

Special Subjects of the Department of Evolutionary Studies of Biosystems

Field	Subject Code	Subject	Credit	Content of subject	
General and International Education	30DESa01	Scientific Writing	1	This e-learning course explores a new methodology for considering writing from the most relevant perspective, that of readers. With this approach, you will not bother with learning how to increase the appearance of elegance or the mere sound of power; instead you will learn to predict how most readers will go about the act of interpreting your prose. Research in many fields has demonstrated that readers of English derive most of their clues for interpretation not from individual words in isolation but from the structural locations of those words in sentences, paragraphs, and documents. Coming to know consciously as a writer that which native speakers of English know intuitively as readers will give you greater and more consistent control over your written communication in English.	Hideki Innnan
	30DESa02	Life Science & Society I	1	This course explores ethical and social issues surrounding the current life science studies, through lectures on some historical background, discussions, and workshops.【Not offered in 2019】	Yukinori Onishi
	30DESa03	Life Science & Society II	1	This course explores ethical and social issues surrounding the current life science studies, through lectures on some historical background, discussions, and workshops.	Nozomi Mizushima
	30DESa04	Science,Technology and Society I	1	It is essential for researchers to understand the social foundation of their research activities. This lecture course examines the institutions and policies that have supported and affected scientific and technological research from historical and contemporary perspectives. We also discuss research ethics and problems arising from interaction between scientific research and society. Japanese (first term)/English (second term) 【Not offered in 2019】	
	30DESa05	Science,Technology and Society II	1	Because of the huge impacts that science and technology can have on society, as well as the large amount of funding they require, researchers today are required to have a deep understanding of the relation between science and society and to explain the social impact of their research, including its significance for society. This course provides students with an opportunity to consider and discuss the social impacts of their own research and research activity in	Kenji Ito
Basic Education	10DESB07	Introduction to the "Science & Society" Sub-thesis	1	This course is designed to provide students with working steps necessary to produce a research proposal for the sub-thesis. Each student is expected to develop an individual thesis topic based on his/her interest and submit written pieces including the final draft of the proposal.	Kaori Iida
	10DESB14	Introduction to the "Biological Science" Sub-thesis	1	This course is designed to provide students with working steps necessary to produce a research proposal for the sub-thesis. Each student is expected to develop an individual thesis topic based on his/her interest and submit written pieces including the final draft of the proposal.	Hideki Innnan
	10DESB08	Introduction to Science and Technology Studies	1	This is an introductory reading seminar mainly for those who would write a dissertation on science and society. Reading assignments are mostly essential classics in science and technology studies.Enrollees are expected to read all the reading assignments and to submit a summary for each. Those who wish to enroll must contact the instructor at least one week before the first class.	Kenji Ito
	10DESB02	Biostatistics	2	Introductory lectures on basic theories of statistical analysis with practical work on biological data using statistical packages.	Akira Sasaki Hisashi Ohtsuki
	10DESB15	Micro- and Macro-scopic Biology	2	To learn the basics of theoretical biology, evolutionary biology, integrative anthropology, and neurobiology in order to comprehensively understand the mechanisms of evolution.	Shohei Takuno

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Basic Education	10DESB05	Integrated Evolutionary Biology	2	Biosystems on the earth can be classified into systems with different levels of complexity, from a cell to society. This course is to discuss evolution of such systems from the viewpoints of "elements (members) in each system", "interaction between elements" and "theory to describe this interaction".	Yoko Satta
	10DESB06	Laboratory of Basic Biology	2	Laboratory courses. The program will include fields; ecology, molecular biology, cellular biology, histology, physiology, computer programming and scientific writing.	Michiyo Kinoshita
	10DESB16	Academic English I (Basic)	1	This course is based on an education program developed by scientists at NIG. The contents cover various issues and weak points that are frequently observed in scientific situations. Ample opportunity is provided to practice various skills necessary for various aspects of scientific presentation and discussion. Students will receive advice and guidance from a native speaker of English. The basic course covers topics such as structure of oral presentations and useful phrases for discussions. In the advanced course, students will learn more specific skills about explanation of slides and discussions, and exercise these skills thorough making presentations of their research.	Yukinori Onishi
	10DESB17	Academic English II (Basic)	1		
	10DESB18	Academic English III (Basic)	1		
	10DESB19	Academic English IV (Basic)	1		
	10DESB20	Academic English V (Basic)	1		
	10DESB21	Academic English I (Advance)	1		
	10DESB22	Academic English II (Advance)	1		
	10DESB23	Academic English III (Advance)	1		
10DESB24	Academic English IV (Advance)	1			
10DESB25	Academic English V (Advance)	1			
Anthropology	20DESc04	Integrative anthropology	1	Introduction to various fields of anthropology, including bioanthropology, cultural anthropology, archaeology, primatology, and human behavioral ecology. The lecture will discuss both the biological and social aspects of humans, with particular focus on the relationship between environment and humans.	Hitomi Hongou Nobuyuki Kutsukake
	20DESc02	Environmental archaeology	1	Learn various methods in environmental archaeology and discuss about the relationship between humans and environment in the past. Introduction to analytical methods in zooarchaeology and ethnoarchaeobotany including laboratory practice. 【Not offered in 2019】	Hitomi Hongou
	20DESc03	Human Genetics	1	This course is to introduce how the origin of the human beings is understood through genetics. We discuss how far the acquisition of human specificity is explained genetically and how far the genetic diversity of the present human beings are clarified with the latest research results. We will also discuss the role of genetic approaches in the development of physical anthropology. 【Not offered in 2019】	Jun Gojobori
Evolutionary Biology	20DESD01	Evolutionary Physiology	1	An overview of physiological traits from the viewpoint of molecular evolution. Evolution of genes for sensory receptors, immune molecules, and components in metabolic pathways are addressed.	Yoko Satta
	20DESD02	Cell Biology	1	Topics in molecular cytogenetics. A series of lectures will include molecular structure and function of the intra-cellular supermolecules, DNA, chromatin, and chromosomes in relation to cell cycle dynamics, gene expression, epigenetics, and genome evolution. 【Not offered in 2019】	Hideyuki Tanabe
	20DESD03	Molecular evolution	1	Fundamental concepts of molecular evolution (e.g., neutral theory of molecular evolution, natural selection, molecular clock) are introduced with deepening the knowledge on the pattern and underlying molecular mechanism of evolution. 【Not offered in 2019】	Tatsuya Ota

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Behavioral Biology	20DESe01	Sensory physiology	1	Topics in sensory physiology. A series of lectures will be provided about the cellular and molecular mechanisms underlying various senses in animals.	Kentaro Arikawa
	20DESe02	Neuroethology	1	Neuroethology is a field to study the neural basis underlying animal behavior by using different scientific approaches. In order to understand the coordination of the sensory, motor and central processes, students will learn about examples of neuroethological research including the actual experimental approaches. [Not offered in 2019]	Michiyo Kinoshita
	20DESe03	Evolutionary Behavioral Ecology	1	This lecture aims to explain both ultimate and proximate approaches for understanding animal behaviour. Particularly, I will talk about fundamental concepts and types of approaches with empirical examples. Students need to read important literatures for discussion. [Not offered in 2019]	Nobuyuki Kutsukake
Advanced Theoretical Biology	20DESf01	Mathematical Biology	1	Introduction to population demography, dynamics of interacting species, epidemics, character displacement and speciation, behavioural ecology and game theory, sexual selection, biological pattern formation, and stochastic process in population genetics.	Akira Sasaki
	20DESf02	Population Genetics	1	Population genetics primarily considers the changes of allele frequencies in a population as a factor of evolution. This class introduces the history and basic theories of population genetics, and the near-future perspective will be discussed. [Not offered in 2019]	Hideki Innan
	20DESf03	Evolutionary Game Theory	1	Evolutionary game theory provides a theoretical framework for analyzing conflicts of interests among individuals. It has rich applications to problems in evolutionary ecology as well as in evolutionary studies of human behavior. This introductory course offers an overview of this theory through various examples. [Not offered in 2019]	Hisashi Ohtsuki
Social Studies of Science	20DESG05	STS and History of Science I	1	Introduction to the field of Science, Technology, and Society (STS). After reading a textbook, we will explore some specific topics related to public engagement and/or gender studies of science. This class is for students specialized in "science and society." [Not offered in 2019]	Nozomi Mizushima
	20DESG06	STS and History of Science II	1	This is an advanced seminar for graduate students specialized in science and technology studies. Enrollees are expected to read all the reading assignments and to be ready to discuss them in class. Those who wish to enroll must contact the instructor at least one week before the first class.	Kenji Ito
	20DESG07	STS and History of Science III	1	In this seminar, students will read both primary and secondary sources in history of science (mostly 20th century) and write a mini research paper. This class is for students specialized in "science and society."	Kaori Iida

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Advanced Course	20DESh01	Advanced Course I	1	Molecular evolutionary and phylogenetic analysis is an essential technology to study the process and mechanism of organismal evolution. Therefore, nowadays, it is widely used in a variety of study fields in biology and life sciences. However, its fundamentals of theoretical background are complicated and analyses are usually practiced with the aid of computer programs. Therefore, in this course, by learning its theoretical background and practical means, students are expected to become able to apply molecular evolutionary and phylogenetic analysis to their own research project.【Not offered in 2019】	Kouichiro Tamura
	20DESh02	Advanced course II	1	【Not offered in 2019】	
	20DESh03	Advanced Course III	1	【Not offered in 2019】	
	20DESh04	Advanced Course IV	1	【Not offered in 2019】	Mitsuyasu Hasebe
	20DESh05	Advanced Course V	1	【Not offered in 2019】	
	20DESh06	Advanced Course VI	1	【Not offered in 2019】	
	20DESh07	Advanced Course VII	1	【Not offered in 2019】	
	20DESh08	Advanced Course VIII	1	【Not offered in 2019】	
	20DESh09	Advanced Course IX	1	【Not offered in 2019】	
	20DESh10	Advanced Course X (Evolutionary genomics)	1	This lecture, evolutionary genomics, consists with three parts; 1)basic processes of genome evolution, 2)evolving genes and genomes, and 3)methods for evolutionary genomics.	Naruya Saito
	20DESh11	Advanced Course X I	1	Population ecology, once said by young researchers a few decades ago to have ended its role, has fully faced on the environmental problems. Conservation of endangered species and the overexploitation and its recovery of bioresources are the most important topics in biodiversity and ecosystem conservation. Population ecology has developed systematic theories as well as statistical techniques to deal with uncertainty. Due to the progress in population genetics and adaptive dynamics in evolution, population ecology is now fused with evolutionary ecology originated from the other field. In this lecture, we will introduce the basis of population ecology and its application to environmental problems, as well as the developmental process of the discipline.【Not offered in 2019】	Hiroyuki Matsuda (Yokohama National University)
	20DESh12	Advanced Course X II	1	Biodiversity is generated by interaction of numerous number of different species. In this class, students will learn and consider the mechanism of generation and maintenance of biodiversity.【Not offered in 2019】	Yohey Terai
	20DESh13	Advanced Course X III (Computational approaches in neuroethology)	1	Neuroethology is the study of the neural mechanisms underlying animal behaviour. This course covers how modelling and simulation can further our understanding of these questions, as well how computers can be used as tools to perform neuroethological experiments.【Not offered in 2019】	
	20DESh14	Advanced Course X IV	1	【Not offered in 2019】	
	20DESh15	Advanced Course X V (Human environmental history)	1	This course introduces recent topics of environmental changes and human evolution from the Pleistocene to the present, and discusses how global climate change and anthropogenic environmental degradation have affected human history. Emergence of genus <i>Homo</i> , out-of-Africa, origins of agriculture, adaptations and collapses of civilizations will be addressed.【Not offered in 2019】	

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Advanced Course	20DESh16	Advanced Course X VI (Evolutionary epigenetics and genomics)	1	The term epigenetics refers to heritable changes in gene expression that does not involve changes to the underlying DNA sequence. In this class, students will learn the basis of genetics and epigenetics, and will learn how genetic and epigenetic changes contribute to genome evolution.	Shohei Takuno
	20DESh17	Advanced Course X VII	1	This course is a general introduction to social research methods. We will cover basic concepts and techniques of research design, data collection, and data analysis of quantitative and qualitative approaches. We will also consider the ethical implications of social research in the class discussion.	Nozomi Mizushima
	20DESh18	Advanced Course X VIII	1	【Not offered in 2019】	Kalle Parvinen
	20DESh19	Advanced Course X IX (Philosophy of Science)	1	【Not offered in 2019】	Pablo Lorenzani
	20DESh20	Advanced Course X X	1	【Not offered in 2019】	
Special Seminar Series	30DESi01	Special Seminar Series I	2	Series of eight lectures by leading scientists. Speakers are selected from five areas of the department. Each lecture consists of 1.5 hr talk followed by 1.5 hr discussion session.	Hideyuki Tanabe
	30DESi02	Special Seminar Series II	2		
	30DESi03	Special Seminar Series III	2		
	30DESi04	Special Seminar Series IV	2		
	30DESi05	Special Seminar Series V	2		
Progress Report	90DESj01	Progress Report I	2	Seminars based on progress report of students.	Main Supervisor
	90DESj02	Progress Report II	2		
	90DESj03	Progress Report III	2		
	90DESj04	Progress Report IV	2		
	90DESj05	Progress Report V	2		
Specific Research	90DESk01	Specific Research I	4	Research for Doctoral thesis.	Main Supervisor
	90DESk02	Specific Research II	4		
	90DESk03	Specific Research III	4		
	90DESk04	Specific Research IV	4		
	90DESk05	Specific Research V	4		
	90DESk06	Specific Research for Sub-thesis	4	Research for Sub thesis.	Sub-thesis advisor
	90DESk06	Specific Research for Master's thesis	4	Research for Master's thesis.	Main Supervisor

 : Compulsory Subjects