

生命環境科学研究科 環境科学専攻（博士前期課程）
持続性科学・技術・政策(SUSTEP前期)プログラム

専門基礎科目(必修科目)環境科学・英語科目

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
01AD111	Introduction to Environmental Sciences		1	1.0	1	秋AB	水1	理科系 C103 張 振亜, 辻村 真貴, 村上 暁信, 水野谷 剛, 松井 健一, 横井 智之	This course introduces core issues in environmental sciences and approach them from both natural and social sciences. It aims to foster both global/local and highangle/lowangle views.	01AD112および01AD113と同時履修を原則とする 01AJ001と同一。 英語で授業。 01AD005と選択必修
01AD112	Exercises in Environmental Sciences		2	1.0	1	秋AB	水2	理科系 C103 水野谷 剛, ヤバール モスタセロ ヘルムート, 雷 中方, 奈佐原 顕郎	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, including plant identification and waste management.	01AD111および01AD113と同時履修を原則とする 01AJ002と同一。 英語で授業。 01AD006と選択必修
01AD113	Field and Laboratory Practices in Environmental Sciences		3	1.0	1	秋AB	水3,4	理科系 C103 水野谷 剛, ヤバール モスタセロ ヘルムート, 雷 中方, 奈佐原 顕郎	Keeping in mind of global and local environmental problems, this course aims to foster knowledge acquisition and problem-solving skills in practical and clinical settings. Students are expected to engage in field activities and acquire multidisciplinary skills and methods in natural sciences, social sciences and humanities that clarify, describe, solve and explain environmental problems.	01AD111および01AD112と同時履修を原則とする 01AJ003と同一。 英語で授業。 01AD004と選択必修

専門科目(必修科目)環境科学・英語科目

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
01AD114	Seminar in Environmental Sciences 1S		2	1.5	1	春ABC	応談	環境科学教員	In this course, students read academic papers on various environmental studies and discuss the contents.	01AD013と選択必修 英語で授業。
01AD115	Seminar in Environmental Sciences 1F		2	1.5	1	秋ABC	応談	環境科学教員	In this course, students read academic papers on various environmental studies and discuss the contents.	01AD014と選択必修 英語で授業。
01AD116	Seminar in Environmental Sciences 2S		2	1.5	2	春ABC	応談	環境科学教員	Students in this course read introductory papers and case studies on various environmental science fields and discuss solutions to actual problems.	01AD015と選択必修 英語で授業。
01AD117	Seminar in Environmental Sciences 2F		2	1.5	2	秋ABC	応談	環境科学教員	Students in this course read introductory papers and case studies on various environmental science fields and discuss solutions to actual problems.	01AD016と選択必修 英語で授業。
01AD118	Thesis Seminar in Environmental Sciences 1F		8	3.0	1	秋ABC	随時	環境科学 研究指導教員	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.	原則として春学期入学者のみ履修可 英語で授業。 01AD036と選択必修
01AD119	Thesis Seminar in Environmental Sciences 2S		8	3.0	2	春ABC	随時	環境科学 研究指導教員	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.	01AD037と選択必修 英語で授業。
01AD120	Thesis Seminar in Environmental Sciences 2F		8	3.0	2	秋ABC	随時	環境科学 研究指導教員	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.	01AD038と選択必修 英語で授業。

専門科目(選択科目)環境科学・英語科目

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
01AD081	International Field Appraisal I		3	1.0	1-2	通年	応談	水野谷 剛, 張 振亜, ヤバール モスタセロ ヘルムート, 雷 中方	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。

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
01AD082	International Field Appraisal 11	3	1.0	1・2	通年	応談		水野谷 剛, 張 振亞, ヤバール モスタセロ ヘルムート, 雷 中方	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。
01AD222	Soil and Water Environmental Colloid Science	1	2.0	1・2	春AB	木1,2		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. 01AB765と同一。英語で授業。9:30-16:00 生農 B201 (Seinou B201)
01AD301	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	01AH309, 01AJ302, 02AF112と同一。英語で授業。
01AD303	Ecological Soil Resources	1	2.0	1・2	夏季休業中	集中	理科系 C502	田村 憲司, 浅野 真希	土壌資源は、あらゆる生態系の基盤として、地球上の生命を育む貴重な資源である。本講義では、世界的特徴的な幾つかの異なる生態系における土壌資源、とくに、その分布・生成・性質および機能について詳細に解説すると共に、実際の土壌劣化・荒廃が生じている地域の土壌資源を例に挙げながら、土壌資源の管理・保全について学習する。	英語で授業。8/10, 8/13-8/14
01AD304	Environmental Analytical Chemistry	1	1.0	1・2	秋AB	木5	理科系 C502	末木 啓介	Environmental science encompasses the study of the whole human environment and in doing so makes use of all scientific disciplines. In a vast number of studies the need emerges for information on the composition of the parts of the environment concerned. Analytical chemistry employs physico-chemical principles to make measurements of chemical species. The practical sequence of operation which is used to obtain an analytical result from a sample, is known as the instrumental analytical method.	英語で授業。
01AD305	Environmental Microbiology	1	2.0	1・2	秋AB	火5,6	理科系 C502	野村 暢彦, 豊福 雅典, Utada Shinichi Andrew	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。
01AD307	Utilization and Recycling of Bio-resources	1	2.0	1・2	秋AB	火1,2	理科系 C502	張 振亞, 内海 真生, 雷 中方	Main contents and topics: 1. Basic concepts in bioresource utilization and recycling—bioresource and biomass, wastewater and waste, bioenergy, etc 2. Fundamentals of design for waste(water) utilization and recycling—reactor design and optimization 3. Introduction to main technologies for bioresource utilization and recycling—wastewater, solid waste combustion, gasification, carbonization, methane/hydrogen/ethanol production, etc 4. Case studies—biogasification technologies, strategies and management	01AJ305, 02AF114と同一。英語で授業。

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
01AD311	Introduction to Waste Management	1	2.0	1・2	春AB	金1,2	理科系C103	ヤバール モスタセロ 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.	01AJ303と同一。英語で授業。
01AD312	Solid Waste Management Systems Planning	1	2.0	1・2	秋AB	火3,4	理科系B107	ヤバール モスタセロ 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.	01AJ304と同一。英語で授業。
01AD315	Climate System Study II	1	1.0	1・2	春AB	火6	総合A217A	田中 博	Atmospheric general circulation study is the core of climate system study. The climate system study consists of many climate subsystems of oceanography, sea ice, land surface process, cryosphere, and biosphere with the core of the atmospheric general circulation model. In this class, we study the basic concept of the general circulation of the atmosphere.	01AC245と同時実施。英語で授業。
01AD316	Climate System Study I	1	1.0	1・2	春AB	木3	理科系C103	植田 宏昭, 釜江陽一	The Earth's climate system represents complex interactions between the atmosphere, ocean and land. This class aims to foster ability to understand general basis on elements of climate system, their interactions, and their variability including El Nino Southern Oscillation and global warming. This course will also introduce 1) conceptual difference between weather forecast and climate projection, and 2) physical mechanisms responsible for anomalous weather and climate events (heavy rainfall, drought, heat wave, etc) occurred in recent years.	01AJ306と同一, 01AC241と同時実施。英語で授業。
01AD317	Introduction to Environmental Policy	1	1.0	1・2	秋AB	金3	理科系C502	甲斐田 直子	In this course, students learn environmental policy mechanisms and related issues from institutional and socio-economic viewpoints. Topics at the classes cover historical and current policy developments in environmental problems at local, national, regional and global scales as well as engagement of different social actors such as governments and private sectors.	01AJ307, 01DZ518と同一。英語で授業。
01AD318	Vegetation Science	1	1.0	1・2	秋A	火1,2	理科系B107	上條 隆志, 川田清和, 清野 達之	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.	01AH204, 02JZ010と同一。英語で授業。01AD432「植生学」、自然保護寄附講座の「植生学」、「Vegetation science」とは重複履修出来ない。
01AD401	Environmental Field Appraisal	3	1.0	1	通年	集中		水野谷 剛	This course invites students to visit some survey sites in Japan in order to develop analytical and assessment skills and heighten knowledge about some selected environmental science related topics.	英語で授業。詳細後日周知

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
01AD419	環境ストレス概論	1	1.0	1・2	秋AB	水3	4E608		環境と人間の相互作用について、主に精神心理学、行動科学の両面から論じる。特に近年問題のなることが多い職場のメンタルヘルスを中心に、認知症や家庭内(アルコール、暴力)など環境との相互作用が大きいトピックを取り上げながら、単に疾病原因論の観点からだけでなく、健康生成説の立場からも、人間がより良く生きるための方策について包括的に学ぶことを目的とする。また、本授業においては、特殊環境下における人間と環境の相互作用の検討として、宇宙医学についても触れる予定である。出席とレポートにて評価を行う。	01EQ407と同一。 英語で授業。
01AD430	Environmental Law	1	2.0	1・2	秋学期	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.	予備日:12/15 英語で授業。 10/13, 11/24, 12/1, 12/8
01AD600	Landscape Planning	1	1.0	1・2	秋AB	月3	理科系C502	村上 暁信	The course aims to help students to: understand and apply the scientific principles underlying the landscape, learn to evaluate the pros and cons of a range of technologies for creating comfortable and sustainable environments, and acquire the knowledge required to critically discuss/present the environmental concept of urban design.	英語で授業。
01AD601	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.	01AH404, 01AJ204と同一。 英語で授業。
01AD605	Environmental Health Perspective	1	2.0	1・2	秋AB	金3,4	4E608	熊谷 嘉人, 新開 泰弘	There are numerous chemical substances in the environment, resulting in some serious effects on the body. However, current molecular studies suggest that illnesses caused by exposure to environmental chemicals are, at least in part, attributable to the interaction with macromolecules like proteins in the organism. This lecture offers an opportunity to learn about a variety of symptoms caused by exposure of humans to environmental chemical and initial response and cellular protection against such chemicals.	01EQ406, 01ER102と同一。 英語で授業。
01AD614	Simulation of Environmental Policy	1	2.0	1・2	春AB	木1,2	理科系C502	水野谷 剛	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評価手法について概説する。講義は英語で行う。	01AJ301と同一。 英語で授業。