# EVOLUTIONARY BIOLOGY OF THE HUMAN SPECIES

## Ecology, Evolution & Environmental Biology :

Department website: http://www.e3b.columbia.edu

Office location: 1014 Schermerhorn Ext

Office contact: e3badmin@columbia.edu

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

Evolutionary Biology of the Human Species Advisor: Dr. Jill Shapiro, 1011 Schermerhorn Extension; jss19@columbia.edu

Director, Administration and Finance: Kyle Bukhari, 1014B Schermerhorn Extension; kb2337@columbia.edu

## The Study of Ecology, Evolution & Environmental Biology

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.

## Student Advising

DUS for Environmental Biology--Matthew Palmer mp2434@columbia.edu

DUS for Evolutionary Biology of the Human Species--Jill Shapiro jss19@columbia.edu

## Coursework Taken Outside of Columbia

Information to be added

## Undergraduate Research and Senior Thesis

Information to be added

## Department Honors and Prizes

Information to be added

## Other Important Information

## Professors

Marina Cords (also Anthropology)
Ruth DeFries (also Climate School)
Maria Diuk-Wasser
Kevin Griffin (also Earth and Environmental Sciences)
Shahid Naeem
Dustin Rubenstein
María Uriarte

## Associate Professors

Duncan Menge

## Assistant Professors

Andrés Bendesky
Deren Eaton

## Lecturers

Bekka Brodie
Matthew Palmer
Jill Shapiro

## Adjunct Faculty/Research Scientists

### Columbia University

Hilary Callahan (Barnard Biology)
Steven Cohen (SIPA)
Lisa Dale
Adela Gondek (SIPA)
Paul Hertz (Barnard)
Darcy Kelley (Biology)
Allison Lopatkin (Barnard Biology)
Alba Morales-Jimenez
Brian Morton (Barnard Biology)
Paul Olsen (Lamont-Doherty)
Dorothy Peteet (Lamont-Doherty)
Miguel Pinedo Vasquez
Alison Pischedda (Barnard Biology)
Robert Pollack
Marya Pollack

Paige West (Barnard)
Natalie Boelman (Lamont-Doherty)

### American Museum of Natural History

Felicity Arengo
Mary Blair
Frank Burbrink
Joel Cracraft
Suzanne Macey
Anna MacPherson
Christopher Raxworthy
Robert Rockwell
Nancy Simmons
Brian Smith
Jessica Ware

### The New York Botanical Garden

Alex McAlvay
Michael Balick
Dennis Stevenson

### Wildlife Conservation Society

Howard Rosenbaum
Scott Silver
Patrick R. Thomas

### Ecohealth Alliance

Peter Daszak
Kevin Olival
Mindy Rostal

### Others

Rachel Cox (Riverdale Country School)

Winslow Hansen (Cary Institute)

Sara Kross (University of Canterbury)

Chad Seewagen (Great Hollow)

Eleanor Sterling (Hawai'i Institute of Marine Biology)

## Guidance for Undergraduate Students in the Department

Program Planning for all Students

Course Numbering Structure

Guidance for First-Year Students

Guidance for Transfer Students

## Undergraduate Programs of Study

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<br>& EEEB UN2002 | ENVIRONMENTAL BIOLOGY I<br>and ENVIRONMENTAL BIOLOGY II |
| Two terms of environmental science such as the following: | |
| EESC UN2100 | EARTH'S ENVIRO SYST: CLIM SYST |
| EESC UN2200 | EARTH'S ENVIRONMENTAL SYSTEMS:<br>THE SOLID EARTH |
| Two terms of chemistry such as the following: | |
| CHEM UN1403<br>& CHEM UN1404 | GENERAL CHEMISTRY I-LECTURES<br>and GENERAL CHEMISTRY II-LECTURES |
| One term of physics such as the following: | |
| PHYS UN1201 | GENERAL PHYSICS I |
| One term of statistics such as the following: | |
| EEEB UN3005 | INTRO-STAT-ECOLOGY # EVOL BIOL |
| BIOL BC2286 | STATISTICS # 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<br>& EEEB UN2002 | ENVIRONMENTAL BIOLOGY I<br>and ENVIRONMENTAL BIOLOGY II |
| Two terms of chemistry such as the following: | |
| CHEM UN1403<br>& CHEM UN1404 | GENERAL CHEMISTRY I-LECTURES<br>and GENERAL CHEMISTRY II-LECTURES |
| Chemistry laboratory such as the following: | |
| CHEM UN1500 | GENERAL CHEMISTRY LABORATORY |
| Two terms of physics such as the following: | |
| PHYS UN1201<br>& PHYS UN1202 | GENERAL PHYSICS I<br>and GENERAL PHYSICS II |
| One term of statistics such as the following: | |
| EEEB UN3005 | INTRO-STAT-ECOLOGY # EVOL BIOL |
| BIOL BC2286 | STATISTICS # 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 Consevation, Ecology, Behavior and Conservation of Mammals, SEE-U in Jordan or Brazil, or other relevant offerings.) |

**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 UN2031 | Corpse Life: Anthropological Histories of the Dead [Previously Archaeologies of Death and |
| 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): As noted above, this is a partial listing. There are additional options for all of the categories that follow. They will be considered on an individual basis in consultation with the major/concentration adviser.

| | |
|---|---|
| **Human Variation/Adaptation/Genetics** | |
| EEEB UN3970 Biol Basis Of Human Variation | |
| EEEB GU4340 | HUMAN ADAPTATION |
| EEEB GU4700 | RACE:TANGLED HIST-BIOL CONCEPT |
| BIOL BC2100 | MOLECULAR # MENDELIAN GENETICS |
| BIOL GU4560 | EVOL IN THE AGE OF GENOMICS |
| **Primate Behavioral Biology and Ecology** | |

| | |
|---|---|
| EEEB UN3940 | Current Controversies in Primate Behavior and Ecology |
| EEEB GU4015 | ANIMAL COMMUN:PRIMATE PERSP |
| EEEB GU4134 | Behavioral Ecology |
| EEEB GU4201 | ECO, BEHAVIOR # CONSERVATION OF MAMMALS (can count for either breadth requirement or conservation requirement, but not both) |
| EEEB GU4350 | PRIMATE SEXUALITY |
| EEEB GU4370 | Parenting Like A Primate: The Evolution of Parental Care |
| BIOL BC2272 | ECOLOGY |
| BIOL BC2280 | ANIMAL BEHAVIOR |
| PSYC BC1119 | Systems and Behavioral Neuroscience |
| PSYC UN2420 | ANIMAL BEHAVIOR |
| PSYC UN2450 | BEHAVIORAL NEUROSCIENCE |
| PSYC S2490 | EVOLUTIONARY PSYCHOLOGY |
| PSYC BC3372 | Comparative Cognition |
| PSYC UN3450 | Evolution of Intelligence, Animal Communication, # Language |
| PSYC GU4242 | Evolution of Language (seminar) |
| PSYC GU4250 | Evolution of Intelligence, Cognition, and Language (Seminar) |
| **Human Evolution/Morphology** | |
| EEEB UN3204 | Dynamics of Human Evolution |
| EEEB UN3208 | EXPLORATIONS IN PRIM ANATOMY |
| EEEB UN3215 | FORENSIC OSTEOLOGY |
| EEEB UN3220 | THE EVOL OF HUM GROWTH # DEVPT |
| EEEB UN3910 | THE NEANDERTALS |
| EEEB UN3998 | INDEPENDENT STUDY |
| EEEB GU4200 | Introduction to Mammalogy |
| ANAT BC2573 | HUMAN ANATOMY AND MOVEMENT |
| BIOL BC2278 | EVOLUTION |
| BIOL UN3006 | PHYSIOLOGY |
| BIOL UN3208 | Introduction to Evolutionary Biology |
| BIOL UN3019 | Brain Evolution |
| BIOL BC3360 | PHYSIOLOGY |

**Seminar**

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

| | |
|---|---|
| EEEB UN3204 | Dynamics of Human Evolution |
| EEEB UN3910 | THE NEANDERTALS |
| EEEB UN3940 | Current Controversies in Primate Behavior and Ecology |
| EEEB UN3970 Biol Basis Of Human Variation | |
| EEEB UN3993 & EEEB UN3994 | EBHS SENIOR THESIS SEMINAR and EBHS SENIOR THESIS SEMINAR |

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** | |
| EEEB UN1010 | HUMAN ORIGINS # EVOLUTION |
| EEEB UN3204 | Dynamics of Human Evolution |
| EEEB UN3208 | EXPLORATIONS IN PRIM ANATOMY |
| EEEB UN3215 | FORENSIC OSTEOLOGY |
| EEEB UN3220 | THE EVOL OF HUM GROWTH # DEVPT |
| EEEB UN3910 | THE NEANDERTALS |
| EEEB UN3998 | INDEPENDENT STUDY |
| **Primate Behavioral Ecology and Evolution** | |
| EEEB UN1011 | BEHAVIOR BIOL-LIVING PRIMATES |
| EEEB UN3940 | Current Controversies in Primate Behavior and Ecology |
| EEEB GU4015 | ANIMAL COMMUN:PRIMATE PERSP |
| EEEB GU4350 | PRIMATE SEXUALITY |
| EEEB GU4370 | Parenting Like A Primate: The Evolution of Parental Care |
| **Human Variation** | |
| EEEB UN3970 Biol Basis Of Human Variation | |
| EEEB 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 |

## MINOR IN ECOLOGY, EVOLUTION, AND ENVIRONMENTAL BIOLOGY

Beginning in fall 2024 E3B is pleased to announce a new minor in Ecology, Evolution, and Environmental Biology. This minor provides both grounding in the intellectual pillars of the department while affording students the option to explore the broad scope of biodiversity, ecosystems, and environmental and evolutionary biology. Students may also delve into specific subfields such as conservation biology, botany, behavioral biology and ecology, ecosystem ecology, primatology, or human evolution. No previous biology background is required. Ideally, students will take one course by the end of their second year to see if the program is of interest, but juniors and even seniors who develop a curiosity in the subject may complete the minor without difficulty.

Advising: Contact the Directors of Undergraduate Programs. Matt Palmer mp2434@columbia.edu (mp2434@columbia.edu) advises students who have a broad organismal/ecosystem focus corresponding to interests in the EB program; Jill Shapiro jss19@columbia.edu advises students with a focus on human and non-human primate evolutionary biology and behavior, corresponding to the EBHS program. In addition

to the program advisors, guidance as to offerings and a complete list of courses including prerequisites is available on the E3B website.

**REQUIRED COURSES**

Minors must take one of the following four introductory courses and any other four 3-4 points E3B courses (this includes the other introductory classes).

EEEB UN2001 Environmental Biology 1 (offered every fall)

EEEB UN2002 Environmental Biology 2 (offered every spring)

EEEB UN1010 Human Origins and Evolution (offered every fall)

EEEB UN1011 Behavioral Biology of Living Primates (offered every spring)

The four introductory offerings are "gateway" classes. We recommend that students interested broadly in organismal biology/environmental biology take either Environmental Biology 1 or 2, or both. Those with a focus on human and non-human primate evolutionary biology and behavior should take either Human Origins and Evolution or Behavioral Biology of Living Primates. This will maximize the number of upper-level courses that would be open but there is still considerable flexibility. There are a small number of classes without any prerequisites and students with foundational biology courses from either Columbia or Barnard Biology may fulfill some class prerequisites*. Advisors will provide guidance as to offerings and a complete list of courses including prerequisites is available on the E3B website.

*BIOL2005/2006 and Barnard BIO BC1501 are similar to EEEB2001 (Environmental Biology 1) and may substitute this for courses requiring the latter as a prerequisite, but must take five other courses in E3B. Since the BIOL sequence does not include evolution (in contrast to EB1) we highly recommend that they take Environmental Biology 2 or one of the other foundation courses. Barnard BIO BC1500 is similar to Environmental Biology 2 and so students who have completed this can count it as having satisfied the introductory course requirement, and so can take any five courses in E3B to complete the minor.

**COURSE OPTIONS**

UN3001 Saga of Life

UN3005 Intro Statistics Ecology and Evolutionary Biology

UN3087 Conservation Biology

UN3204 Dynamics of Human Evolution

UN3208 Explorations Primate Anatomy

UN3215 Forensic Osteology

UN3220 Evolution of Human Growth and Evolution

UN3240 Primate Conservation

UN3910 The Neandertals

UN3940 Current Controversies in Primate Behavior

UN3970 Biological Basis of Human Variation

UN3919 Trading Nature

UN3997 Independent Study

UN3998.002 Group Independent Study in Postcranial Osteology

GU4015 Animal Communication: A Primate Perspective

GU4050 Programming and Data Science Skills

GU4055 Principles and Applications in Modern DNA Sequencing

GU4065 Tropical Biology (Winter Break Course in Kenya)

GU4086 Ethnobotany

GU4100 Forest Ecology

GU4105 Intermediate Statistics for Ecology and Evolution

GU4111 Ecosystem Ecology and Global Change

GU4112 Ichthyology

GU4126 Conservation Genetics

GU4127 Disease Ecology

GU4129 Zoo Conservation

GU4134 Behavioral Ecology

GU4135 Urban Ecology and Design

GU4140 Ornithology

GU4150 Theoretical Ecology

GU4160 Landscape Ecology

GU4192 Introduction to Landscape Analysis

GU4195 Marine Conservation

GU4200 Introduction to Mammalogy

GU4201 Ecology, Behavior and Conservation of Mammals

GU4210 Herpetology

GU4340 Human Adaptation

GU4350 Primate Sexuality

GU4370 Parenting Like a Primate: the Evolution of Parental Care

GU4550 Plant Ecophysiology

GU4605 Human-Wildlife Conflict

GU4650 Biodiversity and Ecosystem Processes

GU4666 Insect Diversity

GU4670 Introduction to GIS

GU4700 Race: The Tangled History of a Biological Concept

GU4910 Field Botany and Plant Systematics

Summer Only:

S1001 Biodiversity

S1115 The Life Aquatic

S3015 Animal Behavior Through Fieldwork

With advisor approval, students may take a maximum of two courses from a limited set taught by affiliates in other departments. For example: DEES GU4560 The Ecology of Tree line in a Changing Climate; BIOL-BC2240 Plant Evolution and Diversity; BIOL/ANAT BC2574-Laboratory in Human Anatomy; BIOL-BC2272 Ecology; and BIOL BC-3380-Applied Ecology and Evolution.

Examples of focused programs (e.g., biodiversity, botany, conservation, ecology, evolutionary biology, human evolution & morphology, primatology, zoology, etc., available on the E3B Department website https://e3b.columbia.edu/

# For students who entered Columbia in or before the 2023-24 academic year

## 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) |
| 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 |
| One term of statistics. Select one of the following: | |
| EEEB UN3005 | INTRO-STAT-ECOLOGY # EVOL BIOL |
| BIOL BC2286 | STATISTICS # RESEARCH DESIGN |
| STAT UN1101 | INTRODUCTION TO STATISTICS |
| STAT UN1201 | CALC-BASED INTRO TO STATISTICS |

**Upper Division Courses**

| | |
|---|---|
| EEEB UN3087 | CONSERVATION BIOLOGY |
| 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 # 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 2024

**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

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

**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

**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

**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

**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

**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

**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

**EEEB GU4005 Conservation Policy. *3 points*.**
The purpose of this course is to arm emerging scientists with an understanding of conservation policy at the city, state, federal and international levels. Our focus will be on understanding the science that informs conservation policy, evaluating the efficacy of conservation policies for achieving conservation goals, and learning about the role that scientists play in forming policy.

**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

**EEEB GU4100 FOREST ECOLOGY. *4.00 points*.**
EEEB GU4100 Forest Ecology focuses on interpreting and understanding pattern and process in forested ecosystems. These ecosystems include the assemblages of trees and the biological communities and environments in which they exist. The complex interactions among the organisms and the physical environment are a major focus of this course. The course involves lecture, literature discussion, and field laboratory components, with an emphasis on the analysis and interpretation of student-collected data. FRIDAY MEETINGS WILL RUN ALL DAY IN SEPTEMBER and OCTOBER

**EEEB GU4129 Zoo Conservation. *3 points*.**
CC/GS: Partial Fulfillment of Science Requirement

This course examines the role and function of the modern zoo in the context of the modern conservation movement. Students will learn about the evolution of the zoological park from an entertainment venue to a reservoir of rare or otherwise endangered species of animals, and as a catalyst for conservation of these species.

**EEEB GU4140 ORNITHOLOGY. *3.00 points*.**
Prerequisites: *EEEB W2001*, *EEEB W2002*, or equivalent.
This basic ornithology class lays the foundation for more in-depth study as it presents an overview of avian evolution, ecology, and current conservation issues.

**EEEB GU4196 Coastal Ecosystem Science and Policy. *3.00 points*.**
With approximately 40# of the global population residing in coastal regions, only about 15# of Earth's coastlines remain intact. Human interactions have affected these complex and biodiverse ecosystems for thousands of years, leaving coasts vulnerable to climate change and the demands of human population increase. By understanding both the science and social behaviors behind ecosystem dynamics, policies can be put forth to mitigate current anthropogenic influences on coastal integrity. This seminar will take a multi-disciplinary in examining current issues and policies that affect coastal ecosystems around the world. To do so, the semester will be divided into three sections. We will begin with the foundations: what defines a coastal ecosystem and how society and these environments have influenced one another. The second part of class will provide a primer on policy development and implementation. Finally, the remainder of the semester will be dedicated to the pertinent problems facing today's coastal ecosystems and the policies put forth in response. Bulletin Description: With approximately 40# of the global population residing in coastal regions, only about 15# of Earth's coastlines remain intact. This course provides an overview of pressing issues and key policies that impact these coastal ecosystems. We will examine the roles that science, history, and social dynamics play in developing and implementing coastal policies and management, while enhancing skills in science communication. Some background in ecology, such as EBII, is recommended but not required. Previous experience in policy is not required

**EEEB GU4350 PRIMATE SEXUALITY. *3.00 points*.**
CC/GS: Partial Fulfillment of Science Requirement

Prerequisites: (EEEB UN1010) or (EEEB UN1011)
In this course we take an integrative and comparative approach to understanding the sexual lives of primates. Focusing on mating and reproductive behavior with an explicitly evolutionary perspective, we will identify the fundamental principles of how and why selection has favored particular behaviors and morphologies in different primate species.

# Spring 2025

**EEEB UN1005 Introduction to Ecology, Evolution, and Environmental Biology. *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 2025: EEEB UN1005**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 1005 | 001/14900 | T 2:40pm - 3:55pm 1015 Ext Schermerhorn Hall | Jill Shapiro, Matthew Palmer | 1.00 | 8/30 |

**EEEB UN1011 BEHAVIOR BIOL-LIVING PRIMATES. *3.00 points*.**
CC/GS: Partial Fulfillment of Science Requirement

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 2025: EEEB UN1011**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 1011 | 001/14904 | M W 1:10pm - 2:25pm 503 Hamilton Hall | Marina Cords | 3.00 | 41/50 |

**EEEB UN1111 BEHAVIORAL BIOL-DISC. *0.00 points*.**

**Spring 2025: EEEB UN1111**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 1111 | 001/14907 | W 6:10pm - 7:00pm 1015 Ext Schermerhorn Hall | Marina Cords | 0.00 | 23/25 |
| EEEB 1111 | 002/14908 | F 11:10am - 12:00pm 1015 Ext Schermerhorn Hall | Marina Cords | 0.00 | 20/25 |

**EEEB UN2002 ENVIRONMENTAL BIOLOGY II. *4.00 points*.**
CC/GS: Partial Fulfillment of Science Requirement

Prerequisites: EEEB UN2001 *EEEB W2001*.
Prerequisites: EEEB UN2001 Second semester of introductory biology sequence for majors in enviromnental 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 2025: EEEB UN2002**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 2002 | 001/14912 | M W 11:40am - 12:55pm 833 Seeley W. Mudd Building | Matthew Palmer | 4.00 | 10/40 |

**EEEB UN3087 CONSERVATION BIOLOGY. *3.00 points*.**
CC/GS: Partial Fulfillment of Science Requirement

Prerequisites: introductory organismal biology course, ideally *EEEB W2002*.
Prerequisites: Science majors should have completed one introductory course that covers biology, ecology, evolution or conservation priort 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 2025: EEEB UN3087**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 3087 | 001/14920 | M 6:10pm - 8:00pm 332 Uris Hall | Dustin Partridge | 3.00 | 28/30 |

**EEEB UN3187 CONSERVATION BIOLOGY-DISC. *0.00 points*.**

**Spring 2025: EEEB UN3187**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 3187 | 001/14924 | W 6:10pm - 7:00pm 116 Knox Hall | Dustin Partridge | 0.00 | 18/20 |
| EEEB 3187 | 002/14930 | Th 6:10pm - 7:00pm 114 Knox Hall | Dustin Partridge | 0.00 | 9/20 |

**EEEB UN3208 EXPLORATIONS IN PRIM ANATOMY. *3.00 points*.**
CC/GS: Partial Fulfillment of Science Requirement
Taught every other year. Enrollment limited to 14.

Prerequisites: *EEEB W1010* or *EEEB W1011* or the instructor's permission. Introductory laboratory course in primate skeletal anatomy. From tarsiers to talapoins, guenons to gibbons, through hands-on expertise students explore the amazing range and diversity of the living members of this order.

**Spring 2025: EEEB UN3208**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 3208 | 001/14946 | T Th 1:10pm - 2:25pm 500d Schermerhorn Hall | Jill Shapiro | 3.00 | 6/6 |

**EEEB UN3220 THE EVOL OF HUM GROWTH # DEVPT. *3.00 points*.**
CC/GS: Partial Fulfillment of Science Requirement
Taught intermittently.

Prerequisites: *EEEB W1010* or *ANTH V1007* or the instructor's permission. This course explores central issues in human growth and development from birth through senescence. Emphasis will be placed on the factors responsible for the variability in current human growth patterns as well as the evolutionary divergence of a uniquely human pattern from our closest living and fossil relatives.

**Spring 2025: EEEB UN3220**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 3220 | 001/14973 | M W 11:40am - 12:55pm 606 Lewisohn Hall | Volney Friedrich | 3.00 | 11/15 |

**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 2025: EEEB UN3992**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 3992 | 001/14992 | Th 4:10pm - 6:00pm 116 Knox Hall | Matthew Palmer, Suzanne Macey, Maria Strangas | 3.00 | 9/35 |

**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 2025: EEEB UN3994**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 3994 | 001/14999 | 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 2025: EEEB UN3998**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 3998 | 001/15003 | | Jill Shapiro | 1.00-3.00 | 6/10 |
| EEEB 3998 | 002/15006 | | Matthew Palmer | 1.00-3.00 | 0/15 |

**EEEB GU4050 Programming and Data Science Skills for Biologists. *3 points*.**
Prerequisites: One year of introductory biology or permission from the instructor
Programming and Data Science Skills for Biologists will introduce students to computational tools and concepts that are fundamental to working with large biological datasets. This will include learning core principles of a common programming language (Python, R), in addition to tools for collaboration and version control (git, github), reproducible science (jupyter, rstudio), accessing large databases (HDF5, dask), and manipulating and visualizing data. Programmatic approaches are commonly used in biology but few biologists receive formal training in applying programming languages to these tasks. This course offers a deeper understanding of computational techniques and algorithms as they apply to real biological datasets, with particular attention to genomic, spatial, and network analyses.

**Spring 2025: EEEB GU4050**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 4050 | 001/15010 | T Th 10:10am - 11:25am 329 Uris Hall | Deren Eaton, Isaac Overcast | 3 | 9/25 |

**EEEB GU4086 ETHNOBOTANY. *3.00 points*.**
Priority given to students with backgrounds in ecology or plant systematics.

A survey of the relationships between people and plants in a variety of cultural settings. Sustainability of resource use, human nutrition, intellectual property rights, and field methodologies are investigated.

**Spring 2025: EEEB GU4086**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 4086 | 001/15015 | T 10:10am - 12:00pm 1015 Ext Schermerhorn Hall | Michael Balick, Alex McAlvay | 3.00 | 27/30 |

**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 2025: EEEB GU4105**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 4105 | 001/15017 | T 6:10pm - 7:00pm 502 Northwest Corner | Steffen Foerster | 3.00 | 6/20 |
| EEEB 4105 | 001/15017 | M 6:10pm - 8:00pm 1015 Ext Schermerhorn Hall | Steffen Foerster | 3.00 | 6/20 |

**EEEB GU4192 INTRO TO LANDSCAPE ANALYSIS. *3.00 points*.**
CC/GS: Partial Fulfillment of Science Requirement

Prerequisites: SDEV W3390 or EESC W4050 or the instructors permission. This class provides basic theory in landscape analysis and training in methods for analyzing landscapes, focusing on interpretation of satellite images. The class covers approaches and definitions in landscape analysis, data sources, land cover classification, change detection, accuracy assessment, projections of future land cover change, and techniques to interpret results of these analyses. Students will obtain hands-on experience working with data from a landscape related to his/her research or a landscape chosen by the instructors

**Spring 2025: EEEB GU4192**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 4192 | 001/15032 | T 8:40am - 11:25am 318 Hamilton Hall | Ruth DeFries | 3.00 | 22/25 |

**EEEB GU4210 HERPETOLOGY. *4.00 points*.**
Prerequisites: at least one course in Introductory Biology.
The course explores the science of herpetology in three parts: 1) the evolution and ecology of amphibians and reptiles; 2) their physiological adaptations; and 3) requirements for conservation, management, policy and monitoring.

**Spring 2025: EEEB GU4210**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 4210 | 001/15049 | Th 1:10pm - 2:25pm 1015 Ext Schermerhorn Hall | Matthew Palmer | 4.00 | 8/18 |
| EEEB 4210 | 001/15049 | T 1:10pm - 3:55pm 325 Pupin Laboratories | Matthew Palmer | 4.00 | 8/18 |

**EEEB GU4370 Parenting Like A Primate: The Evolution of Parental Care. *3.00 points*.**
Humans, like other animals, have evolved strategies of parental care, which include traits and trade-offs that enhance development and survival of offspring at the expense of parents. This course addresses questions such as: Why do we care for offspring? What physiological and genetic mechanisms underlie parental behavior? What drives variation in parental care strategies? We will analyze the diverse array of social and mating systems along with parental care strategies, focusing on primates including humans

**Spring 2025: EEEB GU4370**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 4370 | 001/15068 | T Th 10:10am - 11:25am 305 Uris Hall | Alba Lucia Morales Jimenez | 3.00 | 13/15 |

**EEEB GU4450 Ethology and the Evolution of Behavior. *3.00 points*.**
What are the sources and mechanisms of diversity of behavior among individuals and between species and how does behavior evolve at genetic, molecular, and neuronal levels? Readings will span an arc from an introduction to ethology and animal behavior, through studies of animal behavior in nature and in the laboratory, followed by how animals interact with their physicochemical and social environments, and ending with a perspective on the diversity and evolution of animal behavior

**Spring 2025: EEEB GU4450**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 4450 | 001/17784 | M 2:10pm - 4:00pm 1015 Ext Schermerhorn Hall | Andres Bendesky | 3.00 | 11/15 |

**EEEB GU4605 Human-Wildlife Conflict. *3.00 points*.**
This course explores the history, nature and underlying causes of human/wildlife conflict from the human perspective. We will emphasize areas of human and wildlife conflict that endanger the existence of wildlife species in significant portions of their range, and consider emerging strategies that may reduce human-wildlife conflict

**Spring 2025: EEEB GU4605**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 4605 | 001/15084 | Th 6:10pm - 8:00pm 1015 Ext Schermerhorn Hall | Scott Silver | 3.00 | 17/20 |

**EEEB GU4700 RACE:TANGLED HIST-BIOL CONCEPT. *4.00 points*.**
Enrollment limited to 15. Priority given to EBHS majors/concentrators.

From Aristotle to the 2020 US census, this course examines the history of race as a biological concept. It explores the complex relationship between the scientific study of biological differences-real, imagined, or invented and the historical and cultural factors involved in the development and expression of "racial ideas." Scientific background not required. [Additional hour for film screenings weekly in second half of the semester--attendance at films is mandatory.] Please note that this course DOES NOT fulfillment the SC requirement at the College or GS.

**Spring 2025: EEEB GU4700**

| Course Number | Section/Call Number | Times/Location | Instructor | Points | Enrollment |
|---|---|---|---|---|---|
| EEEB 4700 | 001/15090 | M W 4:10pm - 6:00pm 652 Schermerhorn Hall | Jill Shapiro | 4.00 | 10/12 |

# Of Related Interest

| | |
|---|---|
| **Economics** | |
| ECON GU4625 | ECONOMICS OF THE ENVIRONMENT |
| **Earth and Environmental Sciences** | |
| EESC UN2330 | SCIENCE FOR SUSTAINABLE DEVPT |
| EESC GU4050 | GLOBAL ASSMT-REMOTE SENSING |
| EESC GU4550 | Plant Ecophysiology |
| EESC GU4835 | Wetlands and Climate Change |
| **Political Science** | |
| POLS GU4730 | GAME THEORY # POLIT THEORY |