

SUSTEP (M)

専門基礎科目_環境科学関連科目 (SUSTEP)

科目番号	科目名	授業方法	単位数	標準履修年次	実施学期	曜時限	教室	担当教員	授業概要	備考
OAND001	Exercises in Environmental Sciences		2	1.0	1	秋AB	水3	理科系 C103 環境科学学位プログラム担当教員	This course aims to enhance the effectiveness of hands-on knowledge acquisition activities in "Field & Laboratory Practices in Environmental Sciences". Students are expected to master basic research skills, information ethics, group discussion/presentation, and data collection methodologies such as plant identification and waste management.	O1AD112, OAQT003と同一。英語で授業。対面授業或いはオンラインで実施する。OAQT003と同一。英語で授業。オンライン(オンデマンド型)。オンライン(同時双方向型)。対面

専門基礎科目_学術院共通専門基礎科目 (SUSTEP)

科目番号	科目名	授業方法	単位数	標準履修年次	実施学期	曜時限	教室	担当教員	授業概要	備考
0AH0316	Introduction to Environmental Sciences		1	2.0	1	秋AB	水1,2	理科系 C103 環境科学学位プログラム担当教員	環境に関わる地球規模課題に関し、水文学、生物学、生態系科学、分析化学、気候システム科学、都市工学、環境工学、社会科学、環境健康リスクなど、理工・情報・生命研究群全体を包括する多面的な観点から環境科学の基礎および応用を学ぶ。さらに地域から地球規模まで異なるスケールにおいて、環境科学に関する知識と環境問題の解決法の統合的な見方を養う。	0AH0316およびOAND001と同時履修を原則とする。英語で授業。対面授業或いはオンラインで実施する。英語で授業。オンライン(オンデマンド型)。オンライン(同時双方向型)。対面

専門基礎科目_研究群共通科目 (SUSTEP)

科目番号	科目名	授業方法	単位数	標準履修年次	実施学期	曜時限	教室	担当教員	授業概要	備考
OAN0403	Utilization and Recycling of Bio-resources		1	2.0	1・2	秋AB	金1,2	理科系 B107 雷 中方, 張 振亜, 内海 真生	The main purpose of this course is to help the students understand the followings: (1)Basic concepts in bioresource utilization and recycling; (2)Fundamentals of design for waste and wastewater utilization and recycling; and (3)Major technologies used for bioresource utilization and recycling. In addition, case studies, especially those relating to waste/wastewater treatment and biogasification projects are also included.	英語で授業。対面授業或いはオンラインで実施する。OAQT039と同一。その他の実施形態
OAN0405	Simulation of Environmental Policy		1	2.0	1・2	春AB	木1,2	理科系 C103 水野谷 剛	本科目では、環境政策の総合評価を行うために必要な経済学的知識と数学的知識、更にはそれらを用いた評価手法について概説する。本科目では特に、費用便益分析、産業連関分析の手法とその環境問題への応用について、具体的事例に基づいて関連知識と共に解説する。環境政策や環境経済に関し、基礎的、応用的知識及びその活用方法を具体的事例と共に学び、実際社会への適用を見据えた考え方が身に付く。	OAQT031と同一。英語で授業。オンライン(オンデマンド型)

専門科目_必修 (SUSTEP)

科目番号	科目名	授業方法	単位数	標準履修年次	実施学期	曜時限	教室	担当教員	授業概要	備考
OAND301	Lab Seminar in Environmental Sciences 1S		2	2.0	1	春ABC	応談	環境科学学位プログラム担当教員	In this course, students read academic papers on various environmental studies and discuss the contents.	
OAND302	Lab Seminar in Environmental Sciences 1F		2	2.0	1	秋ABC	応談	環境科学学位プログラム担当教員	In this course, students read academic papers on various environmental studies and discuss the contents.	
OAND303	Lab Seminar in Environmental Sciences 2S		2	2.0	2	春ABC	応談	環境科学学位プログラム担当教員	Students in this course read introductory papers and case studies on various environmental science fields and discuss solutions to actual problems.	
OAND304	Lab Seminar in Environmental Sciences 2F		2	2.0	2	秋ABC	応談	環境科学学位プログラム担当教員	Students in this course read introductory papers and case studies on various environmental science fields and discuss solutions to actual problems.	
OAND311	Thesis Seminar in Environmental Sciences 1S		2	2.0	1	春ABC	随時	環境科学学位プログラム担当教員	In this course, students receive instructions for writing master's theses. They acquire skills and knowledge for experiment, survey, and analysis methods that are relevant to a specific case.	
OAND312	Thesis Seminar in Environmental Sciences 1F		2	2.0	1	秋ABC	随時	環境科学学位プログラム担当教員	In this course, students receive instructions for writing master's theses. They acquire skills and knowledge for experiment, survey, and analysis methods that are relevant to a specific case.	

OAND313	Thesis Seminar in Environmental Sciences 2S	2	3.0	2	春ABC	随時		環境科学学位プログラム担当教員	In this course, students receive instructions for writing master's theses. They acquire skills and knowledge for experiment, survey, and analysis methods that are relevant to a specific case.	
OAND314	Thesis Seminar in Environmental Sciences 2F	2	3.0	2	秋ABC	随時		環境科学学位プログラム担当教員	In this course, students receive instructions for writing master's theses. They acquire skills and knowledge for experiment, survey, and analysis methods that are relevant to a specific case.	

専門科目 選択 (SUSTEP)

科目番号	科目名	授業方法	単位数	標準履修年次	実施学期	曜時限	教室	担当教員	授業概要	備考
OAND322	Environmental Science Practicum I	3	1.0	1・2	通年	応談		内田 太郎	Students perform the activities such as internship, a volunteer and the social experience-based activity in conjunction with the environmental science, more than 30 hours. Students make a plan beforehand, and the supervisors confirms it. Students submit the plan to Curriculum Committee to receive approval. After finishing the activities, students submit a report to Curriculum Committee.	英語で授業。
OAND324	Environmental Science Practicum II	1	2.0	1・2	通年	応談		内田 太郎	Students perform the activities such as internship, a volunteer and the social experience-based activity in conjunction with the environmental science, more than 60 hours. Students make a plan beforehand, and their supervisor confirms it. Students submit the plan to Curriculum Committee to receive approval. After finishing the activities, students submit a report to Curriculum Committee.	英語で授業。
OAND326	Environmental Science Practicum III	3	4.0	1・2	通年	応談		内田 太郎	Students perform the activities to acquire interdisciplinary practical skills via the actual place education, more than 120 hours. Students make a plan beforehand, and the supervisors confirm it. Students submit the plan to Curriculum Committee and receive approval. After finishing the activity, students submit a report to Curriculum Committee.	See guidance materials. 英語で授業。
OAND331	環境科学特講I	1	1.0	1・2	通年	応談		松井 健一, 内田 太郎	国内外の大学・研究所から講師を招き, 環境科学の先端研究に関する知識を習得するとともに, 学生の発表を交えた発展途上国での開発課題を議論, 分析することで, 国際的な視野とコミュニケーション能力を醸成する。	西暦偶数年度開講。
OAND332	環境科学特講II	1	1.0	1・2					国内外の大学・研究所から講師を招き, 環境科学の先端研究に関する知識を習得するとともに, 学生の発表を交えた発展途上国での開発課題を議論, 分析することで, 国際的な視野とコミュニケーション能力を醸成する。	西暦奇数年度開講。 オンライン(オンデマンド型), オンライン(同時双方向型), 対面
OAND341	International Field Appraisal I	3	1.0	1・2	通年	応談		張 振亜, ヤバールヘルムート, 雷 中方, 松井 健一	This course aims to deepen understanding about the cause, and state of environmental problems in overseas to find a potential countermeasure against them.	英語で授業。
OAND342	International Field Appraisal II	3	1.0	1・2	通年	応談		張 振亜, ヤバールヘルムート, 雷 中方, 松井 健一	This course aims to foster in-depth analytical skills for monitoring and identifying environmental problems in a local and global context by engaging in hand-on activities overseas.	英語で授業。
OAND354	Soil and Water Environmental Colloid Science	1	2.0	1・2	春AB	水1,2	生農 B201	足立 泰久	Introductory and fundamental lecture of colloid and interface science is given placing an emphasis on the application to soil and water, and bio and environmental engineering.	Introductory and fundamental lecture of colloid and interface science is given placing an emphasis on the application to soil and water, and bio-environmental engineering. 9:30-16:00 生農 B201 (Seinou B201). 英語で授業。
OAND361	Introduction to Water Environment	1	2.0	1・2	秋AB	木3,4	理科系 B107	辻村 真貴	This class aims to foster ability to understand principles of water resources issues in relation with regional issues based on scientific/ anthropogenic knowledge of hydrological cycle and water governance. The class consists of lectures on basics of hydrology and discussion on textbook of water governance/ policy.	The class is performed in Hybrid (Face to Face and online (synchronized and ondemand)). OAQT033と同一。英語で授業。オンライン(同時双方向型)

OAND362	Environmental Soil Science	1	2.0	1・2	夏季休業中	集中		田村 憲司, 浅野 眞希	Soil is a fundamental part that supports the natural ecosystems. This lecture deal with basic soil concept, basic soil chemistry, soil functions in ecosystems, soil genesis and classification, soil degradation and conservation, and the relationships between global environmental issues and soil. In this lecture, we will have brainstorming and group discussions on soil issues.	教室は生物農林学系棟 F206。 英語で授業。
OAND364	Environmental Microbiology	1	2.0	1・2	秋AB	火5, 6	理科系 C502	野村 暢彦, 豊福 雅典	Microorganisms are an important part of natural environments. Fundamental knowledge on environmental microbiology will be lectured. This lecture deals with the ecological role of microorganisms, the physiological state of microorganisms in the environment, microorganisms in extreme environments and application of microbial functions for conservation of environments.	英語で授業。 その他の実施形態 オンデマンド型及び同時双方向型で実施
OAND365	Remote Sensing	1	1.0	1・2	春AB	木5	理科系 B107	奈佐原 顕郎	リモートセンシング(大気や宇宙からの地球表面の観測)は、環境の監視と評価のための強力なツールである。この技術の原理、有用性、可能性を学ぶ。前提知識として、学部レベルの初等物理学、数学、地理学を学んでおくこと。	原則的に英語で実施する。状況に応じてオンラインで実施。 英語で授業。
OAND366	Introduction to Waste Management (Solid Waste Management Systems Planning)	1	2.0	1・2	春AB	金1, 2	理科系 B107	ヤバール ヘルムート	One of the greatest challenges modern societies face is finding ways to increase economic growth while minimizing resource consumption and environmental degradation. The highly inefficient use of natural resources, from their extraction to final disposal, is already damaging the planet because most of the extracted resources end up as waste. This class will introduce the main aspects concerning integrated waste management including current waste treatment technologies, strategies, policies and modeling of waste management systems.	OAQT035と同一。 英語で授業。
OAND367	Solid Waste Management Systems Planning	1	2.0	1・2	秋AB	月3, 4		ヤバール ヘルムート	In addition to health and safety concerns, the Planning of waste management systems must also be sustainable i.e. environmentally sound, socially acceptable and economically viable. This class introduces the tools necessary to design integral solid waste management systems. The class provides specific modeling based on life-cycle thinking towards planning of waste management systems through scenario design.	OAQT037と同一。 英語で授業。 オンライン(同時双方向型)
OAND369	Environmental Psychology	1	1.0	1・2	秋AB	火2	理科系 A504	甲斐田 直子	In this course, students learn theories and practices in decision making in diverse environmental issues ranging from natural resources utilization, pollution control and natural conservation based on economics, psychology and applied behavioral science. Students first learn theoretical backgrounds of environmental decision making and then different cases of environmental decision making at different levels such as individuals and households, groups (i.e., schools, offices), societies (i.e., communities, cities) and policies (i.e., countries, regions, global). Toward the end of the course, students discuss how to encourage pro-environmental behavioral change and decision making.	OAQT045と同一。 英語で授業。 オンライン(オンデマンド型)
OAND371	Environmental Field Appraisal	3	1.0	1・2	通年	応談		松井 健一, 張 振亜	This course invites students to visit some survey sties in Japan in order to develop analytical and assessment skills and heighten knowledge about some selected environmental science related topics.	詳細後日周知。 英語で授業。

OAND373	Introduction to Ecology	1	2.0	1・2	春AB	月3,4	理科系 B107	廣田 充, 横井 智之	Ecology is scientific study of interactions of organisms with one another (biotic environments), and with abiotic environments. As ever-increasing serious environmental issues at local to global scale, ecology is recognized as one of the fundamental science, because we have to learn and well-consider various relevant aspects on organisms and environments. This class will address fundamentals of ecology mainly focused on plants, insects, their relations, and its surrounding environments. Although I'll try to talk students who have little background on ecology and biology, please don't forget to make every effort to understand and to have flexibility to think for oneself.	英語で授業。
OAND376	Environmental Law	1	2.0	1・2	秋ABC	集中	理科系 B107	朝賀 広伸, 水野谷 剛	Content and purpose of this lecture is as follows. (1) Understand the principles and basic concepts of Environmental Law and Policy (including international law and domestic law) to solve the environmental problems of domestic and global environmental issues. (2) Outline the "framework of Basic Environment Law" and "Environmental Assessment Law", and other environmental laws. (3) Consider and discuss, for legal measures in developing countries and developed countries. As a result, develop the ability to understand and solve the environmental issues.	日程の詳細は後日掲示。 英語で授業。 オンライン(オンデマンド型)。対面
OAND377	Environmental Analysis and Planning	1	2.0	1・2	秋AB	月5,6	理科系 C502	村上 暁信, 山本 幸子	適切かつ持続可能な環境の実現を志向した、都市計画と土地利用解析の科学的基礎知識と技術を解説する。また、都市計画について、環境の観点から議論する際に必要な基礎知識の涵養を図る。都市計画の歴史、地図情報の読み取り、自然と都市、都市環境における緑地の役割、持続可能な景観計画等に関し、系統的に講義するとともに、演習・討論を含め授業を行う。	英語で授業。 オンライン(オンデマンド型)
OAND378	Applied Environmental Ethics (Introduction to English Presentation and Debate)	1	2.0	1・2	秋AB	月1,2	理科系 B107	松井 健一	This course aims to develop and refine your academic skills that are imperative in analyzing legal, social, and ethical implications of environmental issues. You are asked to actively participate in discussing, presenting, critically reading and writing about these issues so that you will be fully prepared for your internationally competent career as an environmental scientist or leader. Our topics for discussion include (1) environmental leadership/ diplomacy; (2) eco-economy; (3) rights of nature; (4) climate change; (5) LMOs and ELSI; (6) biological diversity and ecological service; (7) global bioethics; (8) cultural diversity and indigenous knowledge; and (9) innovative approaches to environmental ethics. The examination of these wide-ranging topics will not only enrich your knowledge about environmental ethics but also enlarge your academic background as environmental science communicator.	OAQT027と同一。 英語で授業。
OANE323	Vegetation Science	1	1.0	1・2	秋A	火1,2		上條 隆志, 清野 達之, 川田 清和	Vegetation is a major component of our landscape. In this course, students learn concepts of vegetation science, world vegetation, climatic and edaphical factors on distribution of plant communities, vegetation dynamics and human impacts on vegetation. Tropical rainforests, Japanese forests, deserts and grasslands are focused in this course. Students also learn field practices of vegetation survey.	理科系B107 01AH204, 02JZ010と同一。 その他の実施形態