Established parent

Requirements

Interdisciplinary Program in Life and Environmental Sciences

School of Life and Environmental Sciences

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG02011	Physics	1	1.0	1	FallAB	Thu4	2C403	Neves Marcos Antonio, Kokawa Mito	Introduction to physics for life and environmental sciences. Basic areas of mechanics, thermodynamics, and waves will be covered.	Lecture is conducted in English. face-to-face
EG02021	Mathematics	1	1.0	1	FallAB	Fri5	2B208, 2B209	Tofael Ahamed	Introduction to mathematics for life and environmental sciences covers application of calculus using applied differentiation and integration, logarithmic and exponential functions, first order differential equations, matrix and probability. This course emphasizes to solve problems related to life and environmental sciences using a wide array of mathematical solutions.	Lecture is conducted in English. face-to-face
EG02031	Statistics	1	1.0	2	FallC	Tue2, Fri1	2C407	Irving Louis John	Introduction to statistics for life and environmental sciences.	Lecture is conducted in English. face-to-face A part of this lecture is planned as face-to-face. Watch TWINS Bulletin Board and announcements on manaba for schedule of face-to-face classes. The class format and content may be changed due to COVID-19 infection status and other factors.
EG02041	Advanced Mathematics	1	1.0	2	SprAB	Thu6	2C403	Tofael Ahamed	In this course, students will have a short review of applied calculus and introduces with the advanced mathematics sections like geometrical meaning of differential equations, solution of ordinary and partial differential equations, numerical analysis and Laplace transformation. These advanced mathematical skills will be invaluable to them to interpret the concepts of modeling of real world problems related to life and environmental sciences.	Lecture is conducted in English. face-to-face
EG02211	Chemistry I	1	1.0	1	FallA	Tue/Fri 6	2D206	Kang Seung Won	Introduction to general chemistry for life and environmental sciences.	Lecture is conducted in English. face-to-face
EG02221	Chemistry II	1	1.0	1	FallB	Tue/Fri 6	2D206	Kang Seung Won	Introduction to general chemistry for life and environmental sciences.	Lecture is conducted in English. face-to-face
EG02231	Chemistry III	1	1.0	1	FallC	Tue5, Thu6	2D205	Kang Seung Won	Introduction to general chemistry for life and environmental sciences.	Lecture is conducted in English. face-to-face
EG03012	Paper Preparation and Presentation	2	1.0	4	FallC	by appointment		Kang Seung Won, Parkner Thomas	Preparation and help in writing the graduation thesis which is required towards the end of your fourth year. Also, preparation for the presentation of your results during the Presentation Meeting of all the graduation theses.	For students who started graduate research in spring semester Lecture is conducted in English. face-to-face Limited to Life and Environmental Sciences Undergraduate Students.
EG03022	Paper Preparation and Presentation	2	1.0	4	SprAB	by appointment		Kang Seung Won, Parkner Thomas	Preparation and help in writing the graduation thesis which is required towards the end of your fourth year. Also, preparation for the presentation of your results during the Presentation Meeting of all the graduation theses.	Lecture is conducted in English. face-to-face Limited to Life and Environmental Sciences Undergraduate Students.

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks

College of Biological Sciences

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EB50171	Animal Systematics II	1	1.0	2, 3	FallC	Wed4, 5	2B208, 2B209	Wada Hiroshi	Students will learn the methodology to understand the diversity of multicellular animals from the viewpoint of evolutionary biology. In particular, learn in detail the origin of the metazoans, the evolution of the diploblasts, mollusks, echinoderms, and chordates, and learn how to reconstruct the evolutionary history by comparing modern animals.	See Syllabus or recent information from manaba for detail. Open in even number years. Lecture is conducted in English. Biodiversity course. GloBE Course. face-to-face Who has credit of EB50121 or EB50131 is ineligible.
EB50211	Plant Taxonomy I	1	1.0	2, 3	SprAB	Fri2	2B508	Ishida Ken-ichiro	Diversity, classification, morphology, ultrastructure, life history and phylogeny of non-green algae – glaucophytes, rhodophytes, cryptophytes, chlorarachniophytes, euglenophytes, dinoflagellates, haptophytes, and stramenopiles.	See Syllabus or recent information from manaba for detail. Lecture is conducted in English. Biodiversity course. GloBE Course. Expected to attend all I, II, III through a year.. face-to-face EG20211 credit holders are ineligible.
EB50221	Plant Taxonomy II	1	1.0	2, 3	FallAB	Fri2	2B508	Nakayama Takeshi	Diversity, classification, morphology, ultrastructure, life history and phylogeny of green plants, including chlorophytes and land plants.	See Syllabus or recent information from manaba for detail. Lecture is conducted in English. Biodiversity course. Expected to attend all I, II, III through a year.. face-to-face EG30221 credit holders are ineligible.
EB59101	Protistology	1	1.0	2 – 4	FallC	Fri2, 3	2B412	Ishida Ken-ichiro, Kuwayama Hidekazu, Degawa Yosuke, Nakayama Takeshi, Yabuki Akinori	Topics in protistology. Cellular evolution, cell biology, sex and reproduction, phylogeny and ecology of protists will be the subjects of this lecture.	See Syllabus or recent information from manaba for detail. Lecture is conducted in English. Biodiversity course. face-to-face EG39101 credit holders are ineligible.
EB59141	Vertebrate Morphology	1	1.0	2, 3	FallC	Thu4, 5	2B411	Suzuki Daichi, 矢野 十織, Koyabu Daisuke	The morphology of various vertebrates is compared and its evolutionary biological background is explained. In particular, the ancestors of vertebrates, diversity of jawless fish, fin morphology of teleosts, morphological evolution associated with terrestrialization, diversity of mammals, and evolution of marine mammals are explained from a comparative morphological viewpoint.	Biennially conducted in English (odd-number academic years) or Japanese (even-number academic years). Biodiversity course. face-to-face

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EB59151	Vertebrate Evolution	1	1.0	2 - 4	FallAB	Mon3	2B208, 2B209	Irving Louis John	This course looks at the major transitions during vertebrate evolution, particularly focussing on the transition between water and land, and the adaptations which facilitated that transition. The diversification of animal life on land, and the subsequent return of some groups to water will be studied. This course will have a strong evolutionary biology focus.	See Syllabus or recent information from manaba for detail. Lecture is conducted in English. Biodiversity course. GloBE Course. face-to-face EB59131 is ineligible.
EB60014	Programming I	4	1.0	2, 3	FallAB	Thu1		Tokunaga(Toquenaga) Yukihiko	In this lecture, students learn programing techniques for manipulating a variety of data. They will also learn simulation techniques with individual-based models. The programming language used is Ruby.	Lecture is conducted in English. Computational Biology & Bioinformatics Course. Online(Synchronous) EG20014 credit holders are ineligible.
EB62011	Genome Biology I	1	1.0	2, 3	SprAB	Tue1	2B412	Kuwayama Hidekazu	Lectures will cover basic knowledge on the structure and function of the genome, as well as technologies for DNA and genome analyses.	Lecture is conducted in English. Computational Biology & Bioinformatics Course. GloBE Course. face-to-face EG22011 credit holders are ineligible.
EB63111	Molecular Evolution I	1	1.0	2, 3	SprAB	Mon2		Inagaki Yuji	Molecular evolution is a research field that aims to elucidate the evolution of organisms based on information macromolecules such as DNA and proteins. In this lecture, the basic concepts of molecular evolution and the basics of molecular phylogenetic methods will be explained.	履修に際し、適宜、最新 のシラバスや manaba等の情報を確認してください Lecture is conducted in English. Computational Biology & Bioinformatics Course. GloBE Course. Online(partially face-to-face)
EB63141	Evolutionary Developmental Biology	1	1.0	2, 3					This course will focus on how molecular evolution of the genome and evolution of the morphology are related. After learned about several kinds of molecular evolutionary processes, students will learn how the genome construct the 3D morphology during embryogenesis. Combining what they learned about molecular evolution and developmental biology, students will learn several topics where the morphological evolution is linked with the molecular evolution of genome.	See Syllabus or recent information from manaba for detail. Open in odd number years. Lecture is conducted in English. Computational Biology & Bioinformatics Course. face-to-face
EB64021	Biometry II	1	1.0	2, 3	FallAB	Fri3		Tokunaga(Toquenaga) Yukihiko	This lecture introduces the dark side of statistics. Starting with randomization techniques, students learn relationships among different domains of statistical ideas: parametric, nonparametric, null hypothesis significance testing, information-theoretic methods, and the Bayesian methods.	See Syllabus or recent information from manaba for detail. Lecture is conducted in English. Computational Biology & Bioinformatics Course. Online(Synchronous) EG34021 credit holders are ineligible.

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EB64111	Theoretical Ecology	1	1.0	2, 3	SprAB	Thu1		Tokunaga(Toquenaga) Yukihiko	This course illustrates theoretical aspects of ecology with examples of laboratory experiments to connect mathematical expressions with ecological phenomena in nature.	Lecture is conducted in English. Computational Biology & Bioinformatics Course. Online(partially face-to-face). Online(Synchronous) EG34111 credit holders are ineligible.
EB71031	Cell Biology III	1	1.0	2, 3	FallAB	Thu3	2B508	Chiba Tomoki	Proteins are in a dynamic state, which is regulated by protein synthesis and degradation pathways. Each protein is degraded in a degree of selectivity, and its regulation is essential for the cell homeostasis and viability. In this class, we will learn the latest findings on the molecular mechanism of selective protein degradation and its physiological importance.	See Syllabus or recent information from manaba for detail. Lecture is conducted in English. Molecular and Cellular Biology Course. GloBE Course. face-to-face EB71131 or EG35131 credit holders are ineligible.
EB72121	Developmental Biology II	1	1.0	2, 3	FallAB	Tue3	2B508	Niwa Ryusuke, Kobayashi Satoru, Sasakura Yasunori, Yaguchi Shunsuke, HAYASHI MAKOTO, shimada yuko, okamoto naoki, CascoRobles Martin Miguel	A goal of this course is to understand several important topics about animal developmental biology. Lectures in this course particularly focus on sex determination, gametogenesis, metamorphosis, axis specification, neural development, and diseases.	Watch TWINS Bulletin Board and announcements on manaba for shedule of face-to-face classes. Lecture is conducted in English. Molecular and Cellular Biology Course. Human Biology course. GloBE Course. face-to-face(partially online)
EB72911	Marine Biology I	1	1.0	2, 3	SprAB	Wed3	2B508	Inaba Kazuo, Agostini Sylvain Leonard Georges	Lecture will give you several topics on physical, chemical and biological properties of ocean to understand the physiology, reproduction, development, biodiversity and ecology of marine invertebrates and fish. This class will especially focus on the following aspects of marine life: life cycle, locomotion, sensory reception, biomineralization, biogeochemical distribution, photosynthesis, respiration, calcification, nitrogen fixation and the impact of climate change. We will give examples of marine organisms under planktonic and benthic conditions and coral reef. The history and present situation of marine biology research will be also included.	Lecture is conducted in English. Molecular and Cellular Biology Course. GloBE Course. face-to-face EG22911 credit holders are ineligible.
EB72921	Marine Biology II	1	1.0	2, 3	FallAB	Wed3	2B508	Inaba Kazuo, Sasakura Yasunori, Yaguchi Shunsuke, Shiba Kogiku, Nakano Hiroaki, Wada Shigeki, Agostini Sylvain Leonard Georges	Lecture will provide several topics on marine organisms, including fertilization, cilia and flagella, gene-manupulation, development, self-non-self recognition, evolution, animal behavior, population ecology and marine environment. The teaching staff of Shimoda Marine Research Center will tell you about recent progress of their own research.	See Syllabus or recent information from manaba for detail. Lecture is conducted in English. Molecular and Cellular Biology Course. Online(partially face-to-face) EG32921 credit holders are ineligible.

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EB74111	Plant Physiology I	1	1.0	2, 3	SprAB	Fri1	2B411	Irving Louis John, Furukawa Jun, Miura Kenji, Ono Michiyuki	In this lecture, the relationship between various physiological phenomena and the environmental factors in the life history of higher plant will be overviewed for the understanding from the viewpoint at whole plant to cell levels with adding the latest molecular biological findings.	Lecture is conducted in English. Molecular and Cellular Biology Course. GloBE Course. face-to-face EG24111 credit holders are ineligible.
EB74131	Plant Physiology II	1	1.0	2, 3	FallAB	Fri1	2B411	Iwai Hiroaki, Suzaki Takuya	This lecture introduces several important topics for your further understanding of plant physiology, which includes recent advances in the research of vegetative and reproductive development, and symbiosis with microorganisms in higher plants.	See Syllabus or recent information from manaba for detail. Plant Physiology II (EB74131) Language is Japanese in odd-numbered years and English in even-numbered years. In 2023, the lecture is conducted Japanese. In 2024, the lecture is conducted in English. Students planning to take this course in English should take the course in 2024 or 2026. Molecular and Cellular Biology Course. face-to-face 1-5 : Hiroaki Iwai 6-10 (12 Nov to 17-Dec): Takuya Suzaki
EB74211	Metabolic and Physiological Chemistry I	1	1.0	2, 3	SprAB	Thu1	2B508	Suzuki Iwane	The main topics for this course will be photosynthetic energy conversion, primary and secondary carbon metabolism including C3, C4 and CAM metabolisms, photorespiration, and mitochondrial respiration.	See Syllabus or recent information from manaba for detail. Lecture is conducted in English. Molecular and Cellular Biology Course. GloBE Course. face-to-face EG24211 credit holders are ineligible.
EB74221	Metabolic and Physiological Chemistry II	1	1.0	2, 3	FallAB	Thu1	2B508	Minoda Ayumi, Irving Louis John	This course provides an overview of metabolism, which supports all life activities. In the first part of the course, we will discuss the following four topics; (1) Catabolism and Anabolism, (2) Energy conversion, (3) Nutrient transport and Assimilation, (4) Regulation of metabolic pathways. At the latter part, we will explore the environmental regulation of photosynthesis (light response, CO2 response) with the goal of understanding plant adaptations to different environments. We are welcome the students who did not take Metabolic Biochemistry Course I.	See Syllabus or recent information from manaba for detail. Lecture is conducted in English. Molecular and Cellular Biology Course. face-to-face Who has credit of EB74231 or EG34231 or EG34221 is ineligible.
EB82131	Chemical Ecology	1	1.0	2, 3	FallAB	Fri4	2C107	Yokoi Tomoyuki, Matsuyama Shigeru, Yamaji Keiko, Kinoshita Natsuko, Kuramitsu Kazumu	This lecture introduces chemical aspects of relationships between individual insects, animals, plants and microorganisms of the same (pheromone) or different (allelochemicals) species.	Lecture is conducted in English. Applied Biology course. face-to-face EB82131 credit holders are ineligible.

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EB83141	Plant Biotechnology I	1	1.0	2, 3	SprC	Intensive		Watanabe Kazuo, Kikuchi Akira, Ono Michiyuki	Lectures will cover topics on plant biotechnology including control of flowering time, circadian rhuythms, photoperiodic responses, organ size and responses to environmental stresses.	See Syllabus or recent information from manaba for detail. Open in even number years. Lecture is conducted in English. 7/8, 7/10 Applied Biology course. Online(Asynchronous). Online(Synchronous) Who has credit of EB83111 or EG33111 is ineligible.
EB83161	Biotechnology Literacy	1	1.0	2, 3					Topics covering ethical, legal and social issues in life & environmental sciences.	No online (on-demand) delivery. This course cannot be taken if it clashes with another course with overlapping times. See Syllabus or recent information from manaba for detail. Open in odd number years. Lecture is conducted in English. Applied Biology course. CDP. G-course. Online(partially face-to-face) Who has credit of EB83131 or EG23131 is ineligible.

College of Agro-Biological Resource Sciences

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG40012	Agro-Biological Resource Science, Exercises	2	1.0	1, 2	Sum Vac	Intensive		Yabar Helmut Friedrich	In this course, students improve understanding of future study by exercise and investigation of academic discipline and agenda in agrobiological resource sciences, and presentation of the results.	For English Program Students of the College of Agro-Biological Resource Sciences. Limited to students enrolled since 2020 (excepts students transferred in 2020). Lecture is conducted in English. face-to-face
EG41012	Research Seminar I	2	1.5	4	SprABC	by request		Chair and others	Topics in agro-biological resource sciences will be discussed with laboratory members and supervisor.	For students who start a graduation research from Spring Semester. Lecture is conducted in English. face-to-face
EG41022	Research Seminar II	2	1.5	4	FallABC	by request		Chair and others	Topics in agro-biological resource sciences will be discussed with laboratory members and supervisor.	For students who passed EG41012 or EG41032. Lecture is conducted in English. face-to-face

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG41032	Research Seminar I	2	1.5	4	FallABC	by request		Chair and others	Topics in agro-biological resource sciences will be discussed with laboratory members and supervisor.	For Students who start a graduation research from Fall Semester. Lecture is conducted in English. face-to-face
EG41042	Research Seminar II	2	1.5	4	SprABC	by request		Chair and others	Topics in agro-biological resource sciences will be discussed with laboratory members and supervisor.	For students who passed EG41012 or EG41032. Lecture is conducted in English. face-to-face
EG41052	Research Seminar I	2	2.0	4	SprABC	by request		Chair and others	Topics in agro-biological resource sciences will be discussed with laboratory members and supervisor.	For students who start the graduation research from Spring Semester. Lecture is conducted in English. face-to-face
EG41062	Research Seminar II	2	2.0	4	FallABC	by request		Chair and others	Topics in agro-biological resource sciences will be discussed with laboratory members and supervisor.	For students who passed EG41052 or EG41072. Lecture is conducted in English. face-to-face
EG41072	Research Seminar I	2	2.0	4	FallABC	by request		Chair and others	Topics in agro-biological resource sciences will be discussed with laboratory members and supervisor.	For students who start a graduation research from Fall Semester. Lecture is conducted in English. face-to-face
EG41078	Graduation Research I	8	3.0	4	SprABC	by request		Chair and others	Each student engages in research work in laboratory on specific theme under supervisor.	For students who start the graduation research from Spring Semester. Required a special permission by the Dean of the college of Agro-Biological Resource Sciences. Lecture is conducted in English. face-to-face
EG41082	Research Seminar II	2	2.0	4	SprABC	by request		Chair and others	Topics in agro-biological resource sciences will be discussed with laboratory members and supervisor.	For students who passed EG41052 or EG41072. Lecture is conducted in English. face-to-face
EG41088	Graduation Research II	8	3.0	4	FallABC	by request		Chair and others	Each student engages in research work in laboratory on specific theme under supervisor.	For students who passed EG41098 or EG41078. Required a special permission by the Dean of the college of Agro-Biological Resource Sciences. Lecture is conducted in English. face-to-face
EG41098	Graduation Research I	8	3.0	4	FallABC	by request		Chair and others	Each student engages in research work in laboratory on specific theme under supervisor.	For Students who start the graduation research from Fall Semester. Lecture is conducted in English. face-to-face

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG41108	Graduation Research II	8	3.0	4	SprABC	by request		Chair and others	Each student engages in research work in laboratory on specific theme under supervisor.	For students who passed EG41098 or EG41078. Lecture is conducted in English. face-to-face
EG41118	Graduation Research I	8	5.0	4	FallABC	by request		Chair and others	Each student engages in research work in laboratory on specific theme under supervisor.	For students who start the graduation research from Fall Semester. Required a special permission by the Chair of the college of Agro-Biological Resource Sciences. Lecture is conducted in English. face-to-face
EG41128	Graduation Research II	8	5.0	4	FallABC	by request		Chair and others	Each student engages in research work in laboratory on specific theme under supervisor.	For students who passed EG41118 or EG41138. Required a special permission by the Chair of the college of Agro-Biological Resource Sciences. Lecture is conducted in English. face-to-face
EG41138	Graduation Research I	8	5.0	4	SprABC	by request		Chair and others	Each student engages in research work in laboratory on specific theme under supervisor.	For students who start the graduation research from Fall Semester. Required a special permission by the Chair of the college of Agro-Biological Resource Sciences. Lecture is conducted in English. face-to-face
EG41148	Graduation Research II	8	5.0	4	SprABC	by request		Chair and others	Each student engages in research work in laboratory on specific theme under supervisor.	For students who passed EG41118 or EG41138. Required a special permission by the Chair of the college of Agro-Biological Resource Sciences. Lecture is conducted in English. face-to-face
EG50011	World Food and Agriculture	1	1.0	1	SprAB	Mon2	2C102	Kang Seung Won	This course introduces crop plants, domestic animals and their production in the world, in relation to economic and environmental issues.	Lecture is conducted in English. face-to-face
EG50041	Biochemistry	1	2.0	2, 3	SprAB	Thu4,5		Kimura Keiji,Kusano Miyako,Takeshita Norio,Yanagisawa Hiromi	Advanced biochemistry covers a wide area including molecular cell biology, molecular genetics, biotechnology, metabolism, and relates all current biological sciences. In this year, experts of three major classes of the organisms (microorganisms, plants, animals) give lectures from the professional points of view. This course provides an introduction to biochemistry for the undergraduates who are able to learn basic to applied knowledge of life and environmental sciences.	Lecture is conducted in English. Online(Asynchronous)

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG50061	Vegetation Ecology	1	1.0	2, 3	FallC	Intensive		Kawada Kiyokazu, Tsuda Yoshiaki, Tsumura Yoshihiko, Kamijo Takashi	Vegetation is a basic component that characterizes land areas and needs to be properly understood in order to realize sustainable use of biological resources. The purpose of this lecture is to understand the basics of vegetation and to understand the sustainable use of vegetation. The lecture will cover not only Japanese vegetation but also vegetation throughout the world such as tropical forests and deserts.	Lecture is conducted in English. face-to-face
EG50163	Fundamental Chemistry Laboratory	3	1.0	2	FallAB	Fri4-6	2B201, 2B203, 2B303	Yamada Kosumi, Shigemori Hideyuki, Ishida Junji, Ogawa Kazuyoshi, Nakagawa-Izumi Akiko, Nomura Nakao, Yang Yingnan, Nagumo Yoko, Masuo Shunsuke, Miyamae Yusaku	Chemical substances are existed around and within us everyday and everywhere. We will provide the students inorganic, physicochemical, and organic chemical property of them through the experiments. The students should be able to 1) separate, isolate, and identify chemical substances, 2) learn physicochemical property of them by analytical equipment, 3) know how to use labware and analytical equipment	Date and venue for orientation of G30: TBA; Number of G30 students are limited to 12. Identical to EC12163. 10/4-11/1, 11/15-11/22 face-to-face
EG50193	Fundamental Biology Laboratory	3	1.0	2	FallBC	Fri4-6	2B301, 2B303, 2D315, 2D316	Nomura Koji, Kinoshita Natsuko, Yawata Yutaka, Daitoku Hiroaki, Hagiwara Daisuke, Hirakawa Hidehiko, Takeshita Norio, Matsuyama Shigeru	生物学の各分野から、生物資源学類に必要な観察・実験の項目を選んで実施し、生命現象の基本について理解させる。	Class enrollment onto TWINS should be done by the end of September. Identical to EC12173. 12/6-12/20, 12/6-12/20, 12/6-12/20, 1/10-2/7, 1/10-2/7, 1/10-2/7 face-to-face
EG60012	Current Topics in Plant Biology	2	1.0	2, 3	FallC	Mon3, 4	2B207	Kinoshita Natsuko	This class will focus on current developments in plant biology by focusing on current, groundbreaking research shaping the field. Topics will differ each year. Topics may include herbivory stress, abiotic stress, chemical ecology, plant communication, bio imaging, synthetic biology, and precision agriculture. Students will read as well as lead discussions about current literature. Novel experimental techniques used to answer central questions will be emphasized. There will be a final project where students present a topic of personal interest related to the literature covered in the class. This course is recommended for students considering graduate work or independent study in related fields. The class will be taught in Japanese and English in alternate years.	Same as EC31012 The class will be taught in Japanese and English in alternate years. Open in even number years. Open in even number years. Lecture is conducted in English. face-to-face
EG60022	Seminar in Biosystems Engineering and Technology	2	3.0	3, 4	FallABC	Mon2, 3	2D307	Kitamura Yutaka, Neves Marcos Antonio, Tofael Ahamed, Nakajima Mitsutoshi	生物資源の利活用における技術や工学の体系すなわちBiosystems Engineeringに関する専門的かつ最新の研究や知見を，論文の概要作成やプレゼンテーションなどの演習を通じて学習する。	授業の多くを京都大学・国立台湾大学との共同・オンライン（英語）により行う。 EC33682を修得済みの者は履修できない。 Identical to EC33692. Lecture is conducted in English. distance learning. face-to-face
EG60023	International Training of Agriculture III	3	2.0	1 - 3	Annual	by appointment		Nomura Nakao	Field study program in European countries under 3 objectives; 1) To learn overview on agriculture and related industries 2) To discuss current issues related agriculture through seminars with local students 3) Field survey of the agricultural sites in the local areas	(インターンシップ)国外。 履修登録は事務で行う。 Identical to EC41133. Lecture is conducted in English. CDP. face-to-face

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG60033	International Training of Agriculture IV	3	2.0	1 - 3					Field study program in North America under 3 objectives; 1) To learn overview on agriculture and related industries 2) To discuss current issues related agriculture through seminars with local students 3) Field survey of the agricultural sites in the local areas	(インターンシップ)国外。ユタ州立・スノー大学等における短期研修。 Identical to EC41143. Not open in 2024. CDP. face-to-face
EG60043	Agricultural Internship Abroad V	3	2.0	1 - 3	Annual	by appointment		Kawada Kiyokazu	乾燥地域の協定校および企業等において、講義・体験実習・野外調査を通じて当該国における農業の特色及び地域性などを学び、さらに現地の学生・教員・企業者との交流を通じて国際的な視野に立ったキャリア意識を育成する。	(インターンシップ)国外。 Identical to EC41153. Lecture is conducted in English. face-to-face
EG60053	Agricultural Internship Abroad VI	3	2.0	1 - 3	Spring Semester Fall Semester	by appointment		Abe Junichi P.	ASEAN諸国等の協定校及び企業等において、講義・体験実習・野外調査を通じて当該国における農業の特色及び地域性なとを学び、さらに現地の学生・教員・企業者との交流を通じて国際的な視野に立ったキャリア意識を醸成する。	(インターンシップ)国外。 Identical to EC41163. Lecture is conducted in English. face-to-face
EG60063	International Training of Agriculture I	3	2.0	1 - 3	Sum Vac	Intensive		Nomura Nakao	Field study program in foreign countries under 3 objectives; 1) To learn overview on agriculture and related industries 2) To discuss current issues related agriculture through seminars with local students 3) Field survey of the agricultural sites in the local areas	(インターンシップ)国外。 履修登録は事務で行う。生物資源学類生優先 Identical to EC41013. Lecture is conducted in English. CDP. face-to-face
EG60071	Food Functionality	1	1.0	3, 4	FallC	Tue5,6	2B309	Isoda Hiroko,Ferdousi Farhana	Lectures will cover the topics in advanced food functionality including anti cancer, anti allergy, anti stress, anti obesity, neuronal regulation, melanogenesis regulation and the bioavailability of functional food factors.	Same as EC31391 Lecture is conducted in English. face-to-face
EG60101	Soil Science	1	2.0	3, 4	FallB	Intensive		Asano Maki	Fundamental ascpects of soils with regard to their genesis, physicochemical properties, management and the related environmental issues will be lectured, and the discussion on some selected topics will be treated as more advanced understanding of present status of soils in the changing world.	Same as EC32161 Lecture is conducted in English. face-to-face
EG60111	Environmental Ecological Engineering	1	1.0	3	FallAB	Wed3	2C404	Nomura Nakao	Lecture covers eco-engineering technologies to restore deteriorated environments including following major existing issues; 1) Rehabilitation of enclosed water bodies in terms of water and sediment quality improvement, 2)Biomass energy as a renewable energy and its effect on reduction of green house gas emission, 3) Impact of aquacultural industries on coastal environment including mangrove forest.	横断領域科目「環境」 Identical to EC32111. Lecture is conducted in English. face-to-face
EG60121	Food Process Engineering	1	1.0	3, 4	SprAB	Wed3	2G305	Neves Marcos Antonio,Kokawa Mito	This course introduces basic principles of fluid flow, heat transfer, and mass transfer phenomena, along with the application of these principles to the unit operations most commonly used in food processing, such as thermal processing, cooling, freezing, centrifugation, filtration, drying, size reduction and emulsification.	Same as EC42021 Lecture is conducted in English. face-to-face
EG60161	Environmental Colloid Engineering	1	1.0	3, 4	SprBC	Intensive		Kobayashi Motoyoshi	Applications of colloid and interface science to environmental issue and its basis are given. Focus will be placed on the floccuation which is important to control soil and water quality. Current topics related to microbiology and ecosystem will be lectured.	Lecture is conducted in English. face-to-face
EG60191	Biomass Conversion	1	2.0	3, 4	SprC	Intensive		Yang Yingnan	This course is designed to help you develop and understanding of the complex processes of biomass conversion. Lectures and discussions will focus on biomass sources, biomass conversion technology and process.	Limited to English Program students. Open in odd number year. Lecture is conducted in English. face-to-face

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG60232	Seminar in Applied Biological Chemistry	2	2.0	3, 4					The purpose of the course is to introduce and discuss the applied life sciences related to biochemistry of plant molecules, molecular and developmental biology, biology for gene regulations, ecological molecular microbiology, biomimetic chemistry, bioreaction engineering.	Open in odd number years. Lecture is conducted in English. face-to-face Not open in 2023
EG60252	Seminar in Agricultural Economics and Sociology	2	2.0	3, 4	Annual	by appointment		Shuto Hisato	This course aims to introduce the present issues of agricultural and forestry economics, and discuss the roles of rural society, farm management and forestry planning.	Students who are supervised by faculties in the Course of Agriculture and Forestry Social Sciences are eligible to enroll. Lecture is conducted in English. face-to-face
EG60272	Seminar in Quantitative Food Economics	2	2.0	2, 3	FallC	Mon3-6	2C407	Shuto Hisato	Exercises in estimation of food production and consumption based on economic theories, and discussions are performed to analyze the factors controlling supply and demand of foods.	Lecture is conducted in English. face-to-face
EG60361	Introductory Microbiology	1	1.0	2, 3	FallC	Thu3,4	2G205	Utada Andrew Shinichi	This lecture will introduce you basic microbiology including: 1, Diversity of microorganisms 2, Cell-structures 3, Metabolisms 4, Genetics 5, Their use in our life	Lecture is conducted in English. face-to-face
EG60401	Economics of Resource and Environment	1	2.0	3, 4	SprAB	Thu3,4	2C404	Shuto Hisato	Lectures will cover the topics in agricultural economy and resouce and environment including forest.	Open in even number years. Lecture is conducted in English. face-to-face
EG60411	Biomaterial Science	1	1.0	3, 4	FallAB	Tue2	2G305	Enomae Toshiharu,Nakagawa-Izumi Akiko,Obataya Eiichi	Fundamentals and applications of paper science and papermaking engineering will be provided and they cover chemical structures of polysaccharides constituting fibers, pulping methods for extracting fibers from wood, papermaking technology such as beating, forming, calendering and coating, and geometrical, mechanical, optical, water-related properties of paper as well as biomass plastics to replace petroleum-resourced plastics and latest research topics.	Lecture is conducted in English. face-to-face. interdepartmental course
EG60421	Soil and Water Bio-Engineering	1	1.0	3	SprC	Intensive		Yamashita Yuji,Yuan Tian	The course will be aimed at undergraduates and focus on discussing the science, technology and engineering for achieving sustainable soil and water systems. We will cover several important, emerging topics related to bio-technologies and bio-engineering for sustainable soil and water management. This course also covers a wide range of sectors of major concern in the development of bioengineering, including green energy, green water supply, green manufacturing, green agriculture, and green tourism / ecosystem service, from the perspective of soil-water nexus. This course generally covers three parts, namely (1) implementation of green sciences, (2) deployment of green technology and engineering, and (3) development of green services and its challenges.	It is recommended to take EG60161 together with this subject due to complementarity. EG60491 will also be helpful to understand this subject. Lecture is conducted in English. face-to-face

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG60491	Elementary Applied Thermodynamics	1	1.0	2, 3	SprAB	Mon4	2C107	Utada Andrew Shinichi	Thermodynamics is one of most fundamental subject when biological and envieromental issues are treated. In this lecture, the elementary thermodynamics will be explained with an orientation toward an application in life and environmental science. Lecture will start the concept of equilibrium system with an example of Brownian motion. It will be followed by the first and the second law of thermodynamics. Thermodynamic function, the concept of Gibbs free energy, chemical potential. Many example will be cited from the field of Colloid and Interface Science. Those, who want to join the lecture of environmental colloid engineering are strongly recommended to join this lecture.	Lecture is conducted in English. face-to-face
EG60551	Water Resources Management Engineering	1	1.0	3, 4	SprC	by appointment		Ishii Atsushi	This lecture aims to provide a fundamental understandings of water resources by giving introductory hydraulics and hydrology, natures of river flow, water use in various sectors with a special focus on irrigation, water resources development and management, hydrologic statistics, as well as institutional system for water.	Students are graduating on 31 Aug. have to contact an instructor. Lecture is conducted in English. face-to-face. interdepartmental course
EG60561	Water Environmental Management Technology	1	1.0	3	SprC	by appointment		Nomura Nakao	Lecture covers ecological technologies to restore water environments in enclosed water bodies with deteriorated sediment and water quality. Lecture also covers a case study of Lake Kasumigaura Water Renovation Project where several research studies was performed to rehabilitate water environment in large scale.	横断領域科目「環境」. 特別聴講学生(CiCプロジェクト参加学生を含む)のみ履修可. Cross-disciplinary subjects 「Environment」. Limited to Exchange Student (Tokubetsu Chokogakusei) including CiC Project. Lecture is conducted in English. face-to-face
EG60571	Introduction to Industrial Ecology	1	1.0	3	SprAB	Tue2	2G205	Yabar Helmut Friedrich	One of the biggest challenges societies face is decoupling economic growth from environmental pressure within the limits of the earth's carrying capacity. The highly inefficient use of natural resources from extraction to final disposal produces wastes and releases to air, water and soil. This course introduces the mechanisms and tools necessary to overcome this challenge through Industrial Ecology (IE). IE focuses on promoting industrial activities similar to processes in nature. This is achieved by optimizing energy and material resource use while minimizing and/or avoiding waste and pollution release. The course outlines the tools to achieve this goal including resource use optimization through the 3R Initiative, Life Cycle Assessment, and Material Flow Analysis. The course will also address the technical and management aspects including Environmental Management Systems, Cleaner Production and Design for Environment. At the end of the course the student will develop analytical skills and learn the tools necessary to design and implement solutions to the current production and consumption patterns.	Lecture is conducted in English. face-to-face

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG60581	Animal Cell Culture Technology	1	1.0	3	SprAB	Fri3	2C407	Nomura Nakao	Lectures cover basic knowledge about animal cell culture(cell cycle, growth factors, extra-cellular matrixes, cancer cells) as well as application of cultured animal cells(hybrid artificial organ, production of monoclonal antibodies, alternative for experimental animals). Lectures also provides basic information about biotechnological approached for setting up animal cell bioreactors.	Identical to EC32071. face-to-face
EG60601	Food and Nutritional Chemistry II	1	1.0	3, 4					The aims of this course are to understand i) physiological functions of nutrients such as carbohydrates, lipids, and proteins, ii) regulation of their metabolism, iii) relation of metabolic syndrome with exercise, overnutrition, and biological clock.	Same as EC32241 English Program Students who had received credits from EG60081 are not allowed. Not offered from 2024. Open in odd number years. Lecture is conducted in English. Not open in 2024. face-to-face
EG60611	International Agricultural and Forestry Policies I	1	1.0	2, 3	Sum Vac	Intensive		Shuto Hisato,Hagiwara Hideki,Asai Masayasu	Lectures will cover the topics in policies for agriculture, food, forestry, and environmental management related to agriculture and forestry in the world.	English Program Students who had received credits from EG60201 are not allowed. Open in even number years. Identical to EC34281. Lecture is conducted in English. Work Experience faculty. face-to-face
EG60621	International Agricultural and Forestry Policies II	1	1.0	2, 3					Lectures will cover the topics in policies for agriculture, food, forestry, and environmental management related to agriculture and forestry in the world.	English Program Students who had received credits from EG60201 are not allowed. Open in odd number years. Identical to EC34381. Lecture is conducted in English. Work Experience faculty. face-to-face
EG60631	Satellite Remote Sensing	1	1.0	2 - 4	FallC	Tue3,4	3D207	Nasahara Kenlo	Satellite remote sensing is a technology to observe Earth by artificial satellites in the space. We learn overview of its basics and its recent outcomes which highlight the escalating risks of the global environment changes.	Lecture is conducted in English. face-to-face
EG60641	Precision Agriculture Technology	1	1.0	2, 3	SprAB	Fri5	2D206	Tofael Ahamed	Lectures will cover the topics of precision agricultural technology. Recent advancements in the agricultural field of automation, satellite remote sensing, and GIS. The Bigdata analytics, IoT in agriculture and machine learning systems are used in medium to large scale of agricultural production. The outdoor agricultural mechanization to indoor plant growth monitoring and machinery utilization are the core subjects of this course. Through this course students will get exposure of large satellite remote sensing systems for agriculture, UAV-based crop monitoring and IoT advancements in agriculture.	Lecture is conducted in English. face-to-face

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG60651	Organic Chemistry	1	3.0	2	Annual	Tue1	2C410	Kajiyama Mikio	Basic structure and reactions of organic compounds are explained on the electronic theory.	Participation is permitted from spring semester of freshman. Lecture is conducted in English. face-to-face. interdepartmental course
EG60661	Renewable Energy and Bioresource Recycling Technologies	1	2.0	3	FallAB	Fri3,4	2D307	Kitamura Yutaka,Neves Marcos Antonio,Lei Zhongfang,Nakajima Mitsutoshi,Yuan Tian	As a part of advanced use for biological resources, we will explain the conversion and utilization technology of biomass to energy and materials. We will also overview the latest technologies and diffusion trends on renewable energy and consider constructing a resource recycling society utilizing renewable energy.	国立台湾大学とのジョイント講義(一部遠隔授業)。「バイオマス資源循環工学」(EC33281)及び「グリーンエネルギー工学」(EC33041)を修得済みの者は履修できない。 Identical to EC33651. Lecture is conducted in English. face-to-face
EG60663	Fundamental Environmental Engineering Laboratory	3	1.0	2	SprAB	Fri5,6	2D110-1	Nakagawa-Izumi Akiko,Utsumi Motoo,Kobayashi Motoyoshi,Neves Marcos Antonio,Mizunoya Takeshi,Yabar Helmut Friedrich,Lei Zhongfang,Kajiyama Mikio,Ishii Atsushi,Yang Yingnan,Sugimoto Takuya,Yuan Tian,Kokawa Mito,Obataya Eiichi,Asada Yohei,Yamashita Yuji,uchida tarou,Yamakawa Yosuke	水,土,圃場,森林,大気などの生産環境やバイオマス,食品などの生物資源を対象として,これらの特性を明らかにする諸理論,試験,計測,解析のための基礎的手法を理解・習得する。また実験を通じて,環境工学的なアプローチや科学技術研究における問題の発見とその解決のための実践的能力を養成する。 This course aims to provide basic concepts of environmental engineering necessary to analyze various phenomena present in environments, biomass, or bioresources.	生物資源学類生に限る(受入上限数30名)。「計測工学実験」(EC23113)、EC23113、EC23123を修得済みの者は履修できない。 Identical to EC23133. face-to-face
EG60671	Food Safety Control and Quality Evaluation	1	2.0	3	FallAB	Wed5,6	2D307	Kitamura Yutaka,Neves Marcos Antonio,Utsumi Motoo,Kokawa Mito,Nakajima Mitsutoshi	農産物や食品の物理・生化学的特性, 健康機能性および加工流通のためのポストハーベスト・食品加工の技術を学習する。また食品の安全安心のための基礎知識やマネージメントシステム, 関係法令や認証制度についても解説する。	国立台湾大学とのジョイント講義(一部遠隔授業)。「食品衛生学」(EC33071)、「食品機械工学」(EC33081)、「食品機能品質評価学」(EC33091)及び「食品衛生管理と品質評価学」(EC33661)を修得済みの者は履修できない。(コース共通)環境工学コース　社会経済学コース Identical to EC35091. face-to-face

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG60681	Contemporary Concepts of Inheritance	1	1.0	3, 4	FallAB	Thu2	2B207	Buzas Diana Mihaela	More than a century after Darwin and Mendel, and half a century after the discovery of DNA, the idea that biology is dominated by genes is being challenged. Instead, what is experienced within a generation (“the environment”) could also affect what is carried the next generation, as predicted early on by Lamarck. To create an outlook of the current ideology around inheritance, this course introduces the molecules and operating principles in genetic and epigenetic inheritance while looking at the methodological strategies leading to their discovery (especially role of model systems). The phenomena exemplified will expose a variety of aspects, from technologies currently penetrating into the society (PCR, CRISP CAS9 etc), issues of high interest (human evolution and disease, genetically modified crops etc) all the way to hypothetical views on new areas where epigenetic inheritance plays a role (especially human culture)and ethics.	Students in any departemnt (even outside biology) can take the course. Limited to 30 students. Lecture is conducted in English. face-to-face
EG60691	Systems Biotechnology	1	1.0	3	SprC	Tue3,4	2C403	Ying Beiwen,Utada Andrew Shinichi,Takeshita Norio	Students will learn principles, techniques, and applications for the quantitative understanding of living microorganisms and will acquire interdisciplinary knowledge and technologies spanning biology, engineering, computer and data science.	Identical to EC32201. face-to-face

College of Geoscience

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG70013	Laboratory Work in Basic Geoscience	3	1.0	1	SprAB	Thu4,5	1D109	Doan Quang Van,Fujino Shigehiro,Yamanaka Tsutomu,Tanaka Kohei,Matsui Keisuke,Yamashita Akio,Ikehata Kei,Kyono Atsushi,Kurosawa Masanori,Maruoka Teruyuki,Ikeda Atsushi	In this experiment, students learn basic methods and techniques for studying the geosciences through practical training in a variety of fields.	Lecture is conducted in English. face-to-face This class may be switched from face-to-face to online depending on the spread of infection and immigration status.
EG70021	Introduction to Geoenvironmental Science	1	1.0	1	FallAB	Fri1	2C407	Sugita Michiaki,Hattanji Tsuyoshi,Morimoto Takehiro,Kato Hiroaki,Kureha Masaaki,植田宏昭他,Kusaka Hiroyuki	Earth's environment is the main topic of this lecture. Emphasis is on the geoscientific aspects and features in the atmosphere, hydrosphere, topography, and human society among others are discussed.	Lecture is conducted in English. face-to-face Face-to-face
EG70031	Introduction to Earth Evolution Science	1	1.5	1	FallABC	Tue1	2C101	Kyono Atsushi,Ujiie Kohtaro,Yagi Yuji,Okuwaki Ryo,Kamata Yoshihito,Tsunogae Toshiaki,Fujino Shigehiro,Maruoka Teruyuki,Tanaka Kohei,Agematsu Sachiko	This lecture introduces 4.6 billion years evolution of the earth, mainly focusing on the evolution of solid earth, and the birth and evolution of life.	Lecture is conducted in English. face-to-face This class is taught by several teachers. This class may be switched from face-to-face to online depending on the spread of infection and immigration status.

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG90211	Natural Hazards	1	1.0	2, 3					This lecture overviews various natural hazards and their triggers, reviews historical and recent hazards and explores future prediction and mitigation against possible hazards.	「地球環境学A」、「地球環境学B」、または「地球進化学A」、「地球進化学B」を履修していること。内容については英語のシラバス参照。 Open in odd number years. Lecture is conducted in English. G-course. face-to-face
EG91011	Lecture on Geographical Information Systems	1	1.0	2, 3	FallC	Thu1, 2	1D301-1	Morimoto Takehiro, Yamashita Akio, Tsutsumi Jun	This course introduces fundamentals of Geographical Information Systems and its application to geography.	Open in even number years. Lecture is conducted in English. face-to-face
EG91081	Environmental Hydrology	1	1.0	2, 3	SprAB	Wed6	2D205	Asanuma Jun, Tsujimura Maki, Yamanaka Tsutomu, Sugita Michiaki	Basics on the hydrologic cycle are introduced. In addition, hydrologic aspects on environmental problems and ecology are discussed.	Prerequisite: Introduction to Geoenvironmental Science (or permission by the instructor). Priority for degree students of the School of Life and Environmental Sciences. Students, who attended EG91091, are not permitted. Course is held online (Microsoft Teams, synchronous & asynchronous). Lecture is conducted in English. Online(Synchronous) 試験のみ対面。
EG91101	Meteorology and Climatology	1	1.5	2, 3	SprABC	Wed1	2C310	Ueno Kenichi, Kamae Yoichi, Doan Quang Van	Elementary course about the general circulation of the atomosphere and the energy budget, mechanism of climate and and climate change, weather forecasting and precipitation, interactions of the atmospheric environment and human activities.	Offered in even number years. Students, who attended EG91031, are not permitted. Open in even number years. Lecture is conducted in English. face-to-face
EG91141	Human and Regional Geography	1	1.5	2, 3	FallABC	Thu4	2D305	Matsui Kenichi, Matsui Keisuke, Kubo Tomoko	This course introduces subjects and fundamentals of the human and regional geography by presenting actual examples of Japan and other regions of the world. Following the introduction of basic concepts of human geography, features of various regions will be explained from viewpoints of rural, urban, commercial, political, religious, recreational and ethic geographies.	Students, who attended EG80011, are not permitted. Lecture is conducted in English. face-to-face(partially online)

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days,Period etc.	Classroom	Instructor	Course Overview	Remarks
EG91161	Process Geomorphology	1	1.0	2, 3					This lecture focuses on physical processes that create and maintain landforms. Tectonic, glacial, fluvial and coastal processes, and weathering as well as mass movements are mainly discussed.	Offered in odd number years. Prerequisite: Both of "Introduction to Geoenvironmental Science" and "Introduction to Earth Evolution Science". Students, who attended EG91131, are not permitted. Open in odd number years. Lecture is conducted in English. face-to-face(partially online)
EG91171	Basic Analysis of Environmental Dynamics	1	1.5	2, 3	SprABC	Tue5	2B309	Onda Yuichi,津旨大輔,Matsushita Bunkei,Kato Hiroaki,Takahashi Junko	This lecture provides basic knowledge for analyzing environmental dynamics. In addition, the present state of environmental problems and its analysis methods are discussed.	Offered in even number years. Open in even number years. Lecture is conducted in English. face-to-face
EG91191	Landslides	1	1.0	2, 3	SprAB	Fri1	2B206	Parkner Thomas	This lecture covers the basics of landslides in geomorphic systems including (in)stability concepts and process types. Remote sensing techniques for landslide assessment are also introduced.	Offered in even number years. Students, who attended EG91181, are not permitted. Open in even number years. Lecture is conducted in English. face-to-face
EG91203	Field Work in Geoenvironmental Science I	3	1.5	2, 3					The goal of this course is to provide experience and background in a variety of field methods used by researchers in geoenvironmental sciences. The course will focus on hands-on field techniques for data gathering (observation, measurement, and others), mapping, and data analysis.	Offered in 2025. This course is offered every 3 years. Prerequisite: EG70013, EG70021 and EG91081. Permission by teachers. Lecture is conducted in English. 10/1-11/10,11/11-12/28,1/1-2/16,2/17-3/31 face-to-face Open every 3 years since 2022. Lecture is conducted in English. face-to-face

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG91213	Field Work in Geoenvironmental Science II	3	1.5	2, 3					The goal of this course is to provide experience and background in a variety of field methods used by researchers in geoenvironmental sciences. The course will focus on hands-on field techniques for data gathering (observation, measurement, and others), mapping, and data analysis.	Offered in 2025. This course is offered every 3 years. Permission by teachers. Lecture are conducted in English. Limited undergraduate students who have earned credits of Introduction to Geoenvironmental Science, Introduction to Earth Evolution Science, Laboratory Work in Basic Geoscience. Open every 3 years since 2022. Lecture is conducted in English. face-to-face
EG91223	Field Work in Geoenvironmental Science III	3	1.5	2, 3					The goal of this course is to provide experience and background in a variety of field methods used by researchers in geoenvironmental sciences. The course will focus on hands-on field techniques for data gathering (observation, measurement, and others), mapping, and data analysis.	Offered in 2023. This course is offered every 3 years. Permission by teachers. Open every 3 years since 2023. Lecture is conducted in English. face-to-face
EG91233	Field Work in Geoenvironmental Science IV	3	1.5	2, 3						Offered in 2023. This course is offered every 3 years. Prerequisite: EG91051 Geomorphology and EG91161 Process Geomorphology. Priority for degree students of the School of Life and Environmental Sciences. Others by permission of the instructor. Limited to several students. Open every 3 years since 2023. Lecture is conducted in English. face-to-face
EG91243	Field Work in Geoenvironmental Science V	3	1.5	2, 3	Annual	Intensive		Tsutsumi Jun, Yamashita Akio	The goal of this course is to provide experience and background in a variety of field methods used by researchers in geoenvironmental sciences. The course will focus on hands-on field techniques for data gathering (observation, measurement, and others), mapping, and data analysis.	Offered in 2024. This course is offered every 3 years. Prerequisite: Human and Regional Geography. Permission by teachers. Lectures are conducted both in English and Japanese. Open every 3 years since 2024. Lecture is conducted in English. face-to-face

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG91253	Field Work in Geoenvironmental Science VI	3	1.5	2, 3	Annual	Intensive		Onda Yuichi, 津旨大輔, Matsushita Bunkei, Kato Hiroaki, Takahashi Junko	The goal of this course is to provide experience and background in a variety of field methods used by researchers in geoenvironmental sciences. The course will focus on hands-on field techniques for data gathering (observation, measurement, and others), mapping, and data analysis.	Offered in 2024. This course is offered every 3 years. Permission by teachers. Open every 3 years since 2024. Lecture is conducted in English. face-to-face
EG92011	Mineralogy and Petrology	1	1.0	2, 3	FallAB	Wed3	2B207	Tsunogae Toshiaki, Kurosawa Masanori	This lecture provides basic knowledge for various minerals and rocks in the earth's surface and interior. Main purposes are to learn classification, basic principles and processes of the formations of the minerals and rocks (mainly igneous and metamorphic rocks) in the earth.	Open in even number years. Lecture is conducted in English. face-to-face Classes may be switched from face-to-face to online depending on the spread of infection and immigration status.
EG92021	Inorganic Geochemistry	1	1.0	2, 3					This course aims to introduce students to the chemical feature of our planet and basic principles for geochemistry and mineral chemistry.	Open in odd number years. Lecture is conducted in English. face-to-face
EG92031	Stratigraphy and Paleontology	1	1.0	2, 3	FallAB	Tue2	2B207	Tanaka Kohei, Kamata Yoshihito, Fujino Shigehiro	This lecture provides basic knowledge for sedimentology and paleontology and historical geology. Main purposes are to learn interrelationship between life and environment of geological time.	Open in even number years. Lecture is conducted in English. face-to-face
EG92041	Applied Structural Geology	1	1.0	2, 3					Structural geology and seismology with emphasis on its application side is the main topics of this lecture.	Open in odd number years. Lecture is conducted in English. face-to-face
EG92093	Field Work in Earth Evolution Science E	3	1.5	2, 3					In this field course students acquire basic field methods on geological science such as field description and mapping in a particular area.	The professor in charge, schedule, and place of the excursion will be announced as soon as they are decided. Prerequisite: Introduction to Geoenvironmental Science, Introduction to Earth Evolution Science, Laboratory Work in Basic Geoscience. Or permission by teachers. Open every 4 years since 2022. Lecture is conducted in English. Not open in 2024. Including field survey. face-to-face

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG92103	Field Work in Earth Evolution Science F	3	1.5	2, 3					In this field course students acquire basic field methods on geological science such as field description and mapping in a particular area.	The professor in charge, schedule, and place of the excursion will be announced as soon as they are decided. Prerequisite: Introduction to Geoenvironmental Science, Introduction to Earth Evolution Science, Laboratory Work in Basic Geoscience. Or permission by teachers. Open every 4 years since 2023. Lecture is conducted in English. Not open in 2024. Including field survey. face-to-face
EG90111	Topics on Earth Evolution Science A	1	1.0	2 - 4					This course introduces knowledge and recent developments on specific topic(s) in Earth Evolution Science.	Scheduled to be offered 2025. Open every 4 years since 2021. Lecture is conducted in English. Not open in 2024. face-to-face
EG90121	Topics on Earth Evolution Science B	1	1.0	2 - 4					This course introduces knowledge and recent developments on specific topic(s) in Earth Evolution Science.	Scheduled to be offered in 2027. Open every 4 years since 2023. Lecture is conducted in English. Not open in 2024. face-to-face
EG90131	Topics on Geoenvironmental Science A	1	1.0	2 - 4					This course introduces knowledge and recent developments on specific topic(s) in Geoenvironmental Science.	Offered in 2026. Open every 4 years since 2022. Lecture is conducted in English. face-to-face
EG90141	Topics on Geoenvironmental Science B	1	1.0	2 - 4	Annual	Intensive			This course introduces knowledge and recent developments on specific topic(s) in Geoenvironmental Science.	Offered in 2024. Open every 4 years since 2024. Lecture is conducted in English. face-to-face
EG90151	Topics on Geoscience A	1	1.0	3, 4	SprB	Intensive		Parkner Thomas	Students get in contact with the scientific community by attending the Japan Geoscience Union Meeting 2024 (5/26-31).	For Geoscience English program students only. Course is held hydrid (on-site and online). Lecture is conducted in English. face-to-face(partially online)

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EG90161	Topics on Geoscience B	1	1.0	2 - 4					This course introduces knowledge and recent developments on specific topic(s) in Geoscience.	Scheduled to be offered in 2025. Priority for Geoscience English program students. Students other than English program by permission of instructor. Up to 20 students. Open every 4 years since 2021. Lecture is conducted in English. Not open in 2024. face-to-face
EG90171	Topics on Geoscience C	1	1.0	2 - 4					This course introduces knowledge and recent developments on specific topic(s) in Geoscience.	Scheduled to be offered in 2027. Priority for Geoscience English program students. Students other than English program by permission of instructor. Up to 20 students. Open every 4 years since 2023. Lecture is conducted in English. Not open in 2024. face-to-face
EG90181	Topics on Geoscience D	1	1.0	2 - 4					This course introduces knowledge and recent developments on specific topic(s) in Geoscience.	Scheduled to be offered in 2026. Priority for Geoscience English program students. Students other than English program by permission of instructor. Up to 20 students. Open every 4 years since 2022. Lecture is conducted in English. Not open in 2024. face-to-face
EG90191	Topics on Geoscience E	1	1.0	2 - 4	Annual	Intensive			This course introduces knowledge and recent developments on specific topic(s) in Geoscience.	Scheduled to be offered in 2024. Priority for Geoscience English program students. Students other than English program by permission of instructor. Up to 20 students. Open every 4 years since 2024. Lecture is conducted in English. face-to-face
EG90303	Internship Program in Geoscience	3	2.0	2 - 4	Annual	by appointment		Kato Hiroaki, Agematsu Sachiko	Students have the opportunity to evaluate their own abilities and aptitudes through experiences at companies, research institutes, non-profit organizations, etc. The conditions for receiving credit include an agreement between the company and the school before the internship begins and a report from the company after the internship is completed. Students should register for the internship program after receiving informal consent from the company.	For Geoscience English program students. Lecture is conducted in English. CDP. face-to-face

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days,Period etc.	Classroom	Instructor	Course Overview	Remarks
EG92053	Field Work in Earth Evolution Science A	3	2.0	2, 3	FallABC	Intensive		Kamata Yoshihito	This class is a joint field excursion with students from Chulalongkorn University in Thailand. You observe strata and rocks on the continental block and compare them with Japanese rocks typical of subduction zones.	Open in even number years. Lecture is conducted in English. face-to-face
EG92063	Field Work in Earth Evolution Science B	3	2.0	2, 3					An excursion to observe accretionary and volcanic rocks representing subduction zones is held in Japan. Students from Chulalongkorn University in Thailand also participate in this class, and students discuss the differences in geology between the two countries.	Open in odd number years. Lecture is conducted in English. Not open in 2024. face-to-face
EG92073	Field Work in Earth Evolution Science C	3	1.5	2, 3	Annual	Intensive			In this field course students acquire basic field methods on geological science such as field description and mapping in a particular area.	The professor in charge, schedule, and place of the excursion will be announced as soon as they are decided. Prerequisite: Introduction to Geoenvironmental Science, Introduction to Earth Evolution Science, Laboratory Work in Basic Geoscience. Or permission by teachers. Open every 4 years since 2024. Lecture is conducted in English. Including field survey. face-to-face
EG92083	Field Work in Earth Evolution Science D	3	1.5	2, 3					In this field course students acquire basic field methods on geological science such as field description and mapping in a particular area.	The professor in charge, schedule, and place of the excursion will be announced as soon as they are decided. Prerequisite: Introduction to Geoenvironmental Science, Introduction to Earth Evolution Science, Laboratory Work in Basic Geoscience. Or permission by teachers. Open every 4 years since 2021. Lecture is conducted in English. Not open in 2024. Including field survey. face-to-face
EG71002	Seminar on Geoscience A	2	1.5	3	SprC	by appointment		Parkner Thomas	This class provides an overview on all laboratories of the College of Geoscience. Topics on all geoscience desciplines are discussed with members of each laboratory. Students identify 1-2 laboratories of their main interest.	For Geoscience English program students who start their Seminar on Geoscience in spring. Lecture is conducted in English. face-to-face

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EG71012	Seminar on Geoscience B	2	1.5	3	FallABC	by appointment		Parkner Thomas	In this class further information and discussion is provided on the laboratories identified by students in Seminar of Geoscience A. At the end of this class the laboratory for Graduation Research is identified.	For Geoscience English program students who started their Seminar on Geoscience A in spring. Lecture is conducted in English. face-to-face
EG71022	Seminar on Geoscience A	2	1.5	3	FallC	by appointment		Parkner Thomas	This class provides an overview on all laboratories of the College of Geoscience. Topics on all geoscience desciplines are discussed with members of each laboratory. Students identify 1-2 laboratories of their main interest.	For Geoscience English program students who start their Seminar on Geoscience in fall. Lecture is conducted in English. face-to-face
EG71032	Seminar on Geoscience B	2	1.5	3	SprABC	by appointment		Parkner Thomas	In this class further information and discussion is provided on the laboratories identified by students in Seminar of Geoscience A. At the end of this class the laboratory for Graduation Research is identified.	For Geoscience English program students who started their Seminar on Geoscience A in fall. Lecture is conducted in English. face-to-face
EG71102	Research Seminar A	2	1.5	4	SprABC	by appointment		Parkner Thomas, Dean and others	Topics on geoscience are discussed with members of a laboratory.	For Geoscience English program students who start their Research Seminar in spring. Lecture is conducted in English. face-to-face
EG71112	Research Seminar B	2	1.5	4	FallABC	by appointment		Parkner Thomas, Dean and others	Topics on geoscience are discussed with members of a laboratory.	For Geoscience English program students. Prerequisite: Research Seminar A. Lecture is conducted in English. face-to-face
EG71122	Research Seminar A	2	1.5	4	FallABC	by appointment		Parkner Thomas, Dean and others	Topics on geoscience are discussed with members of a laboratory.	For Geoscience English program students who start their Research Seminar in fall. Lecture is conducted in English. face-to-face
EG71152	Research Seminar B	2	1.5	4	SprAB	by appointment		Parkner Thomas, Dean and others	Topics on geoscience are discussed with members of a laboratory.	For Geoscience English program students. Prerequisite: Research Seminar A. Lecture is conducted in English. face-to-face
EG79018	Graduation Research A	8	3.0	4	SprABC	by appointment		地球学類長	Students undertake research in a laboratory where they become familiar with the most advanced research environments and practices.	For Geoscience English program students who entered by 2020 and start their graduation research in spring. Lecture is conducted in English. face-to-face

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EG79028	Graduation Research B	8	3.0	4	FallABC	by appointment		地球学類長	Students undertake research in a laboratory where they become familiar with the most advanced research environments and practices.	For Geoscience English program students who entered by 2020. Prerequisite: Graduation Research A. Lecture is conducted in English. face-to-face
EG79038	Graduation Research A	8	3.0	4	FallABC	by appointment		地球学類長	Students undertake research in a laboratory where they become familiar with the most advanced research environments and practices.	For Geoscience English program students who entered by 2020 and start their graduation research in fall. Lecture is conducted in English. face-to-face
EG79068	Graduation Research B	8	3.0	4	SprAB	by appointment		Parkner Thomas, Dean and others	Students undertake research in a laboratory where they become familiar with the most advanced research environments and practices.	For Geoscience English program students who entered by 2020. Prerequisite: Graduation Research A. Lecture is conducted in English. face-to-face
EG79118	Graduation Research A	8	6.0	4	SprABC	by appointment		Parkner Thomas, Dean and others	Students undertake research in a laboratory where they become familiar with the most advanced research environments and practices.	For Geoscience English program students who entered after 2020 and start their graduation research in spring. Lecture is conducted in English. face-to-face
EG79128	Graduation Research B	8	6.0	4	FallABC	by appointment		Parkner Thomas, Dean and others	Students undertake research in a laboratory where they become familiar with the most advanced research environments and practices.	For Geoscience English program students who entered after 2020. Prerequisite: Graduation Research A. Lecture is conducted in English. face-to-face
EG79138	Graduation Research A	8	6.0	4	FallABC	by appointment		Parkner Thomas, Dean and others	Students undertake research in a laboratory where they become familiar with the most advanced research environments and practices.	For Geoscience English program students who entered after 2020 and start their graduation research in fall. Lecture is conducted in English. face-to-face
EG79168	Graduation Research B	8	6.0	4	SprAB	by appointment		Parkner Thomas, Dean and others	Students undertake research in a laboratory where they become familiar with the most advanced research environments and practices.	For Geoscience English program students who entered after 2020. Prerequisite: Graduation Research A. Lecture is conducted in English. face-to-face

Course Number	Course Name	Instructional Type	Credits	standard registration year	Term	Meeting Days, Period etc.	Classroom	Instructor	Course Overview	Remarks
EG79178	Paper Preparation	8	7.0	4	SprABC	by appointment		Parkner Thomas, Dean and others	Students compose their graduation thesis under supervision of supervisors. This course also includes holding a research presentation at the field-wide graduation presentation meeting.	For Geoscience English program students. Take with Graduation Research B. Lecture is conducted in English. face-to-face
EG79188	Paper Preparation	8	7.0	4	FallABC	by appointment		Parkner Thomas, Dean and others	Students compose their graduation thesis under supervision of supervisors. This course also includes holding a research presentation at the field-wide graduation presentation meeting.	For Geoscience English program students. Take with Graduation Research B. Lecture is conducted in English. face-to-face