

ENVIRONMENTAL BIOLOGY

Departmental Office: Schermerhorn Extension, 10th floor; 212-854-9987
<http://e3b.columbia.edu/>

Director of Undergraduate Studies: Dr. Matthew Palmer, 1010 Schermerhorn; 212-854-4767; mp2434@columbia.edu

Evolutionary Biology of the Human Species Adviser: Dr. Jill Shapiro, 1011 Schermerhorn Extension; 212-854-5819; jss19@columbia.edu

Director, Administration and Finance: Kyle Bukhari, 1014B Schermerhorn Extension; 212-854-8665; kb2337@columbia.edu (lg2019@columbia.edu)

The Department of Ecology, Evolution & Environmental Biology (E3B) at Columbia University was established in 2001. Although we are a relatively new department, we have grown rapidly in the past decade. We now have an internationally diverse student body and a broad network of supporters at Columbia and throughout New York City. Our affiliated faculty members come from departments at Columbia as well as from the [American Museum of Natural History](#), the [New York Botanical Garden](#), the [Wildlife Conservation Society](#), and the [EcoHealth Alliance](#). Together, we provide an unparalleled breadth and depth of research opportunities for our students.

In creating E3B, Columbia University recognized that the fields of ecology, evolutionary biology, and environmental biology constitute a distinct subdivision of the biological sciences with its own set of intellectual foci, theoretical foundations, scales of analysis, and methodologies.

E3B's mission is to educate a new generation of scientists and practitioners in the theory and methods of ecology, evolution, and environmental biology. Our educational programs emphasize a multi-disciplinary perspective to understand life on Earth from the level of organisms to global processes that sustain humanity and all life.

To achieve this multi-disciplinary perspective, the department maintains close ties to over 70 faculty members beyond its central core. Thus, many faculty members who teach, advise, and train students in research are based in other departments on the Columbia campus or at the partner institutions. Through this collaboration, the department is able to tap into a broad array of scientific and intellectual resources in the greater New York City area. The academic staff covers the areas of plant and animal systematics; evolutionary and population genetics; ecosystem science; demography and population biology; behavioral and community ecology; and related fields of epidemiology, ethnobiology, public health, and environmental policy. Harnessing the expertise of this diverse faculty and the institutions of which they are a part, E3B covers a vast area of inquiry into the evolutionary, genetic, and ecological relationships among all living things.

Facilities and Collaborative Institutions

The Department of Ecology, Evolution, and Environmental Biology (E3B)

In addition to the off-campus facilities detailed below, the Columbia community offers academic excellence in a range of natural and social science disciplines that are directly related to biodiversity conservation including: evolution, systematics, genetics, behavioral ecology, public health, business, economics, political science, anthropology, and public and international policy. These disciplines are embodied in world-class departments, schools, and facilities at Columbia. The divisions that bring their resources to bear on issues most relevant to E3B's mission are:

the Lamont-Doherty Earth Observatory, the School of International and Public Affairs, the Goddard Institute for Space Studies, the International Research Institute for Climate Prediction, the Black Rock Forest Reserve in New York State, the Rosenthal Center for Alternative/Complementary Medicine, the Division of Environmental Health Sciences at the School of Public Health, and the Center for International Earth Science Information Network (CIESIN). Several of these units of the University are networked through the Earth Institute at Columbia, a division of the University that acts as an intramural network of environmental programs and supplies logistical support for constituent programs, through planning, research, seminars, and conferences. All of the above schools, centers, and institutes contribute to finding solutions for the world's environmental challenges.

The Earth Institute Center for Environmental Sustainability (EICES)

The Earth Institute Center for Environmental Sustainability (EICES), formerly known as the Center for Environmental Research and Conservation (CERC), is actively involved in protecting biodiversity and ecosystems. The Earth Institute Center for Environmental Sustainability is dedicated to the development of a rich, robust, and vibrant world within which we can secure a sustainable future. Through a diverse array of strategic partners in science, education, and outreach, the center builds unique programs that promote human well-being through the preservation, restoration, and management of biodiversity, and the services our ecosystems provide.

The Center for Environmental Research and Conservation (CERC), a leading provider of cutting-edge environmental research, education, and training, since its inception in 1994, has grown into two institutions—an Earth Institute center and a Secretariat for a major environmental consortium. The center's new name is the Earth Institute Center for Environmental Sustainability (EICES, pronounced “i-sees”). EICES also continues, however, as the Secretariat for the Consortium for Environmental Research and Conservation, continuing 15 years of collaborations between the Earth Institute, the American Museum of Natural History, the New York Botanical Garden, The Wildlife Conservation Society, and EcoHealth Alliance on biodiversity conservation.

American Museum of Natural History

The American Museum of Natural History is one of the world's preeminent scientific, educational, and cultural institutions. Since its founding in 1869, the Museum has advanced its global mission to discover, interpret, and disseminate information about human cultures, the natural world, and the universe through a wide-reaching program of scientific research, education, and exhibitions. The institution comprises 45 permanent exhibition halls, state-of-the-art research laboratories, one of the largest natural history libraries in the Western Hemisphere, and a permanent collection of 32 million specimens and cultural artifacts. With a scientific staff of more than 200, the Museum supports research divisions in anthropology, paleontology, invertebrate and vertebrate zoology, and the physical sciences. The Museum's scientific staff pursues a broad agenda of advanced scientific research, investigating the origins and evolution of life on Earth, the world's myriad species, the rich variety of human culture, and the complex processes that have formed and continue to shape planet Earth and the universe beyond.

The Museum's Center for Biodiversity and Conservation (CBC) was created in June 1993 to advance the use of scientific data to mitigate threats to biodiversity. CBC programs integrate research, education, and outreach so that people, a key force in the rapid loss of biodiversity, will become participants in its conservation. The CBC works with partners

throughout the world to build professional and institutional capacities for biodiversity conservation and heightens public understanding and stewardship of biodiversity. CBC projects are under way in the Bahamas, Bolivia, Madagascar, Mexico, Vietnam, and the Metropolitan New York region.

The Museum's scientific facilities include: two molecular systematics laboratories equipped with modern high-throughput technology; the interdepartmental laboratories, which include a state-of-the-art imaging facility that provides analytical microscopy, energy dispersive spectrometry, science visualization, and image analysis to support the Museum's scientific activities; a powerful parallel-computing facility, including a cluster of the world's fastest computers, positioned to make significant contributions to bioinformatics; and a frozen tissue facility with the capacity to store one million DNA samples.

New York Botanical Garden

The New York Botanical Garden (NYBG), with its 7 million specimen herbarium, the largest in the Western Hemisphere, and its LuEsther T. Mertz Library, the largest botanical and horticultural reference collection on a single site in the Americas, comprises one of the very best locations in the world to study plant science. NYBG's systematic botanists discover, decipher, and describe the world's plant and fungal diversity; and its economic botanists study the varied links between plants and people. The Enid A. Haupt Conservatory, the largest Victorian glasshouse in the United States, features some 6,000 species in a newly installed "Plants of the World" exhibit. The new International Plant Science Center stores the Garden collection under state-of-the-art environmental conditions and has nine study rooms for visiting scholars. All specimens are available for on-site study or loan.

In recent years, NYBG has endeavored to grow and expand its research efforts, supporting international field projects in some two dozen different countries, ranging from Brazil to Indonesia. In 1994, AMNH and NYBG established the Lewis and Dorothy Cullman Program for Molecular Systematics Studies to promote the use of molecular techniques in phylogenetic studies of plant groups. This program offers many opportunities for research in conservation genetics. NYBG operates both the Institute for Economic Botany (IEB) and the Institute of Systematic Botany (ISB). The ISB builds on the Garden's long tradition of intensive and distinguished research in systematic botany—the study of the kinds and diversity of plants and their relationships—to develop the knowledge and means for responding effectively to the biodiversity crisis.

The Garden has also established a molecular and anatomical laboratory program, which includes light and electron microscopes, and has made enormous advances in digitizing its collection. There is currently a searchable on-line library catalog and specimen database collection with some half million unique records. Field sites around the world provide numerous opportunities for work in important ecosystems of unique biodiversity.

Wildlife Conservation Society

The Wildlife Conservation Society (WCS), founded in 1895 as the New York Zoological Society, works to save wildlife and wild lands throughout the world. In addition to supporting the nation's largest system of zoological facilities—the Bronx Zoo; the New York Aquarium; the Wildlife Centers in Central Park, Prospect Park, and Flushing Meadow Park; and the Wildlife Survival Center on St. Catherine's Island, Georgia—WCS maintains a commitment to field-based conservation science. With 60 staff scientists and more than 100 research fellows, WCS has the largest professional field staff of any U.S.-based international

conservation organization. Currently, WCS conducts nearly 300 field projects throughout the Americas, Asia, and Africa. The field program is supported by a staff of conservation scientists based in New York who also conduct their own research.

WCS's field-based programs complement the organization's expertise in veterinary medicine, captive breeding, animal care, genetics, and landscape ecology, most of which are based at the Bronx Zoo headquarters. WCS's Conservation Genetics program places an emphasis on a rigorous, logical foundation for the scientific paradigms used in conservation biology and is linked to a joint Conservation Genetics program with the American Museum of Natural History. The Wildlife Health Sciences division is responsible for the health care of more than 17,000 wild animals in the five New York parks and wildlife centers. The departments of Clinical Care, Pathology, Nutrition, and Field Veterinary Programs provide the highest quality of care to wildlife.

EcoHealth Alliance

EcoHealth Alliance is an international organization of scientists dedicated to the conservation of biodiversity. For more than 40 years, EcoHealth Alliance has focused its efforts on conservation. Today, they are known for innovative research on the intricate relationships between wildlife, ecosystems, and human health.

EcoHealth Alliance's work spans the U.S. and more than 20 countries in Central and South America, the Caribbean, Africa, and Asia to research ways for people and wildlife to share bioscapes for their mutual survival. Their strength is built on innovations in research, education, and training and accessibility to international conservation partners.

Internationally, EHA programs support conservationists in over a dozen countries at the local level to save endangered species and their habitats, and to protect delicate ecosystems for the benefit of wildlife and humans.

Academic Programs

The Department of Ecology, Evolution, and Environmental Biology runs two undergraduate majors/concentrations. The primary major is in environmental biology and the second is evolutionary biology of the human species. The foci and requirements vary substantially and are intended for students with different academic interests.

The environmental biology major emphasizes those areas of biology and other disciplines essential for students who intend to pursue careers in the conservation of Earth's living resources. It is designed to prepare students for graduate study in ecology and evolutionary biology, conservation biology, environmental policy and related areas, or for direct entry into conservation-related or science teaching careers.

Interdisciplinary knowledge is paramount to solving environmental biology issues, and a wide breadth of courses is thus essential, as is exposure to current work. Conservation internships are available through partner institutions and serve as research experience leading to the development of the required senior thesis.

Declaration of the environmental biology major must be approved by the director of undergraduate studies and filed in the departmental office located on the 10th floor of Schermerhorn Extension.

The major in evolutionary biology of the human species provides students with a foundation in the interrelated spheres of behavior, ecology, genetics, evolution, morphology, patterns of growth, adaptation, and forensics. Using the framework of evolution and with attention to the interplay between biology and culture, research in these areas is applied

to our own species and to our closest relatives to understand who we are and where we came from. This integrated biological study is also known as biological anthropology. As an interdisciplinary major, students are also encouraged to draw on courses in related fields including biology, anthropology, geology, and psychology as part of their studies.

Professors

Ryan Abernathey
 Nicholas Christie-Blick
 Joel E. Cohen
 Hugh Ducklow
 Sonya Dyhrman
 Peter Eisenberger
 Göran Ekström
 Pierre Gentine
 Steven L. Goldstein
 Arnold L. Gordon
 Kevin L. Griffin (Chair)
 Alex Halliday
 Sidney R. Hemming (Director of Graduate Studies)
 Bärbel Hönisch
 Peter B. Kelemen
 Folarin Kolawole
 Galen McKinley
 Jerry F. McManus (Associate Chair)
 Faye McNeill
 William H. Menke
 John C. Mutter
 Meredith Nettles
 Paul E. Olsen
 Terry A. Plank (Director of Undergraduate Studies)
 Lorenzo M. Polvani
 G. Michael Purdy
 Maureen Raymo
 Christopher H. Scholz
 Adam H. Sobel
 Marc Spiegelman
 Martin Stute (Barnard)
 Maya Tolstoy
 Renata Wentzcovich

Associate Professors

Jacqueline Austermann
 Roisin Commane
 Jonathan Kingslake

Assistant Professors

Folarin Kolawole
 Yves Moussallam

Adjunct Professors

Robert F. Anderson
 W. Roger Buck IV
 Denton Ebel
 John J. Flynn
 Arthur Lerner-Lam
 Alberto Malinverno
 Ronald L. Miller
 Dorothy M. Peteet
 Andrew Robertson

Joerg M. Schaefer
 Christopher Small
 Andreas Thurnherr
 Felix Waldhauser
 Spahr C. Webb
 Gisela Winckler

Adjunct Associate Professors

Anne Bécel

Emeritus

Mark Cane
 Hugh Ducklow
 Arnold Gordon
 James Hays
 Paul Richards
 Lynn Sykes
 David Walker

Guidelines for all Ecology, Evolution, and Environmental Biology Majors and Concentrators

The grade of D is not accepted for any course offered in fulfillment of the requirements toward the majors or concentrations.

Major in Environmental Biology

The major in environmental biology requires 50 points, distributed as follows:

Lower Division Courses

Two terms of introductory or environmental biology such as the following:

EEEB UN2001 - EEEB UN2002	ENVIRONMENTAL BIOLOGY I and ENVIRONMENTAL BIOLOGY II
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Two terms of environmental science such as the following:

EESC UN2100	EARTH'S ENVIRO SYST: CLIM SYST
EESC UN2200	EARTH'S ENVIRONMENTAL SYSTEMS: THE SOLID EARTH

Two terms of chemistry such as the following:

CHEM UN1403 - CHEM UN1404	GENERAL CHEMISTRY I-LECTURES and GENERAL CHEMISTRY II-LECTURES
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One term of physics such as the following:

PHYS UN1201	GENERAL PHYSICS I
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One term of statistics such as the following:

EEEB UN3005	INTRO-STAT-ECOLOGY # EVOL BIOL
BIOL BC2286	Statistics and Research Design
STAT UN1101	INTRODUCTION TO STATISTICS
STAT UN1201	CALC-BASED INTRO TO STATISTICS

One term of calculus such as the following:

MATH UN1101	CALCULUS I
MATH UN1102	CALCULUS II
MATH UN1201	CALCULUS III
MATH UN1202	CALCULUS IV

Upper Division Courses

Students must complete five advanced elective courses (generally 3000-level or above) satisfying the following distribution. At least one of these courses must include a laboratory component. For more information and a list of appropriate courses, contact the director of undergraduate studies.

1. Ecology, behavior, or conservation biology;
2. Evolution or genetics;
3. Morphology, physiology, or diversity;
4. Policy or economics;
5. One additional course from the preceding four groups.

Students must also complete a senior thesis, which involves completing a research internship (generally in the summer before the senior year) and completing at least one semester of the thesis research seminar, EEEB UN3991- EEEB UN3992 THESIS RESEARCH SEMINAR. Enrollment in both semesters of the seminar, starting in the spring of the junior year, is recommended.

Students planning on continuing into graduate studies in environmental biology or related fields are encouraged to take organic chemistry and genetics.

Ecology and Evolution Track within the Environmental Biology Major

The ecology and evolution track within the environmental biology major requires 50 points, distributed as follows:

Lower Division Courses

Two terms of introductory or environmental biology such as the following:

EEEB UN2001 - EEEB UN2002	ENVIRONMENTAL BIOLOGY I and ENVIRONMENTAL BIOLOGY II
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Two terms of chemistry such as the following:

CHEM UN1403 - CHEM UN1404	GENERAL CHEMISTRY I-LECTURES and GENERAL CHEMISTRY II-LECTURES
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Chemistry laboratory such as the following:

CHEM UN1500	GENERAL CHEMISTRY LABORATORY
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Two terms of physics such as the following:

PHYS UN1201 - PHYS UN1202	GENERAL PHYSICS I and GENERAL PHYSICS II
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One term of statistics such as the following:

EEEB UN3005	INTRO-STAT-ECOLOGY # EVOL BIOL
BIOL BC2286	Statistics and Research Design
STAT UN1101	INTRODUCTION TO STATISTICS
STAT UN1201	CALC-BASED INTRO TO STATISTICS

Two terms of calculus, or one term of calculus and second advanced course in math or statistics such as the following:

MATH UN1101	CALCULUS I
MATH UN1102	CALCULUS II
MATH UN1201	CALCULUS III
MATH UN1202	CALCULUS IV

Upper Division Courses

Students must complete five advanced elective courses (generally 3000-level or above) satisfying the following distribution. At least one of these

courses must include a laboratory component. For more information and a list of appropriate courses, contact the director of undergraduate studies.

1. Three courses in ecology, evolution, conservation biology, or behavior;
2. One course in genetics. BIOL UN3031 GENETICS or BIOL BC2100 MOLECULAR # MENDELIAN GENETICS is recommended;
3. One course in morphology, physiology, or diversity.

Students must also complete a senior thesis, which involves completing a research internship (generally in the summer before the senior year) and completing at least one semester of the thesis research seminar, EEEB UN3991-EEEB UN3992 THESIS RESEARCH SEMINAR. Enrollment in both semesters of the seminar, starting in the spring of the junior year, is recommended.

Students planning on continuing into graduate studies in ecology or evolutionary biology are encouraged to take organic chemistry.

Major in Evolutionary Biology of the Human Species

The major in evolutionary biology of the human species requires 36 points, distributed as described below.

Students must take a minimum of 20 points from approved biological anthropology courses. The additional courses may be taken in other departments with adviser approval. These include up to 6 points of introductory biology/chemistry or calculus (in any combination). Please speak with the major adviser about the extended list of courses from related areas including Biology, Psychology, Archaeology, Anthropology, Earth and Environmental Science, and Statistics that count toward this program.

For example, students interested in focusing on paleoanthropology would complement the requirements with additional courses in human evolution and morphology, evolutionary biology and theory, archaeology, genetics, and statistics. Those interested in primate behavior would supplement the requirements with classes in behavioral biology, ecology, and statistics.

Required Courses

EEEB UN1010	HUMAN ORIGINS # EVOLUTION
EEEB UN1011	BEHAVIOR BIOL-LIVING PRIMATES

****Alternate options may be possible for all courses other than EEEB UN1010 HUMAN ORIGINS # EVOLUTION and EEEB UN1011 BEHAVIOR BIOL-LIVING PRIMATES. These will be considered on an individual basis in consultation with the major/concentration adviser.**

Conservation Course

EEEB UN3240	Challenges and Strategies of Primate Conservation (This is the recommended conservation course but this requirement can be fulfilled with other classes such as Conservation Biology, Zoo Conservation, Ecology, Behavior and Conservation of Mammals, SEE-U in Jordan or Brazil, or other relevant offerings.)
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Theoretical Foundation from Archaeology

Select one course of the following: Nearly all archaeology courses (save for Rise of Civilization) can fulfill this requirement. Check with the advisor.

Archaeology

ANTH UN1007	THE ORIGINS OF HUMAN SOCIETY
ANTH UN2028	THINK LIKE AN ARCHAEOLOGIST
ANTH UN3064	Death and the Body
ANTH UN3823	ARCH ENGAGE: PAST IN PUB EYE

Breadth Requirement

Select a minimum of one course from each of the three sections (may overlap seminar requirement for majors):

Genetics/Human Variation

BIOL BC2100	MOLECULAR # MENDELIAN GENETICS
BIOL UN3031	GENETICS
BIOL GU4560	EVOL IN THE AGE OF GENOMICS
ANTH UN3970	BIOL BASIS OF HUMAN VARIATION
EEEE GU4340	HUMAN ADAPTATION
EEEE GU4700	RACE:TANGLED HIST-BIOL CONCEPT

Primate Behavioral Biology and Ecology

EEEE UN3940	Current Controversies in Primate Behavior and Ecology
BIOL BC2272	ECOLOGY
BIOL BC2280	ANIMAL BEHAVIOR
PSYC UN2420	ANIMAL BEHAVIOR
PSYC BC1119	Systems and Behavioral Neuroscience
PSYC UN2450	BEHAVIORAL NEUROSCIENCE
PSYC BC3372	Comparative Cognition
PSYC UN3450	Evolution of Intelligence, Animal Communication, # Language
PSYC UN3460	Evolution of Behavior (Seminar)
PSYC UN3470	Brain Evolution: Becoming Human (Seminar)
EEEE GU4010	The Evolutionary Basis of Human Behavior
EEEE GU4134	Behavioral Ecology
EEEE GU4201	ECO, BEHAVIOR # CONSERVATION OF MAMMALS (can count for either breadth requirement or conservation requirement, but not both)

Human Evolution/Morphology

EEEE UN3208	EXPLORATIONS IN PRIM ANATOMY
EEEE UN3215	FORENSIC OSTEOLOGY
EEEE UN3220	THE EVOL OF HUM GROWTH # DEVPT
ANTH GU4147	Human Skeletal Biology I
ANTH GU4148	HUMAN SKELETAL BIOLOGY II
EEEE UN3204	Dynamics of Human Evolution
EEEE UN3910	THE NEANDERTALS
ANTH GU4002	Controversial Topics in Human Evolution
ANTH GU4200	FOSSIL EVIDENCE FOR HUMAN EVOL
BIOL BC2278	Evolution
BIOL UN3208	Introduction to Evolutionary Biology
EEEE UN3030	The Biology, Systematics, and Evolutionary History of the 'Apes'
BIOL BC2262	Vertebrate Biology
BIOL UN3006	PHYSIOLOGY

BIOL BC3360	PHYSIOLOGY
EEEE GU4200	Introduction to Mammalogy

Seminar

Selection at least one of the following seminars. May also count toward the breadth requirement.

EEEE UN3204	Dynamics of Human Evolution
EEEE UN3910	THE NEANDERTALS
EEEE UN3940	Current Controversies in Primate Behavior and Ecology
ANTH UN3970	BIOL BASIS OF HUMAN VARIATION
EEEE UN3993 - EEEB UN3994	EBHS SENIOR THESIS SEMINAR and EBHS SENIOR THESIS SEMINAR
EEEE GU4321	HUM NATURE:DNA,RACE # IDENTITY
ANTH GU4002	Controversial Topics in Human Evolution (Fulfills the seminar requirement for the major)

Additional courses in the student's area of focus to complete the required 36 points overall including a minimum of 20 points of approved biological anthropology courses.

Students intending to pursue graduate study in this field should broaden their foundation by taking an introductory biology course (optimally either EEEB UN2001 ENVIRONMENTAL BIOLOGY I or EEEB UN2002 ENVIRONMENTAL BIOLOGY II) or an advanced evolution course, a genetics course, and a statistics course. We recommend that those interested in either biological anthropology or bioarchaeology take a foundation cultural anthropology course such as ANTH UN1002 THE INTERPRETATION OF CULTURE, ANTH UN2004 INTRO TO SOC # CULTURAL THEORY, ANTH UN2005 THE ETHNOGRAPHIC IMAGINATION, or ANTH UN3040 ANTHROPOLOGICAL THEORY. Students interested in forensic anthropology should take chemistry in lieu of of biology (though the latter is recommended as a foundation course for all students). The adviser makes additional recommendations dependent on the student's area of focus.

Approved Biological Anthropology Courses

Paleoanthropology and Morphology

EEEE UN1010	HUMAN ORIGINS # EVOLUTION
EEEE UN3204	Dynamics of Human Evolution
EEEE UN3208	EXPLORATIONS IN PRIM ANATOMY
EEEE UN3215	FORENSIC OSTEOLOGY
EEEE UN3220	THE EVOL OF HUM GROWTH # DEVPT
EEEE UN3910	THE NEANDERTALS
ANTH GU4147 - ANTH GU4148	Human Skeletal Biology I and HUMAN SKELETAL BIOLOGY II
ANTH GU4200	FOSSIL EVIDENCE FOR HUMAN EVOL taught intermittently

Primate Behavioral Ecology and Evolution

EEEE UN1011	BEHAVIOR BIOL-LIVING PRIMATES
EEEE UN3030	The Biology, Systematics, and Evolutionary History of the 'Apes'
EEEE UN3940	Current Controversies in Primate Behavior and Ecology
EEEE GU4010	The Evolutionary Basis of Human Behavior

Human Variation

ANTH UN3970	BIOL BASIS OF HUMAN VARIATION
EEEE GU4340	HUMAN ADAPTATION

EEEB GU4700	RACE:TANGLED HIST-BIOL CONCEPT
Additional Courses	
EEEB UN3240	Challenges and Strategies of Primate Conservation
EEEB UN3993 - EEEB UN3994	EBHS SENIOR THESIS SEMINAR and EBHS SENIOR THESIS SEMINAR

Concentration in Environmental Biology

The concentration in environmental biology differs from the major in omitting calculus and physics from the lower division, requiring three advanced electives rather than five, and omitting the senior seminar with thesis project. It requires 36 points, distributed as follows:

Lower Division Courses

Two terms of introductory or environmental biology such as the following:

EEEB UN2001 - EEEB UN2002	ENVIRONMENTAL BIOLOGY I and ENVIRONMENTAL BIOLOGY II (or equivalents)
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Two terms of environmental science such as the following:

EESC UN2100	EARTH'S ENVIRO SYST: CLIM SYST
EESC UN2200	EARTH'S ENVIRONMENTAL SYSTEMS: THE SOLID EARTH

Two terms of chemistry such as the following:

CHEM UN1403 - CHEM UN1404	GENERAL CHEMISTRY I-LECTURES and GENERAL CHEMISTRY II-LECTURES
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One term of statistics. Select one of the following:

EEEB UN3005	INTRO-STAT-ECOLOGY # EVOL BIOL
BIOL BC2286	Statistics and Research Design
STAT UN1101	INTRODUCTION TO STATISTICS
STAT UN1201	CALC-BASED INTRO TO STATISTICS

Upper Division Courses

EEEB UN3087	CONSERVATION BIOLOGY
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Two other 3000- or 4000- level courses from the advanced environmental biology courses listed for the major.

Concentration in Evolutionary Biology of the Human Species

The concentration in evolutionary biology of the human species requires 20 points including the required introductory courses EEEB UN1010 HUMAN ORIGINS # EVOLUTION, EEEB UN1011 BEHAVIOR BIOL-LIVING PRIMATES, an approved conservation course (optimally Primate Conservation), and three courses for the breadth distribution requirements as described for the major. Students must take a minimum of 15 points from approved biological anthropology courses as described for the major (the two introductory classes count toward that total). The additional courses may be taken in other departments with adviser approval.

Concentrators do not have to complete the theoretical foundation course from archaeology or a seminar.

Special Concentration in Environmental Science for Environmental Biology Majors

The Department of Earth and Environmental Sciences sponsors a special concentration which must be done in conjunction with the environmental biology major. Students should be aware that they must complete the environmental biology major in order to receive credit for the special concentration.

The special concentration in environmental science requires a minimum of 31.5 points, distributed as follows:

Introductory Environmental Science (13.5 points)

EESC UN2100	EARTH'S ENVIRO SYST: CLIM SYST
EESC UN2200	EARTH'S ENVIRONMENTAL SYSTEMS: THE SOLID EARTH
EESC UN2300	EARTH'S ENVIRO SYST: LIFE SYST (equivalent to EEEB UN2002)

Introductory Science (6 points)

Two courses in chemistry, physics, mathematics, or environmental biology from the supporting mathematics and science list for the environmental science major.

Advanced Environmental Science (12 points)

Select four of the following:

EESC UN3015	The Earth's Carbon Cycle
EESC BC3017	ENVIRONMENTAL DATA ANALYSIS
EESC BC3025	HYDROLOGY
EESC GU4008	Introduction to Atmospheric Science
EESC GU4050	GLOBAL ASSMT-REMOTE SENSING
EESC GU4223	SEDIMENTARY GEOLOGY
EESC GU4550	Plant Ecophysiology
EESC GU4835	Wetlands and Climate Change
EESC GU4885	CHEMISTRY OF CONTINENTL WATERS
EESC GU4917	THE EARTH/HUMAN INTERACTIONS
EESC GU4926	INTRO TO CHEMICAL OCEANOGRAPHY

Advanced courses used to fulfill requirements in the environmental biology major cannot count toward requirements for the special concentration.

Special Concentration in Environmental Biology for Environmental Science Majors

The Department of Ecology, Evolution, and Environmental Biology sponsors a special concentration which must be done in conjunction with the environmental science major. Students should be aware that they must complete the environmental science major in order to receive credit for the special concentration.

The special concentration in environmental biology requires a minimum of 39 points, distributed as follows:

Introductory Environmental Biology and Environmental Science (17 points)

EEEB UN2001	ENVIRONMENTAL BIOLOGY I
EEEB UN2002	ENVIRONMENTAL BIOLOGY II (equivalent to EESC UN2300)
EESC UN2100	EARTH'S ENVIRO SYST: CLIM SYST
EESC UN2200	EARTH'S ENVIRONMENTAL SYSTEMS: THE SOLID EARTH

Introductory Science (13 points)

Select one of the following chemistry sequences:

CHEM UN1403 - CHEM UN1404	GENERAL CHEMISTRY I-LECTURES and GENERAL CHEMISTRY II-LECTURES
CHEM UN1604 - CHEM UN2507	2ND TERM GEN CHEM (INTENSIVE) and Intensive General Chemistry Laboratory

One term of statistics such as the following:

EEEB UN3005	INTRO-STAT-ECOLOGY # EVOL BIOL
BIOL BC2286	Statistics and Research Design
STAT UN1101	INTRODUCTION TO STATISTICS
STAT UN1201	CALC-BASED INTRO TO STATISTICS
EEEB UN3087	CONSERVATION BIOLOGY

Advanced Environmental Biology (9 points)

Three additional advanced environmental biology courses (3000-level and above), each chosen from a different curricular area (evolution/genetics, ecology/behavior/conservation, anatomy/physiology/diversity, biology laboratory courses).

Fall 2023

EEEB UN1010 HUMAN ORIGINS # EVOLUTION. 3.00 points.

CC/GS: Partial Fulfillment of Science Requirement

Lab fee: \$25. Taught every fall.

This is an introductory course in human evolution. Building on a foundation of evolutionary theory, students explore primate behavioral morphology and then trace the last 65 million years of primate evolution from the earliest Paleocene forms to the fossil remains of earliest humans and human relatives. Along with Behavioral Biology of the Living Primates this serves as a core required class for the EBHS program

Fall 2023: EEEB UN1010

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 1010	001/11868	M W 11:40am - 12:55pm 602 Hamilton Hall	Jill Shapiro	3.00	54/86

EEEB UN1110 HUMAN ORIGINS # EVOLUTION-DISC. 0.00 points.

Fall 2023: EEEB UN1110

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 1110	001/12418	Th 5:10pm - 6:00pm 506 Schermerhorn Hall	Jill Shapiro	0.00	25/30
EEEB 1110	002/12420	Th 6:10pm - 7:00pm 506 Schermerhorn Hall	Jill Shapiro	0.00	12/30
EEEB 1110	003/12422	F 12:10pm - 1:00pm 506 Schermerhorn Hall	Jill Shapiro	0.00	13/30

EEEB UN2001 ENVIRONMENTAL BIOLOGY I. 3.00 points.

CC/GS: Partial Fulfillment of Science Requirement

Introductory biology course for majors in biology or environmental biology, emphasizing the ecological and evolutionary context of modern biology

Fall 2023: EEEB UN2001

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 2001	001/11958	M W 1:10pm - 2:25pm 333 Uris Hall	Shahid Naeem, 3.00 Andres Bendesky		33/60

EESC UN2330 SCIENCE FOR SUSTAINABLE DEVPT. 3 points.

CC/GS: Partial Fulfillment of Science Requirement

The course provides students with the natural science basis to appreciate co-dependencies of natural and human systems, which are central to understanding sustainable development. After completing the course, students should be able to incorporate scientific approaches into their research or policy decisions and be able to use scientific methods of data analysis. The semester will highlight the climate system and solutions from both physical and ecological perspectives; water resources; food production and the cycling of nutrients; and the role of biodiversity in sustainable development. The course emphasizes key scientific concepts such as uncertainty, experimental versus observational approaches, prediction and predictability, the use of models and other essential methodological aspects.

Fall 2023: EESC UN2330

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EESC 2330	001/13131	T Th 2:40pm - 3:55pm 501 Northwest Corner	John Mutter, 3 Jenna Lawrence		108/120

EEEB UN3005 INTRO-STAT-ECOLOGY # EVOL BIOL. 3.00 points.

Prerequisites: some background in ecology, evolutionary biology, and/or statistics is recommended.

Intended for those WITHOUT prior knowledge of statistics. Some background in ecology, evolutionary biology required. This is an introduction to the theoretical principles and practical application of statistical methods in ecology and evolutionary biology. The course will cover the conceptual basis for a range of statistical techniques through a series of lectures using examples from the primary literature. The application of these techniques will be taught through the use of statistical software in computer-based laboratory sessions

Fall 2023: EEEB UN3005

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 3005	001/11967	M 6:10pm - 8:00pm 603 Hamilton Hall	Steffen Foerster	3.00	21/35

EEEB UN3015 INTRO-STAT-ECOLGY/EVOL BIO-LAB. 0.00 points.

Required Lab for EEEB UN3005. An introduction to the theoretical principles and practical application of statistical methods in ecology and evolutionary biology. The course will cover the conceptual basis for a range of statistical techniques through a series of lectures using examples from the primary literature. The application of these techniques will be taught through the use of statistical software in computer-based laboratory sessions

Fall 2023: EEEB UN3015

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 3015	001/11978	T 6:10pm - 7:25pm 1015 Ext Schermerhorn Hall	Steffen Foerster	0.00	10/20
EEEB 3015	002/11986	Th 6:10pm - 7:25pm 516 Hamilton Hall	Steffen Foerster	0.00	9/20

EEEB UN3240 Challenges and Strategies of Primate Conservation. 3 points.

CC/GS: Partial Fulfillment of Science Requirement
Enrollment limited to 20. Priority given to EBHS students.

Prerequisites: EEEB UN1010 or EEEB UN1011 or the instructor's permission.

Throughout their range, numerous primate species are on the brink of extinction. This course examines the central issues relating to conservation of wild primates and explores strategies and solutions for preserving these endangered populations. Through the analysis of the ecological and social traits linked to vulnerability and the direct and indirect threats from human activities, students will gain a practical understanding of how to develop successful, sustainable, and practical conservation strategies.

Fall 2023: EEEB UN3240

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 3240	001/12001	T Th 10:10am - 11:25am 555 Ext Schermerhorn Hall	Alba Lucia Morales Jimenez	3	14/15

EEEB UN3940 Current Controversies in Primate Behavior and Ecology. 4 points.

CC/GS: Partial Fulfillment of Science Requirement
Taught every two years. Enrollment limited to 15.

Prerequisites: EEEB UN1011 or the equivalent.

Critical in-depth evaluation of selected issues in primate socioecology, including adaptationism, sociality, sexual competition, communication, kinship, dominance, cognition, and politics. Emphasizes readings from original literature.

Fall 2023: EEEB UN3940

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 3940	001/12008	T 12:10pm - 2:00pm 1015 Ext Schermerhorn Hall	Marina Cords	4	6/12

EEEB UN3991 THESIS RESEARCH SEMINAR. 3.00 points.

Open only to seniors.

Guided, independent, indepth research experience culminating in the senior essay. Weekly meetings are held to review work in progress, to share results through oral and written reports, and to consider career options for further work in this field

Fall 2023: EEEB UN3991

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 3991	001/12021	Th 4:10pm - 6:00pm 530 Altschul Hall	Matthew Palmer	3.00	14/25

EEEB UN3993 EBHS SENIOR THESIS SEMINAR. 3.00 points.

Four points for the year-long course.

Prerequisites: the instructor's permission and senior standing as a major in The Evolutionary Biology of the Human Species (EBHS).

Prerequisites: the instructor's permission and senior standing as a major or concentrator in The Evolutionary Biology of the Human Species (EBHS). Year-long seminar in which senior EBHS majors develop a research project and write a senior thesis. Regular meetings are held to discuss research and writing strategies, review work in progress, and share results through oral and written reports

Fall 2023: EEEB UN3993

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 3993	001/12025	W 3:10pm - 5:00pm 1020 Schermerhorn Hall	Jill Shapiro	3.00	2/8

EEEB UN3997 INDEPENDENT STUDY. 1.00-3.00 points.

CC/GS: Partial Fulfillment of Science Requirement

Students conduct research in environmental biology under supervision of a faculty mentor. The topic and scope of the research project must be approved before the student registers for the course

Fall 2023: EEEB UN3997

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 3997	001/12029		Jill Shapiro	1.00-3.00	1/8

EEEB GU4065 Tropical Biology. 4.00 points.

Study ecology, evolution, and conservation biology in one of the world's most biologically spectacular settings, the wildlife-rich savannas of Kenya. Although we will meet have a few meetings during the fall semester, the majority of the coursework will be completed during a 16 day field trip to Kenya during winter break. Students will spend their time immersed in an intensive field experience gaining sophisticated training in fieldwork and biological research. Note that there is a lab fee to cover all in-country expenses, and students are also responsible for the cost of airfare to and from Kenya

Fall 2023: EEEB GU4065

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 4065	001/14054		Dustin Rubenstein	4.00	14/14

EEEB GU4111 Ecosystem Ecology and Global Change. 3 points.

CC/GS: Partial Fulfillment of Science Requirement

This course will provide an introduction to ecosystem ecology. Topics include primary production carbon storage, nutrient cycling, and ecosystem feedbacks to climate change. By the end of the course, students will be well versed in the basics of ecosystem ecology and have exposure to some current areas of research. Topics covered will include some aspects that are well established and others that are hotly debated among scientists. Throughout the course, students will be encouraged to think independently and act like research scientists.

Fall 2023: EEEB GU4111

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 4111	001/12037	T Th 10:10am - 11:25am 1015 Ext Schermerhorn Hall	Duncan Menge	3	11/25

EEEB GU4200 Introduction to Mammalogy. 3.00 points.

CC/GS: Partial Fulfillment of Science Requirement

Prerequisites: Introductory course in Biology or Evolution.

This taxon-based course provides students with a basic understanding of the diversity and natural history of the mammals. Broad coverage of mammalian biology includes: morphological adaptations, evolutionary history and biogeography

Fall 2023: EEEB GU4200

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 4200	001/12049	Th 6:10pm - 8:00pm 1015 Ext Schermerhorn Hall	Scott Silver	3.00	13/14

EEEB GU4666 Insect Diversity. 4 points.

Enrollment limited to 25. Priority given to undergraduate environmental biology majors.

Introduction to phylogenetic relationships, evolution, and ecology of the major groups of arthropods, with emphasis on insects. Lab: identification of common families of spiders and insects of the northeastern United States.

Fall 2023: EEEB GU4666

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 4666	001/12057	T 2:00pm - 3:50pm 1015 Ext Schermerhorn Hall	Bekka Brodie	4	12/25
EEEB 4666	001/12057	W 5:00pm - 8:00pm None None	Bekka Brodie	4	12/25

EEEB GU4910 Field Botany and Plant Systematics. 4 points.

CC/GS: Partial Fulfillment of Science Requirement

Course fee: \$50. Enrollment limited to 14. Priority given to E3B graduate students.

Prerequisites: introductory biology sequence, including organismal biology.

A survey of vascular plants with emphasis on features of greatest utility in identifying plants in the field to the family level. This will be coupled with a survey of the major plant communities of northeastern North America and the characteristic species found in each. The course will consist of one lecture and one laboratory per week with several lab sessions extended to accommodate field trips to local and regional natural areas.

Fall 2023: EEEB GU4910

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 4910	001/12060	W 2:10pm - 4:00pm 1015 Ext Schermerhorn Hall	Matthew Palmer	4	16/17
EEEB 4910	001/12060	F 9:00am - 1:00pm 212a Lewisohn Hall	Matthew Palmer	4	16/17

Spring 2024

EEEB UN1005 1ST YR SEM-ECOL, EVOL, EVIR BIO. 1.00 point.

This course provides a brief introduction to ecology, evolution and environmental biology with an emphasis on key concepts, current research, and opportunities for undergraduates. The course is taught jointly by the faculty in the department of Ecology, Evolution and Environmental Biology (E3B), with each session covering a different aspect of research and/or teaching in the department. Students are expected to complete weekly readings and participate in discussion both in class and online

Spring 2024: EEEB UN1005

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 1005	001/13280	T 2:40pm - 3:55pm 1015 Ext Schermerhorn Hall	Jill Shapiro, Matthew Palmer	1.00	18/30

EEEB UN1011 BEHAVIOR BIOL-LIVING PRIMATES. 3.00 points.

CC/GS: Partial Fulfillment of Science Requirement

Prerequisites: Corequisite EEEB UN1111

Prerequisites: Corequisite EEEB UN1111 Study of non-human primate behavior from the perspective of phylogeny, adaptation, physiology and anatomy, and life history. Focuses on the four main problems primates face: finding appropriate food, avoiding being eaten themselves, reproducing in the face of competition, and dealing with social partners. Along with Human Origins - Evolution, this serves as a core required class for the EBHS program

Spring 2024: EEEB UN1011

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 1011	001/13412	M W 1:10pm - 2:25pm 140 Uris Hall	Aaron Sandel	3.00	43/50

EEEB UN1111 BEHAVIORAL BIOL-DISC. 0.00 points.

Spring 2024: EEEB UN1111

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 1111	001/13415	W 6:10pm - 7:00pm 325 Pupin Laboratories	Aaron Sandel	0.00	15/25
EEEB 1111	002/13417	F 11:00am - 11:50am 311 Fayerweather	Aaron Sandel	0.00	4/25

EEEB UN2002 ENVIRONMENTAL BIOLOGY II. 4.00 points.

CC/GS: Partial Fulfillment of Science Requirement

Prerequisites: EEEB UN2001

Prerequisites: EEEB UN2001 Second semester of introductory biology sequence for majors in environmental biology and environmental science, emphasizing the ecological and evolutionary aspects of biology. Also intended for those interested in an introduction to the principles of ecology and evolutionary biology

Spring 2024: EEEB UN2002

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 2002	001/13282	M W 11:40am - 12:55pm 313 Fayerweather	Matthew Palmer	4.00	21/40

EEEB UN3087 CONSERVATION BIOLOGY. 3.00 points.

CC/GS: Partial Fulfillment of Science Requirement

Prerequisites: introductory organismal biology course, ideally EEEB UN2002.

Prerequisites: Science majors should have completed one introductory course that covers biology, ecology, evolution or conservation prior to taking this course. Non-science majors should have some exposure to these same topics but are not required to have taken courses in advance of this class

Spring 2024: EEEB UN3087

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 3087	001/13288	M 6:10pm - 8:00pm 1015 Ext Schermerhorn Hall	Dustin Partridge	3.00	30/30

EEEB UN3187 CONSERVATION BIOLOGY-DISC. 0.00 points.

Spring 2024: EEEB UN3187

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 3187	001/13385	W 6:10pm - 7:00pm 406 Hamilton Hall	Dustin Partridge	0.00	12/15
EEEB 3187	002/13393	Th 6:10pm - 7:00pm 406 Hamilton Hall	Dustin Partridge	0.00	6/15

EEEB UN3204 Dynamics of Human Evolution. 4 points.

CC/GS: Partial Fulfillment of Science Requirement

Enrollment limited to 13. Priority is given to EBHS majors/concentrators.

Prerequisites: EEEB UN1010 Human Species/HO&E, ANTH UN1007

Origins of Human Society, or the equivalent.

Seminar focusing on recent advances in the study of human evolution.

Topics include changing views of human evolution with respect to early hominin behavior, morphology, culture and evolution. [Either Dynamics of Human Evolution or Neandertals is taught every other year.]

Spring 2024: EEEB UN3204

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 3204	001/13293	Th 4:10pm - 6:00pm 652 Schermerhorn Hall	Jill Shapiro	4	12/12

EEEB UN3215 FORENSIC OSTEOLOGY. 3.00 points.

CC/GS: Partial Fulfillment of Science Requirement

Taught every other year. Enrollment limited to 15. Priority given at first class session to EBHS majors/concentrators.

Prerequisites: no prior experience with skeletal anatomy required. Not appropriate for students who have already taken either EEEB GU4147 or EEEB GU4148.

Prerequisites: no prior experience with skeletal anatomy required. Not appropriate for students who have already taken either EEEB GU4147 or EEEB GU4148. An exploration of the hidden clues in your skeleton. Students learn the techniques of aging, sexing, assessing ancestry, and the effects of disease, trauma and culture on human bone

Spring 2024: EEEB UN3215

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 3215	001/13304	M W 4:10pm - 6:00pm 506 Schermerhorn Hall	Jill Shapiro	3.00	17/15

EEEB UN3992 THESIS RESEARCH SEMINAR. 3.00 points.

Guided, independent, indepth research experience culminating in the senior essay. Weekly meetings are held to review work in progress, to share results through oral and written reports, and to consider career options for further work in this field

Spring 2024: EEEB UN3992

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 3992	001/13324	Th 4:10pm - 6:00pm 202 Altschul Hall	Matthew Palmer	3.00	7/20

EEEB UN3994 EBHS SENIOR THESIS SEMINAR. 3.00 points.

Prerequisites: the instructors permission and senior standing as a major in The Evolutionary Biology of the Human Species (EBHS). Year-long seminar in which senior EBHS majors develop a research project and write a senior thesis. Regular meetings are held to discuss research and writing strategies, review work in progress, and share results through oral and written reports

Spring 2024: EEEB UN3994

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 3994	001/13330	M 1:10pm - 3:00pm 1020 Schermerhorn Hall	Jill Shapiro	3.00	2/6

EEEB UN3998 INDEPENDENT STUDY. 1.00-3.00 points.

CC/GS: Partial Fulfillment of Science Requirement

Students conduct research in environmental biology under supervision of a faculty mentor. The topic and scope of the research project must be approved before the student registers for the course

Spring 2024: EEEB UN3998

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 3998	001/13333		Matthew Palmer	1.00-3.00	0/10
EEEB 3998	002/13335		Jill Shapiro	1.00-3.00	2/6

EEEB GU4015 ANIMAL COMMUN:PRIMATE PERSP. 3.00 points.

Spring 2024: EEEB GU4015

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 4015	001/13338	T Th 10:10am - 11:25am 328 Uris Hall	Alba Lucia Morales Jimenez	3.00	12/20

EEEB GU4055 Principles and Applications of Modern DNA Sequencing. 3 points.

CC/GS: Partial Fulfillment of Science Requirement

Prerequisites: An introductory biology course or instructor permission

Genome sequencing, the technology used to translate DNA into data, is now a fundamental tool in biological and biomedical research, and is expected to revolutionize many related fields and industries in coming years as the technology becomes faster, smaller, and less expensive. Learning to use and interpret genomic information, however, remains challenging for many students, as it requires synthesizing knowledge from a range of disciplines, including genetics, molecular biology, and bioinformatics. Although genomics is of broad interest to many fields, such as ecology, evolutionary biology, genetics, medicine, and computer science, students in these areas often lack sufficient background training to take a genomics course. This course bridges this gap, by teaching skills in modern genomic technologies that will allow students to innovate and effectively apply these tools in novel applications across disciplines. To achieve this, we implement an active learning approach to emphasize genomics as a data science, and use this organizing principle to structure the course around computational exercises, lab-based activities using state-of-the-art sequencing instruments, case studies, and field work. Together, this approach will introduce students to the principles of genomics by allowing them to generate, analyze, and interpret data hands-on while using the most cutting-edge genomic technologies of today in a stimulating and engaging learning experience.

Spring 2024: EEEB GU4055

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 4055	001/13341	M W 1:10pm - 2:25pm 1015 Ext Schermerhorn Hall	Deren Eaton, Andres Bendesky	3	19/20

EEEB GU4105 Intermediate Statistics for Ecology and Evolutionary Biology. 3.00 points.

This course builds on an introductory course in statistics and dives deeper into linear regression models, including generalized linear models, mixed/hierarchical models, model diagnostics, and model selection. It focuses on the practical applications of these methods rather than the mathematical complexities. A prior course or equivalent knowledge of fundamental concepts in statistics as well as familiarity with R programming are required pre-requisites for this course

Spring 2024: EEEB GU4105

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 4105	001/13349	T 6:10pm - 8:00pm 1015 Ext Schermerhorn Hall	Steffen Foerster	3.00	9/20

EEEB GU4112 Ichthyology. 3 points.

CC/GS: Partial Fulfillment of Science Requirement

Fish are an incredibly diverse group with upwards of 27,000 named species. They are important ecologically, represent one of the major vertebrate lineages and face numerous conservation threats. This course will provide students with the tools to understand how the evolution, systematics, anatomy, and diversity of fishes influence their conservation status.

Spring 2024: EEEB GU4112

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 4112	001/13352	F 10:10am - 12:40pm 1015 Ext Schermerhorn Hall		3	15/15

EEEB GU4126 INTRO TO CONSERVATION GENETICS. 3.00 points.

In this course, we will use evolutionary genetic principles and population genetic models to describe the extent and distribution of genetic variation in populations and species, and determine ways to conserve it. A basic knowledge of genetics and mathematics is assumed.

Spring 2024: EEEB GU4126

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 4126	001/13357	Th 12:10pm - 2:00pm 1015 Ext Schermerhorn Hall	Rachel Welt	3.00	15/20

EEEB GU4135 URBAN ECOLOGY # DESIGN. 3.00 points.

Spring 2024: EEEB GU4135

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 4135	001/13361	F 11:10am - 1:00pm 608 Schermerhorn Hall	Matthew Palmer	3.00	30/30

EEEB GU4201 ECO, BEHAVIOR # CONSERVATION OF MAMMALS. 3.00 points.

CC/GS: Partial Fulfillment of Science Requirement

Prerequisites: A course in either organismal biology, evolution, ecology or permission of the instructor if G4200 was not taken.

This course examines the wide ranging aspects of features of mammalian natural history, behavior and ecology, and considers the implications of these features on the conservation status of particular mammal taxa for the future. We will also explore particular conservation challenges for mammals such as bats, grazing mammals, and large carnivores in increasingly human-dominated landscapes. This course will be a combination of lecture and student led discussions related to the conservation issues facing mammals today.

Spring 2024: EEEB GU4201

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 4201	001/13367	Th 6:10pm - 8:00pm 1015 Ext Schermerhorn Hall	Scott Silver	3.00	10/12

EEEB GU4650 Biodiversity and Ecosystem Processes. 3 points.

Prerequisites: E3B courses in ecology, evolution and/or biodiversity or the instructor's permission.

Survey of current advances in scientific research that focuses on the role biodiversity plays in governing ecological processes (e.g., biogeochemistry, resisting invasion by exotic species, or stabilizing communities) and ecosystem services (e.g., soil fertility, water quality, climate regulation).

Spring 2024: EEEB GU4650

Course Number	Section/Call Number	Times/Location	Instructor	Points	Enrollment
EEEB 4650	001/13371	M 4:10pm - 6:00pm 1015 Ext Schermerhorn Hall	Shahid Naeem	3	16/25

Of Related Interest

Economics

ECON GU4625	Economics of the Environment
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Earth and Environmental Sciences

EESC UN2330	SCIENCE FOR SUSTAINABLE DEVPT
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EESC GU4050	GLOBAL ASSMT-REMOTE SENSING
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EESC GU4550	Plant Ecophysiology
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EESC GU4835	Wetlands and Climate Change
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Political Science

POLS GU4730	GAME THEORY # POLIT THEORY
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