fields of engineering. The courses on Advanced Calculus A and Advanced Calculus B introduce many basic and advanced topics, such as vector fields, line and surface integrals, differential equations and their solutions with some applications. Fundamental physics A covers the concepts of classical physics such as laws of motion, conservation laws of energy, momentum etc. A variety of topics related to electricity and magnetism are covered in the course on Fundamental Physics B. I believe teaching is also a form of learning, therefore, lets join to learn and explore together.

RAPPLEYE, Jeremy

Associate Professor
Graduate School of Education

- *Pedagogy I-E2 (page 63)*
- *Pedagogy II-E2 (page 64)*
- *Advanced Lecture for Pedagogy I-E2 (page 71)*
- *Advanced Lecture for Pedagogy II-E2 (page 72)*

What are you doing here at Kyoto University? How will you spend your short time here? At the center of any university is the interaction between students and teachers that we call 'teaching and learn'. This exchange seems easy and straightforward, but arguably nothing is more complex or more important. Strangely, however, most of us have never stopped to think deeply about how real learning occurs. What is learning? What is the best way to teach? What assumptions underpin common ways of teaching/learning in modern schools and universities? Is there any better way?

My classes will introduce students to the wonderfully complex world of education, specifically teacher-student relations, an interaction we simply call 'pedagogy'. Most of us think we know about pedagogy because we have attended school all our lives. You might ask: What could be so complicated? Come to my class and you will find out.

I grew up in California, attending Yale as an undergraduate and Oxford for my PhD. I have researched and/or taught at Japan's leading universities, including Tokyo University, Osaka University, and ICU. Now I am an Associate Professor at the Graduate School of Education at Kyoto University. For students aiming to become global leaders and escape a parochial outlook, I strongly recommend this course: differences in cultures and thought begin with the way we are taught in school. After taking my class, you will be able to think critically about how you are being taught in all your Kyoto University courses. I hope this will help you make the most of your short time here.

RAUDZUS, Fabian

Assistant Professor
Graduate School of Medicine

- *Basics of the Human Body-E2 (page 303)*
- *Introduction to Lifestyle Related Diseases-E2 (page 304)*
- *ILAS Seminar-E2: Physiological Neuroscience (page 357)*
- *ILAS Seminar-E2: Disorders of the Nervous System (page 408)*

Nowadays, we all have access to an abundance of information at any time and place. I believe that it is more important than ever to be able to evaluate this information and to understand overall concepts and their interconnection. Therefore, instead of overloading the lectures and seminars with details that will be forgotten soon, I want to generate a general understanding of the human body and especially the nervous system by elaborating the basic principles with the students.

In a globalized world, it is also essential to collaborate with other researchers from the same and other disciplines. To prepare the students for that, I want to create an atmosphere in my classes that encourage everybody to verbalize her/his ideas and to discuss subjects from different perspectives.

During my studies in biochemistry, I discovered my interest in signaling pathways and stem cells for neural regeneration. During my Bachelor`s and Master`s studies, I performed research on cell-permeable transcription factors for the direct conversion of e.g. fibroblasts to dopaminergic neurons. Subsequently, I was awarded the doctorate of natural sciences by the Ruhr-Universität Bochum, Germany for my research on the biofunctionalization of magnetic nanoparticles to remote-control the growth of nerve fibers. These biofunctionalized nanoparticles are aimed to be used for the non-invasive restoration of neural circuits in combination with cell replacement therapies.

After graduating, I moved to Kyoto and started as a researcher in the Center for iPS Cell Research and Application (CiRA) to continue my research on the modulation of signaling pathways for improving the survival as well as the functional integration of induced neurons upon transplantation.

ROBERT, Martin

Program-Specific Associate Professor
Graduate School of Pharmaceutical Sciences

- *Data Analysis Practice I-E2 (page 162)*
- *Introduction to Biological Data Analysis-E2 (page 250)*
- *Introduction to Computational Molecular Biology-E2 (page 251)*
- *Theory and Practice in Scientific Writing and Discussion (Pharmaceutical Sciences, English)B-E3 (page 311)*
- *ILAS Seminar-E2: Experiential short training course in basic life sciences using marine organism (page 381)*

I joined Kyoto University and the Graduate School of Pharmaceutical Sciences in September 2020. I'm trained in biochemistry and I obtained both my B.Sc. (1990) and PhD. (1996) from McGill University in my hometown, Montreal, in Canada. I worked several years in a Japanese Pharmaceutical company followed by academic research and the teaching of biological sciences at Keio University and Tohoku University. The focus of my research has been to understand bacterial metabolic function and also on the use of systems approach in biology to understand various cellular processes as well as collective behavior in bacteria. Although Canada is the country I was born and brought up in, I consider the Tohoku area as my second home having spent over 17 years in that beautiful and more remote area. I now hope to make Kyoto a comfortable new home with you.

The courses I will take charge of are introductory in nature. We will focus on data analysis for the biological sciences to learn basic methods to analyze and process common data types often encountered in molecular biology and biochemistry. Student-centered learning, individually and in small groups is what we will aim for and I hope to be your guide rather than your instructor. All you need to succeed is to come equipped with curiosity, the will to learn and to be prepared to interact and be active in the class. I look forward to interacting with you all.

SAHKER, Ethan Kyle

Assistant Professor
Graduate School of Medicine

- ***Logic I-E2: Sentential Logic and Deductions (page 23)***
- ***Logic II-E2: Quantificational Logic and Deductions (page 24)***
- ***Introduction to Medical Psychology-E2 (page 308)***
- ***ILAS Seminar-E2: Psychology of Addiction (page 358)***

Openness to new experiences is one of the most important personality traits. Because, when we have new experiences, we gain new understandings about the world, the people in it, and ourselves. My goal is to give students new experiences so they may develop new perspectives. I want my students to feel the freedom to express their thoughts and feelings while respecting others, which I believe is foundational to academic and intellectual growth. I aim to explain new content in its simplest form so students can incorporate a new understanding that makes sense based on their existing experience and perspective. In my logic courses I teach new ways of communicating and assessing arguments and opinions in effective ways. In my psychology courses I teach evidence-based behavioral health research and practice.

I am originally from Denver, Colorado, USA. I received my PhD in counseling psychology from the University of Iowa and completed my clinical residency at the University of California San Diego/US Department of Veterans Affairs. My post-doctoral training was done at Kyoto University in evidence-based behavioral health. My clinical specialty is in trauma-focused therapy and comorbid substance use disorders. My research specialty is in behavioral health and clinical psychology with an emphasis in the addiction treatment pathway.

SAMADDAR, Subhajyoti

Associate Professor
Disaster Prevention Research Institute

- ***Introduction to Risk Communication-E2 (page 81)***
- ***Introduction to Society and Community Studies-E2 (page 82)***
- ***Introduction to Urban Planning-E2 (page 103)***
- ***ILAS Seminar-E2: A Beginners' Guide to Carrying Out Field Surveys and Qualitative Research (page 349)***

I joined as an Associate Professor at Disaster Prevention Research Institute in Kyoto University. I have an interdisciplinary academic background including social anthropology, urban planning and disaster risk management. I did my PhD from Kyoto University, Japan and Master of Urban Planning from School of Planning and Architecture, New Delhi, India.

My academic interest encompasses at knowing why different people perceive risk differently, what are their motivations to take risk preventive actions and how these local people can be more meaningfully involved in the risk management process. I had the opportunity to conduct in-depth field surveys in in different countries such as - India, Bangladesh, and Japan and recently in Ghana (Africa) in different disaster risk contexts.

I believe the greatest source for human learning is to pursue their own individual motivations. So in my class I wish to encourage and stimulate students to pursue their own motivations, their own interests to learn the social system and explore the world around them. I wish that in my classes there will not be any hierarchy between teachers and students, but learning and teaching would be through reciprocal and interactive dialogues, exchanging ideas, learning mutually from real-life challenges and then to challenge the existing ideas and thoughts.

SCHMÖCKER, Jan-Dirk

Associate Professor
Graduate School of Engineering

- ***Advanced Scientific English-E3 (Debate) (page 314)***

My research interests are understanding people's travel behaviour and transport planning. This combines social psychology, operations research, economics as well as other disciplines. Exciting opportunities as well challenges arise in this research field nowadays through the availablity of "big data" and key developments such as sharing economy, electromobility and autonomous driving.

Together with six other teachers I am teaching the "English Scientific Debate". I hope students will learn to better express and discuss the complexities of challenges engineers face nowadays. We see this as an important topic also because putting successful research into practice often requires difficult discussions with different stakeholders. We hope this class can contribute to equipping students for this.

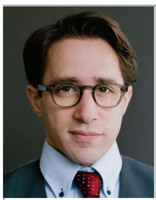
SVADLENKA, Karel

Associate Professor
Graduate School of Science

- ***Calculus with Exercises A (page 138)***
- ***Calculus with Exercises B (page 139)***
- ***Honors Mathematics A-E2 (page 154)***

Profile: Originally from Czech Republic, I got my PhD from Charles University in Prague and also from Kanazawa University, Japan. My research focuses on using mathematics (especially partial differential equations) to understand various natural phenomena, including modeling and numerical simulation.

Message: The calculus course provides the very basic knowledge necessary in any field of science and engineering, which has some connection to mathematics. This means mainly the differentiation and integration of functions of one real variable (first semester) and several variables (second semester). However, we will start from the fundamental concepts, such as “What is a real number?” or “How do we precisely define continuity?”. After finishing this course, you should be able, for example, to find maxima of a function, to compute volume of an object or to solve differential equation modeling some natural phenomenon. There are a lot of things to learn in order to master the basic calculus and everything has to be done precisely because it is mathematics. Nevertheless, I hope you will be brave enough to join the class and to learn math or maybe just to practice your scientific English.



TAJAN, Nicolas Pierre

Program-Specific Associate Professor
Graduate School of
Human and Environmental Studies

- ***Psychoanalysis-E2 (page 67)***
- ***Psychoanalysis II-E2 (page 70)***
- ***Psychopathology I-E2 (page 307)***
- ***ILAS Seminar-E2: Mental Health and Social Isolation in Japan (page 344)***

If you want to learn how to diagnose mental disorders (e.g., autism, schizophrenia, depression, bipolar disorder, PTSD), psychopathology class is the right place for you. Psychopathology is the interdisciplinary study of mental disorders, and my ILAS seminar introduces major disciplines contributing to the field. But wait a second. Why should we always think in terms of “disorders”? Are there other ways to approach human distress? Yes, there are, and one of them has a very specific status among scientific disciplines: psychoanalysis. My classes are a very rare and unique opportunity to learn from a psychoanalyst, in the academic setting, about Freudian and Lacanian theories and clinics.

Students sharing the ideal of an Enlightenment knotting East and West and willing to bring a renewed horizon for the next generations are warmly welcome to attend these classes. For their path to success in the global economy cannot be achieved without a genuine awareness of the burden, and the challenges of mental health issues.

In France, where I grew up, I had a clinical practice as a psychologist in hospitals, welfare services, guidance center, and I was trained as a psychoanalyst (2003-2011). Then I researched at Kyoto University Institute for Research in Humanities (2011-2017), Ritsumeikan University (2018), and I am now an Associate Professor at the Graduate School of Human and Environmental Studies, Kyoto University (2019-).

TAKENAKA, Mizuki

Associate Professor
Graduate School of Science

- ***Fundamentals of Cell and Molecular Biology-E2 (page 226)***
- ***Introduction to Plant Science-E2 (page 227)***
- ***Biological Sciences through Scientific Articles I-E2 (page 255)***
- ***Biological Sciences through Scientific Articles II-E2 (page 256)***

My Profile: After receiving the PhD at the Kyoto University, I worked at the Ulm University (Germany) until 2017. I am currently working at the laboratory of plant molecular genetic in the Graduate School of Science in the Kyoto University. My research interest is molecular mechanism of C to U RNA editing, which is indispensable for proper expression of gene function in plant organelles. Recent our data suggested different types of proteins form dynamic complexes to pursue the reaction. We are searching for missing components in the complexes and analyzing how the complexes assemble in plant organelles.

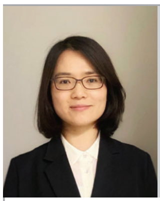
Message: Plant biology has been an important subject from the earliest study of life processes. Research on plant system will also tell us how to approach problems in agriculture, health, and the environment. In my lecture courses, I will teach basic of cell biology and plant biology with introduction of recent research topics. In the seminar courses, we will read recent scientific literatures especially on plant biology. You will be expected to learn basic skills for reading manuscripts, summarizing the contents, and giving presentations on them. You will be also encouraged to discuss the topics in English. However, you will not be expected to speak native-like English, therefore, don’t hesitate to express yourself at the course.

TANGSEEFA, Decha

Associate Professor
Center for Southeast Asian Studies

- ***Intercultural Communication I-E2 (page 59)***
- ***Intercultural Communication II-E2 (page 61)***
- ***Political Science I-E2 (page 108)***
- ***Political Science II-E2 (page 110)***

Although trained in political science and philosophy, I have since 2000 been conceptually situating my research at the intertwining relations of four notions: violence, difference, marginality, and temporality. It is thus crucial for my research to always blur different genres of various disciplines of the human sciences: political science, philosophy, anthropology, and history. My research fields lie at the nexus between migration studies and border studies, focusing especially on the Thai-Myanmar borderlands – a border region to where most of my publications on the following issues have devoted: death & atrocity; refugee; music & youth; ethnicity; marginal migrant workers; "cultural fluency"; community engagement; malaria elimination; and special economic zone. I approach my four courses – Political Science (I & II) and Intercultural Communication (I &II) – with such orientation and invite students to explore kaleidoscopic landscapes of "the political" and "the cultural" from their loci of enunciation.



TOU Shunhan

Associate Professor
Center for Southeast Asian Studies

- *Introduction to Economics-E2 (page 113)*
- *Principles of Economics-E2 (page 114)*
- *Economy and Society I-E2 (page 115)*
- *Economy and Society II-E2 (page 116)*

I am a lecturer at Institute of Economic Research, Kyoto university. My current research interests are mainly in the statistical analysis of non-stationary discrete stochastic processes.

The following is a brief overview of the courses I teach.

Lectures: (1) "Introduction to Economics" is an introductory course in economics, covering the essential economic concepts both qualitatively and quantitatively. It is designed to provide students with some ability to consider real world phenomena through economic thinking. (2) "Principles of Economics" illustrates and discusses the key principles of economics via examples and is suitable for students who enjoy mathematics and logical arguments associated with mathematics.

The seminars "Economy and Society I and II" provide student a hands-on introduction to the tools and techniques of quantitative social science using R programming. Students who are new to data analysis and statistics are also welcome.

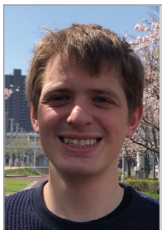
TASSEL, Cedric

Associate Professor
Graduate School of Engineering

- *Fundamental Chemical Experiments-E2 (page 203, 204)*
- *Introduction to Inorganic Chemistry A-E2 (page 219)*
- *Introduction to Inorganic Chemistry B-E2 (page 220)*

Cédric Tassel is an Associate Professor in the Department of Energy and Hydrocarbon Chemistry. He was born in France where he obtained a Bachelor and Master Degree in Solid State Chemistry from the University of Rennes I. Cédric holds a PhD in Engineering from the Graduate School of Engineering, Kyoto University. In 2012, he became a Hakubi Assistant Professor with his research focusing on the synthesis of novel oxide materials via exotic synthetic techniques. More recently, his interests are in the preparation of mixed anionic structures oxide-hydride and oxide-nitride towards the realization of functional materials.

To the students: The "Introduction to Inorganic Chemistry A•B" lectures will introduce the basic concepts of chemistry from the structure of atoms and molecules to the study of their bonding, interactions and reactions. Chemistry surrounds us and I hope that this course will provide students with a better understanding of its impact on our daily lives and environment.



THIES, Holger

Program-Specific Senior Lecturer
Graduate School of
Human and Environmental Studies

- *Information Network-E2 (page 284)*
- *Programming Practice (Python) -E2 (page 287)*
- *ILAS Seminar-E2: Introduction to Logic, Proofs and Programs (page 335)*

I am a Senior Lecturer at the Graduate School of Human and Environmental Science. I am originally from Germany and have received my undergraduate and Master degree in Mathematics and Computer Science from Darmstadt University of Technology. I moved to Japan in 2015 to pursue my doctoral studies at the University of Tokyo. I received my PhD from the University of Tokyo in 2018. Before coming to Kyoto, I worked for two years as an Assistant Professor at the Department of Informatics at Kyushu University in Fukuoka.

My research interests broadly lie in the intersection between Mathematics and Computer Science. In recent years I have mostly worked on the relation between the (discrete) theory of computation and continuous mathematics such as classical analysis, as well as the formalization of mathematics in proof assistants.

Knowledge about the basics of computer science are getting increasingly important in nearly all research fields and the knowledge of a modern programming language is a great skill that offers many opportunities. In my classes (e.g. Programming Practice Python), students can therefore learn skills that are definitely of great use, no matter what their major is.

THUERMER, Stephan

Associate Professor
Graduate School of Science

- *Thermodynamics in Everyday Life-E2 (page 216)*
- *Introduction to Surface Chemistry-E2 (page 222)*
- *ILAS Seminar-E2: What Are Liquids? Answers from Physics, Chemistry and Engineering (page 347)*
- *ILAS Seminar-E2: How to Study Atoms and Molecules with the Help of Light (page 384)*

Before coming to Japan in 2013 my home was Berlin, Germany. I initially studied and graduated in physics, but over time my research was drifting more and more towards chemistry. In my days as graduate student I became interested in studying the phenomena underlying chemical reactions on the molecular level in liquid water and solutions. I am continuing this work here at the Department of Chemistry. I study molecular properties in liquids using spectroscopy, that is, utilizing the interaction of light with matter to learn about processes on the invisible atomic scale.

The quest in natural sciences is always to think about and find the underlying mechanisms for the observed effects or processes. I would like bring this philosophy of exploration and critical thinking to the lecture as an important skill of scientific research. In the courses we look at phenomena which are closer to our daily experiences than the dry theory and without getting lost in difficult details. We approach topics from physical chemistry by working our way down from the observation in nature or use in technology to the underlying processes and finally chemical and physical laws. I encourage everybody to come to the courses who is interested to learn about nature's sometimes surprising laws and how these effect our lives from a physical chemistry viewpoint.

TRENCHER, Gregory

Associate Professor
Graduate School of
Global Environmental Studies

- *Introduction to Sociological Observation-E2 (page 80)*
- *Topics in Human Geography VIII-E2 (Governing Urban Sustainability Challenges) (page 95)*
- *Introduction to Sustainable Development-E2 (page 323, 324)*
- *Human-environmental Interactions-E2 (page 326)*

I obtained my Ph.D. from the University of Tokyo in the interdisciplinary field of sustainability science. After graduating, I have held appointments at Clark University in the United States and Tohoku University before coming to Kyoto University in April 2021. My research interests are mainly related to the governance of energy transitions (i.e. the process of moving to a carbon free society) and how to accelerate social and technological innovation for a sustainable society. I therefore focus on public policy, market trends and the behaviour of industry or societal actors in my research. Born in Australia, I have lived in Japan for 13 years in many wonderful locations such as Tsu, Tokyo, Sapporo, Sendai and now Kyoto. One of my hobbies is learning languages such as Japanese, Chinese and French and I study these every day.

Students taking my courses can expect to learn about fascinating and sometimes new or controversial environmental topics in an easy to understand and dynamic manner. I like to include many opportunities for interaction between myself or other students, real word case studies to illustrate difficult or theoretical aspects, and of course, as much humour as possible. Although I specialise in social science approaches in my environmental research, I like to also integrate insights from the natural sciences in my teaching. This is especially for topics such as climate change and the environmental impacts of agriculture. You can learn about these topics in classes like "Introduction to Sustainable Development E2" and "Human Environmental Interactions E2".

UEDA, Fukuhiro

Senior Lecturer
Research Institute for Mathematical Sciences

- *Quest for Mathematics II-E2 (page 147, 148)*
- *ILAS Seminar-E2: Encounters with Modern Arithmetic (page 362, 404)*

Ueda Fukuhiro is a researcher from Research Institute for Mathematical Sciences. He obtained his PhD in Mathematics from MIT, and had taught in the US for 5 years before joining in Kyoto University in 2016. He works on Arithmetic Geometry, which can be understood as the study of arithmetic problems using the tools from algebra and geometry. For teaching, he believes in continuous communication between teachers and students, and encouragement. He likes to discuss mathematics with students who enjoy mathematics, not only math majors but also students in other fields.

The materials taught in both classes are rooted in the ancient problems in number theory, which at the most basic level can be regarded as the study of the set of integers. On the other hand, the first class is with emphasis on elementary number theory, and the second class will focus on modern algebra, the foundation of algebraic number theory. He intends to make the classes accessible to most undergraduate and graduate students. In these classes, he will try to explain the basic concepts and solutions in mathematics with minimal requirements for the student's background. In the meantime, the classes will help the student improve their oral communication skill in English, via discussions and presentations.

VAN STEENPAAL, Niels

Associate Professor
Graduate School of Education

- *Japanese History I-E2 (page 37)*
- *Japanese History II-E2 (page 39)*
- *Japanese Intellectual History I-E2 (page 51)*
- *Japanese Intellectual History II-E2 (page 52)*

Despite widely held misconceptions, the discipline of history is not concerned with the past as such. The present is turning into the past as we speak and does not by that very fact suddenly gain in significance. What historians look for in history is not the past itself, but the changes that happened in it over time. History has no meaning other than in change. The realization that everything around us is subject to constant change is the essential precondition for historical inquiry. As such, it is the bare minimum that I hope to relay to my students my courses.

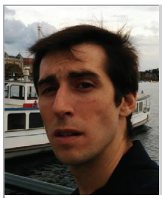
The true challenge of history, however, is trying to understand the reasons for change. After all, events unfold in complex socio-political circumstances, involving a variety of different actors each with different backgrounds, skills, and goals, thus making it extremely hard—if not impossible—to assign direct causality. The task of the historian is therefore not to decide on one single narrative of events, but to critically assess all possible narratives with an open mind. Getting the students to adopt such a historical viewpoint—both in and out of class— is the ultimate goal as a teacher of history.

VANDENBON, Alexis

Associate professor
Institute for Frontier Life and Medical Sciences

- *Introductory Statistics-E2 (page 157)*
- *Basic Data Analysis-E2 (page 160)*
- *ILAS Seminar-E2: Programming for Data Analysis (page 370)*
- *ILAS Seminar-E2: Introductory Bioinformatics (page 397)*

After studying biochemistry in Belgium, I completed a PhD degree in the University of Tokyo, where I investigated the sequence and structure of regulatory DNA sequences using bioinformatics. After graduating, I conducted research in the fields of bioinformatics and immunology in Osaka University, and since 2017 in Kyoto University. My main research interest is the regulation of gene expression. We are living in the age of "big data", and research is increasingly data-driven. But data is not the same as knowledge. Our goal is to extract knowledge from data, and this process is the focus of my courses. My course on statistics introduces how to analyze and draw conclusions from observations. The course on data analysis explores machine learning techniques to find patterns in data, and in the programming course you can learn how to write scripts to easily perform data analysis. Finally, the course on bioinformatics gives a broad introduction to data-oriented research in biology, genomics and proteomics.



VEALE, Richard Edmund

Assistant Professor
Graduate School of Medicine

- ***Introductory Statistics-E2 (page 156)***
- ***Introduction to Behavioral Neuroscience A-E2 (page 246)***
- ***Introduction to Behavioral Neuroscience B-E2 (page 247)***
- ***Processing and Analyzing Data I-E2 : Shell-based data processing fundamentals (page 291)***

We are brains situated in bodies situated in physical environments. Only by understanding the dynamic interactions between the brain, body, and environment can we understand things like mind and language. In his research, Richard collects data from humans and animals, and builds robotic models of their brains and bodies to better analyse and understand our fundamental question: how can the detrius of stellar explosions know itself? He describes his research as broadly in the field of "developmental neuro-robotics".

Richard teaches introductory neuroscience and statistics courses, and aims for students to acquire basic knowledge while also gaining excitement and appreciation for the amount that we do not understand on these fundamental topics.

Richard studied Philosophy (B.A.) and Computer Science (B.S.) at Ursinus College as an undergraduate, then moved to the Cognitive Science program at Indiana University where he completed his joint Ph.D. with Computer Science in 2014. Lured by various JSPS fellowships, he spent 2 years at the National Institute for Physiological Sciences in Aichi, Japan before moving to the Graduate School of Medicine at Kyoto University, where he is a member of the Department of Neurobiology.

WALINDA, Erik

Assistant Professor
Graduate School of Medicine

- ***ILAS Seminar-E2: Introduction to Biomedical Presentation and Debate (page 365)***
- ***ILAS Seminar-E2: Introduction to Life Science and Scientific Conversation (page 376)***
- ***ILAS Seminar-E2: Biochemistry Principles (page 387, 391)***

Research. After getting my degree in Biochemistry in Germany from the Free University of Berlin, I joined a PhD course at Kyoto University where I studied protein-protein interactions using biophysical methods such as calorimetry, fluorescence and nuclear magnetic resonance spectroscopy. I am particularly interested in a cellular pathway called macroautophagy, which is the degradation system of bulk matter such as the amorphous protein aggregates that are associated with all kinds of neurodegenerative diseases such as Huntington's, Alzheimer's and Parkinson's diseases. I am also always interested in developing new biophysical tools to analyze and understand protein motion and function.

Education. In all of my classes, students get the chance to talk and discuss in English. To join the class, you need a tiny bit of courage, but afterwards your speaking and listening skills will definitely be improved. You also learn about science. Yay! This year I will teach three ILAS seminars Presentation and Debate on Biomedical Science, Biochemistry Principles and Introduction to Life Science and Scientific Discussion. The presentation and debate class is an introduction on how to present your ideas to an international audience (in English). We focus on simplicity. We do not make things complicated. We also discuss and debate about some specific topics. The biochemistry seminar Introduction to Biochemistry introduces the field of biochemistry. We also solve biochemical problems in class to check our understanding. Introduction to life science and scientific discussion is something like a mixture of them. It has both presentation and molecular biology in it. It is my hope that all students enjoy their time here at Kyoto University and in the time being here discover some aspect of science that they truly interested in.

WANG, Tao

Associate Professor
Graduate School of Economics

- ***Introduction to Management-E2 (page 121, 122)***
- ***Contemporary Management-E2 (page 123, 124)***

Tao WANG is associate professor of management and organization at Graduate School of Economics. I received his PhD from emlyon business school in France. My research focuses on how the dynamics of organizations and management shape and are shaped by social structures and processes. More specifically, I am working on social valuation and evaluation organizational identity in hospitality and creative industries.

At ILAS I offer two courses: Introduction to Management and Contemporary Management. The former course is designed to provide an introduction to the fundamental principles of managing business organizations, covering a range of topics from strategy, organizational behavior, entrepreneurship, to leadership. The latter course focuses on the basic building block of management and our society – organizations, explores main theoretical orientations of organization theory, and analyzes management phenomena from modern, symbolic and postmodern perspectives.

Be a free spirit! As Jorge Luis Borges puts it, "So plant your own gardens and decorate your own soul, instead of waiting for someone to bring you flowers."

WENDELL, Roger

Associate Professor
Graduate School of Science

- ***Elementary Experimental Physics-E2 (page 170)***
- ***A Guide to Modern Physics A-E2 (page 183)***
- ***ILAS Seminar-E2 : Topics in Frontier Physics (page 338)***

Physics is a powerful tool for understanding the natural world starting from sets of fundamental principles. This is true of all branches of physics, from the classical study of motion with Newtonian mechanics, to the quantum mechanical description of radioactivity and beyond.

Moreover, our modern description of nature is built upon a foundation of experimentation and observation, which can be referenced or reproduced to reaffirm and propagate our understanding to others. Lecture material will accordingly be supported by concrete example and reference to relevant experiments.

While it may seem daunting to learn physics at any level in a foreign language, English is currently the primary language used to communicate ideas in the fields of science and technology, so training oneself early will provide access to a wide and wonderful world of scientific thought and inquiry.

Most of my research is dedicated to the study of neutrino oscillations and this pursuit brought me to Japan in 2008. Primarily I work on the Super-Kamiokande experiment, which was awarded the 2015 Nobel Prize in physics, and the T2K experiment. Prior to joining the faculty of Kyoto University I was a researcher at the University of Tokyo's Institute for Cosmic Ray Research. Far prior to that I was born in and later trained in science at various institutes in the United States.

WILSON, Duncan

Senior Lecturer
Graduate School of Letters

- ***Introduction to Comparative Psychology-E2 (page 85)***
- ***Introduction to Primate Behavior and Cognition-E2 (page 86)***
- ***Digesting Scientific English-E3 (page 319)***
- ***Scientific Writing and Presentation in English-E3 (page 320)***

I am a comparative psychologist in the Department of Psychology. I graduated with a PhD degree from the Primate Research Institute, Kyoto University. Prior to studying in Japan, I completed a Master's Degree in Applied Animal Behaviour and Animal Welfare at the University of Edinburgh, and a Bachelor's Degree in Psychology at the University of Hull in the UK. My research uses a range of perceptual tasks from human psychology to understand the mechanisms underlying emotional attention in non-human primates. My recent projects have focused on face perception and facial expression in chimpanzees, capuchin monkeys and common marmosets.

In my courses you will learn about the major psychological approaches to understanding learning and behaviour in human and non-human animals. You will also acquire more specific knowledge about non-human primates, including their socio-ecological strategies, social systems and cognitive abilities. In addition, you will learn how to improve your scientific reading, writing and presenting skills in English through a variety of texts, discussions and practical exercises. Join these courses if you want to explore more about the fascinating world of animal behaviour and cognition, and become an effective science communicator.

WIRTZ, Fernando Gustavo

Senior Lecturer
Graduate School of Letters

- ***Japanese Philosophy I-E2 (page 29)***
- ***Japanese Philosophy II-E2 (page 31)***
- ***Philosophy of Nature I-E2 (page 33)***
- ***Philosophy of Nature II-E2 (page 35)***

Fernando Wirtz studied philosophy at the University of Buenos Aires and received his PhD from the University of Tübingen with a book on the philosophy of mythology in Schelling (Mohr Siebeck, 2022). After several postdoctoral stays in Japan and Germany he is currently assistant professor at Kyoto University. He is also a board member of the Society for Intercultural Philosophy. His main interests are: Japanese philosophy from the 20th century, German idealism and intercultural philosophy.

YI Wei

Associate Professor
Graduate School of Engineering

- ***Fundamental Chemical Experiments-E2 (page 203, 204)***
- ***Outline of Chemistry II (Its History and Fundamentals)-E2 (page 207)***
- ***ILAS Seminar-E2: A stroll around materials chemistry - Superconducting materials (page 361)***

Profile: Wei YI is an Associate Professor in the Department of Material Chemistry. He was born in China and earned Bachelor degree from University of Science and Technology Beijing. In 2010, He obtained Ph.D in Condensed Matter Physics from the Institute of Physics (IOP) Chinese Academy of Sciences (CAS), where his researches were focused on high pressure study of superconducting materials. After then, He came Japan and worked as a postdoctoral researcher in the National Institute for Materials Science Japan. He has been worked as an associate researcher, equivalent to associate professor, in the IOP-CAS (2014-2017). His research interests include new material research using high pressure and high temperature method, crystalline structure analysis, and characterizations of defect, impurity and optical properties in semiconductors.

To the students: The courses on "The Outline of fundamental Chemistry" are concerned the introduction of the basic concepts of chemistry from states and properties of matters and the changes that matter undergoes. Here you will learn various applications of materials and chemical reactions in modern world. Superconducting materials is one kind of substance without resistance. In the ILAS seminar "A Stroll Around Materials Chemistry: Superconducting Materials", you will be led into a wonderful and mysterious superconducting world. Discovery, phenomena, classification, and applications of various superconductors will be introduced.

YOUSEFFIAN, Shohab

Professor
Graduate School of Medicine

- ***Principles of Genetics-E2 (page 229)***
- ***Introduction to Molecular Biotechnology-E2 (page 230)***
- ***Introduction to Biochemistry-E2 (page 231, 233)***

Growing up I was always amazed how science could tell us about the past, present and future - dinosaurs, how our bodies work and next month's weather. I was particularly excited about biology; especially how genes controlled our lives. After studying genetics/ biochemistry at university, I traveled through Africa for several months and witnessed the tragic effects of hunger. I therefore returned to England, determined to help develop crops that could feed such people. After finishing my MPhil and PhD in plant genetics at Cambridge, I moved to Akita, where for the next 26 years I worked on plant molecular biology, developing novel resources for improving crop plants. Just recently, I have moved to Kyoto where I now hope to share my passion and wonder about our biological world. So, here I hope to show in my 'Biochemistry' course the common thread that runs throughout all life; in my 'Genetics' course, the intricate complexities of how genes function and are regulated, and finally through my 'Molecular Biotechnology' lectures how to exploit these resources for man's benefit while preserving our environment. There are still many basic questions and puzzles about life that must be answered so that all humanity can benefit from our advances, and I am certain that you are the ones that will solve these!

ZHOU, Yu

Senior Lecturer
Graduate School of Economics

- ***Introduction to Game Theory-E2 (page 125, 126)***
- ***Applied Game Theory-E2 (page 127, 128)***

I was born in Nanjing, a historical and beautiful city in China. I completed my bachelor and master in Nanjing University and obtained Ph.D in Economics from Osaka University. Before joining Kyoto University, I used to work at Osaka University and Waseda University.

My research interests include the areas of auction theory, market design, and applied microeconomics. I currently work on the structural analysis and auction designs of competitive equilibria in the matching models with and without market frictions.

I teach undergraduate game theory courses, which include the applied game theory and introduction to game theory. These courses aim at helping students understand the basic concepts, analytical tools, and models in the game theory. In addition, I also teach the courses of English for Economists. By reading and presenting the classical economic works, these courses enhance students' knowledge of fundamental and important thoughts of modern economics.

ZHU, Fan

Associate Professor
Graduate School of Science

- ***Introduction to Earth Science A (page 261)***
- ***Introductin to Engineering Geology (page 268)***
- ***Practice of Basic Informatics (page 273)***
- ***Scientific English II-E3 (Presentation & Discussion) (page 313)***

Dr. Zhu received his PhD in Civil Engineering from the Hong Kong University of Science and Technology. His research focuses on developing innovative computational methods and tools for simulating complex physical processes in engineering fields, especially in geotechnical engineering where understanding the properties of geomaterials is crucial. Dr. Zhu also holds a Professional Engineer license in the USA with multinational practical experience in design/construction of landfills, water remediation, slopes, foundations, tunnels and other urban geotechnical works.

Dr. Zhu teaches several courses at ILAS. In the introductory courses of engineering geology and earth science, students will be guided to gain a fundamental understanding of our earth – the past, present, possible future, the complex and interacting mechanisms in the earth system, as well as their impact on our engineering practice. Students will be encouraged to think about sustainable development for our future world. The course of practice of basic informatics will help students to gain basic skills of information technology, such as using of Latex, programming, and data plotting which will be useful throughout the college life and beyond.

ZWINGMANN, Horst Friedrich August

Professor
Graduate School of Science

- ***Introduction to Earth Science B-E2 (page 262)***
- ***Field Earth Science-E2 (page 267)***
- ***Advances Practice of Earth Science-E2 (page 271)***

Geologist investigating earthquakes and timing of tectonic processes.

Horst Zwingmann joined Kyoto University in 2015 as a Professor for Geotectonics. His research involves investigation of surface tectonic processes and constraining the timing of deformation zones using isotopic dating methods.

Research introduction to students: The understanding of geological fault processes is important for numerous reasons such as regional correlation of shallow fault activity, of critical importance for the evaluation of earthquake hazards with applications for civil engineering and resources exploration (ore bodies, hydrocarbons) and in accessing suitability of waste storage sites including nuclear waste.