

# ENVIRONMENTAL SCIENCES

Program Director: Mary Ann Vinton

Program Office: Hixson-Lied Science Building, Room 438 and Creighton Hall 110

The Environmental Science Program approaches environmental issues from a strong natural science perspective yet transcends disciplinary boundaries and prepares students to analyze and solve complex problems with scientific, societal and ethical dimensions. The program is interdepartmental, with 19 faculty from eight departments: Biology, Chemistry, Communication Studies, Cultural and Social Studies, History, Philosophy, Physics and Political Science.

The major produces well-rounded scientists with the background and skills necessary to enter graduate degree programs or gain employment in diverse environmental careers such as conservation biology, natural resource management, environmental education, urban planning, law, public health, and environmental health and medicine. Students who major in Environmental Science take core courses in biology, chemistry, atmospheric science and sociology and then specialize in one of three tracks:

1. Global Environmental Systems which explores ecological and climatological aspects of the integrated earth system
2. Organismal/Population Ecology which emphasizes biological aspects of the environment and
3. Environmental Policy and Society which addresses historical, political and sociological aspects of environmental issues.

## How to Become an Environmental Science Major

Students may apply to become EVS majors after successful completion of EVS 113 (Introduction to Atmospheric Science) or BIO 201 (General Biology: Organismal and Population) or CHM 203 and 204 (General Chemistry I, Lecture and Lab). The application is online through the College of Arts and Sciences web site. Students may declare a preference for a particular faculty member as an academic advisor.

## Environmental Science Minors

The Environmental Science Program offers two minors. Both minors are composed of 18 hours. The Environmental Science minor contains a survey of courses in the atmospheric/physical sciences, biology and social sciences. The Environmental Policy Minor is composed of one natural science course and several required courses in political science/policy, ethics and sociology. For specific course requirements, click on the "Minors" tab above.

## Faculty

Professors: Theodore Burk, Erin Gross, John Schalles, Carol Fassbinder-Orth, Janet Seger

Associate Professors: Alistair Cullum, James (Jay) Leighter, Anne Ozar, Graham Ramsden, Samantha Senda-Cook, Mackenzie Taylor, Mary Ann Vinton

Assistant Professors: Pierce Greenberg, Gabriel Rivera, Fr. John Shea, Adam Sundberg, William (Ryan) Wishart, Amy Worthington

Instructor: Richard Ritz

Emeriti Professors: Barbara Dilly, Arthur Douglas

## Specific Requirements for Admission to the Environmental Science Major

- Successful completion of EVS 123 Science for a Changing Planet: An Introduction to Earth Systems or BIO 201 General Biology: Organismal and Population or CHM 203 General Chemistry I and CHM 204 General Chemistry I Laboratory.

## Majors in Environmental Sciences

- B.S. Evs., Environmental Science: Global and Environmental Systems Track (<http://catalog.creighton.edu/undergraduate/arts-sciences/environmental-sciences/environmental-science-global-environmental-systems-bsevs/>)
- B.S. Evs., Environmental Science: Organismal/Population Ecology Track (<http://catalog.creighton.edu/undergraduate/arts-sciences/environmental-sciences/environmental-science-organismal-population-ecology-bsevs/>)
- B.S. Evs., Environmental Science: Environmental Policy and Society Track (<http://catalog.creighton.edu/undergraduate/arts-sciences/environmental-sciences/environmental-science-environmental-policy-society-bsevs/>)

## Minors in Environmental Sciences

- Environmental Science Minor (<http://catalog.creighton.edu/undergraduate/arts-sciences/environmental-sciences/environmental-science-minor/>)
- Environmental Policy Minor (<http://catalog.creighton.edu/undergraduate/arts-sciences/environmental-sciences/environmental-policy-minor/>)

## Courses

### EVS 123. Science for a Changing Planet: An Introduction to Earth Systems. 3 credits. (Same as PHY 123)

Introduction to the study of the earth system science for science and non-science majors. Topics include: the earth as a system, the geosphere, the hydrosphere, the atmosphere, the biosphere and the anthroposphere. This course explores the interactions between the earth systems, including how anthropologic processes modify the Earth's environment. P. Understanding Natural Science. CO: EVS 124.

### EVS 124. Earth System Science Laboratory. 1 credit. (Same as PHY 124)

Laboratory work to acquaint the student with data collection, and analysis, and earth system topics such as the earth as a system, the geosphere, the hydrosphere, the atmosphere, the biosphere and the anthroposphere. Appropriate for science and non-science majors. P. Understanding Natural Science; CO: EVS 123.

### EVS 201. Introduction to Environmental Science. 3 credits. SP (Magis Core: Understanding Natural Science)

This course presents a scientific approach to the study of the environment and stresses the application of ecological concepts within a systems perspective. Topics include ecology, sustainability, populations, biodiversity, biogeochemistry, ecosystems, climate change, resources, agriculture, pollution and urban ecology. The course is an introductory course for EVS majors as well as an overview for students majoring in other areas. Satisfies Magis Core: Understanding Natural Science.

**EVS 301. Social and Cultural Theory. 3 credits.**

An exploration of the ideas central to sociology and anthropology from the perspective of their historical and contemporary theories. Special attention is given to the implications of these ideas for understanding human social values. P. So. stdg.

**EVS 307. Demography: World Population Issues. 3 credits. ENY, SP (Same as ANT 307, SOC 307)**

This course will provide a sociological examination of the development and evolution of different models of population dynamics from several contemporary cultures. It will place particular emphasis on the assumptions and logical consequences of each of these models. Includes a survey of historical and contemporary trends in population growth, as well as a review of competing perspectives about natural limits to that growth. P. So. stdg.

**EVS 311. Biostatistics. 4 credits. (Same as BIO 311)**

Introduction to statistical methods, data display, and experimental design as applied to biological studies. Data analysis is conducted using open-source statistical software. Does not count as a Biology laboratory course. P. BIO 201, BIO 202, BIO 205, and BIO 206; Mathematical Reasoning.

**EVS 315. Foundations of Ecology & Evolution. 3 credits. (Same as BIO 315)**

Introduces the ecological principles governing interactions between organisms and their environment and the change of populations and species over time in the process of evolution. This is the cornerstone, population-focused course in the biology major. P. BIO 201; BIO 202; or Instructor's consent.

**EVS 333. Environmental Politics And Policy. 3 credits. FA (Same as PLS 333)**

An overview of the world's environmental problems from a political perspective. Focuses on the political dynamics that shape environmental policy making. P. So. stdg.

**EVS 335. Zoology. 4 credits. FA (Same as BIO 335; Designated Statistical Reasoning course)**

Lecture and laboratory study of concepts and principles exemplified by both invertebrates and vertebrates with emphasis on animal diversity, morphology, evolution, and ecological relationships. This course is both lecture and lab. 3R, 3L. P. BIO 201, BIO 202, BIO 205, and BIO 206; Mathematical Reasoning.

**EVS 341. Botany. 4 credits. FA (Same as BIO 341; Designated Statistical Reasoning)**

Lecture and laboratory study of concepts and principles exemplified by the plant kingdom with emphasis on plant anatomy, development and growth, physiology, and evolution. P. BIO 201 and BIO 202; Mathematical Reasoning.

**EVS 353. Environmental Economics. 3 credits. SP (Same as ECO 353)**

The application of economic analysis to environmental issues. Emphasis on global environmental problems and policies and environmental problems and policies that are common to all nations. This course is not open to students registered in the Heider College of Business. P. Jr. stdg.

**EVS 354. Environmental Ethics. 3 credits. OD (Same as PHL 354)**

Critical study of the anthropocentrism-nonanthropocentrism debate and the individualism-holism debate and how they affect each other in the context of the determination of ecological value. If anthropocentrism is in some ways defective, what implications do these defects have for our moral obligations to animals, plants, waters, soil, future generations, species, ecosystems, and the planet? P. One Magis Core Philosophical Ideas course and one Magis Core Ethics course.

**EVS 371. Animal Behavior. 3 credits. FA, SU (Same as BIO 371)**

Evolutionary aspects of animal behavior, including physical and physiological bases of behavior, social behavior, behavioral ecology and genetics of behavior. 3R. P. BIO 201, BIO 202, BIO 205 and BIO 206.

**EVS 372. Animal Behavior Laboratory. 2 credits. SP (Same as BIO 372)**

Introduction to animal behavior research methods using structured observations and experiments in laboratory and field settings. P. Mathematical Reasoning course. P or CO: EVS 371 or BIO 371.

**EVS 374. Management Of Environmental Risk. 3 credits. OD (Same as MGT 374)**

Examination of environmental issues relevant to management decision making. Emphasis on risk analysis related to global/regional and workplace environmental issues. P. Jr. stdg.

**EVS 383. Vertebrate Natural History. 3 credits. SP (Same as BIO 383)**

Lecture series designed to provide students with a modern overview of vertebrate diversity. Lectures encompass ancestry, major adaptive shifts between classes of vertebrates, geographic distribution based on physiological limits, specialized feeding and locomotor modes, courtship patterns, reproductive strategies, and conservation issues. P. BIO 201, BIO 202, BIO 205, and BIO 206.

**EVS 384. Vertebrate Natural History Laboratory. 1 credit. SP (Same as BIO 384)**

Laboratory exercises that will provide experience in the following areas: dissection of representatives of each major vertebrate class with emphasis on the diagnostic differences between groups; identification and preservation of vertebrate specimens. Field trips are available on a limited basis. 3L. P. BIO 201, BIO 202, BIO 205, and BIO 206.

**EVS 415. Evolution. 3 credits. SP (Same as BIO 415)**

A comprehensive introduction to the fundamental paradigm of modern Biology. Topics include the origin and history of life; historical development of evolutionary theory; genetic basis of evolution; evolutionary mechanisms; organismal diversity, speciation and phylogenetic methods of analysis; evolutionary aspects of biological subdisciplines; and selected special topics. P. BIO 201, BIO 202.

**EVS 420. Environment & Society: Sociological Perspectives. 3 credits. (Same as SOC/ANT 420)**

Human societies interact with the natural environments in which they are embedded. An examination of the driving economic, political, cultural, and demographic forces that cause human modification of the natural world, the resulting social and environmental problems and public controversies. A focus on movements and policies related to environmental issues, and the prospects for the emergence of more environmentally "sustainable" societies. Prereq: Critical Issues in Human Inquiry; Senior standing.

**EVS 424. Sustainability Across the Rural Americas. 3 credits. SP, SU (Same as ANT 424, SOC 424)**

This interdisciplinary course studies sustainability and the diverse cultures of rural American peoples by looking at topics such as ethics, environmental resources, economic strategies, public policy and social inequality. This course offers off-campus field observation and ethical reflection assignments and involves students in active collaborative problem-solving research.

**EVS 430. Violent Environments and Sustainability. 3 credits.**  
(Intersections course; Same as ANT/SOC/JPS 430)

This course examines environmental violence and sustainability from an interdisciplinary perspective. Using ethnographic cases, we will consider environmental struggles for justice in relation to war, displacement, and political violence. Students will analyze how people resist and transform violence and explore concrete strategies for building a more just and sustainable world. Prereq: Critical Issues in Human Inquiry.

**EVS 439. Parasitology. 0-4 credits.**

Lecture and laboratory study of protozoan, helminth, and arthropod parasites with emphasis on their morphology, taxonomy, life histories, and host/parasite relationships. Includes parasites of medical and ecological importance. P. Any 300 or higher level BIO course, Mathematical Reasoning course, Ethics course.

**EVS 443. Environmental Geology. 4 credits. AY, FA (Same as ATS 443)**

An introduction to physical geology designed for environmental science majors. Topics include an examination of rock types, evolution and geological times, soil development and processes, earthquakes and global tectonics. In-class laboratories will be devoted to identification of rock types, soil analysis, and determination of fossil types. P. So. stdg. or IC.

**EVS 449. Animal Physiology. 3 credits.**

A study of the functions of animals from the cellular to the organ-systems level with emphasis on vertebrate systems physiology. 3R, 3L. P. BIO 202/BIO 206 and BIO 201/BIO 205; Jr. stdg.

**EVS 452. Microbiology. 3 credits. (Same as BIO 452)**

Microbiology is designed to provide an overview of the structure, metabolism, physiology, ecology, and interactions of prokaryotic and eukaryotic microorganisms. Among the organisms and acellular entities to be considered are bacteria, archaea, fungi, protists, helminths, and viruses. Most of these organisms are too small to be seen with the human eye and so are studied through a combination of microscopic, growth, and molecular techniques. While some microorganisms are pathogenic and cause important diseases of humans, animals, and plants, most are not. Rather, many microbes play a positive role in the cycling of carbon, nitrogen, and other nutrients within the global ecosystem and have beneficial effects on the other living organisms with which they are associated. P. Two of the following: BIO 317, BIO 362, CHM 371, CHM 383 or IC.

**EVS 453. Microbiology Lab. 1 credit.**

Microbiology is the study of organisms too small to be seen with the naked eye. Despite their small size, these organisms are ubiquitous and play important roles in human health, industry, and the functioning of ecosystems. This course is designed to cover a wide range of material in laboratory exercises, introducing students to a breadth of microbial diversity and physiology, as well as the basic techniques used in microbiology. P. Mathematical Reasoning; P or CO: BIO 452.

**EVS 454. Environmental Philosophy. 3 credits. (Same as PHL 454)**

Examination of a variety of theoretical approaches to philosophical issues concerning individual organisms, species, ecosystems, and the biosphere. Aesthetic, axiological, epistemological, and ontological issues may be addressed. P. One Magis Core Philosophical Ideas course, and one of the following: PHL 270, PHL 271, PHL 272, PHL 275, PHL 300, PHL 320, or PHL 399.

**EVS 455. Food, Society and Environment. 3 credits. SP (Same as ANT 455, SOC 455, SRP 455)**

Access to food is a universal basic human need. This course considers the social and cultural significance of food, the ecological implications of producing it, and social justice issues that surround its distribution from several disciplinary perspectives. P. Sr. stdg.

**EVS 459. Environmental Communication. 3 credits. (Same as COM 459, EVS/COM 559; Magis Do Soc Sci, Writ Com)**

Our communication about the natural world both interprets and defines it. We experience and understand the natural world through communication, through different channels, and through discourses that have evolved over time. This course interrogates this communication as well as the underlying assumptions that ground such communication. In doing so, we will evaluate the social construction of the environment and environmental issues through media and other communication processes. This will allow us an opportunity to recognize how dominant discourses shape individual and societal choices. Satisfies Magis Core Doing Social Science, Designated Written Communication course. P. Understanding Social Science; Contemporary Composition.

**EVS 461. Entomology. 4 credits. FA (Same as BIO 461)**

Lecture and laboratory study of insect biology with emphasis on the major insect groups. Anatomy, physiology, and behavior of insects and their ecological, agricultural, and medical importance. This course includes both lecture and lab. 3R, 3L. P. BIO 201, BIO 202, BIO 205, and BIO 206.

**EVS 471. Conservation Biology. 3 credits.**

Introduction to the science of biodiversity preservation. Relevant principles of ecology, population genetics, and behavioral biology; aspects of biodiversity, threats to biodiversity and strategies for limiting them; protected area design and management; ecological economics, environmental ethics, sustainable development, and the interplay between human needs and biodiversity preservation. P. BIO 201, 202, 205, 206, or IC.

**EVS 476. National Parks - Created through Communication. 3 credits.**  
(Same as COM 476, Magis Core Intersections)

This course will focus on how environmental communication impacts our experiences in national parks and has consequences for US national identity. This course will investigate how communication about national parks reveals historical tensions and power struggles. Additionally, it will give students a chance to study communication within national parks in situ so that they will better understand how communication in these settings operates. Satisfies Magis Intersections course. P. Critical Issues in Human Inquiry; Senior standing.

**EVS 480. Internship In Environmental Sciences. 1-3 credits. FA, SP, SU**

An internship designed for students interested in working in an environmental setting in the public or private sector. Students may register for three hours credit for 60 hours of work. Before registering for the internship, students should consult with the director of the EVS program. The internship may be taken for a maximum of six hours. Credit does not count toward a specialization area of the Environmental Science degree. P. DC.

**EVS 481. Terrestrial Ecology. 4 credits. FA (Same as BIO 481)**

Introduction to the interactions of organisms and the environment, especially the biology of populations, communities, and ecosystems. Individual adaptations, the nature of the environment, population dynamics, and community organization are stressed. Laboratory exercises include field trips to terrestrial habitats. 3R, 3L. P. BIO 201, BIO 202, BIO 205 and BIO 206; Mathematical Reasoning.

**EVS 483. History of Environmental Inequalities. 3 credits. (Same as BIO 483)**

This course explores the connections between environmental change and human inequality from the early modern period until today. It reaches across local and global scales, drawing on local case studies to emphasize global historical themes such as the roles of colonialism, segregation, and economic vulnerability. This service-learning course will introduce students to a variety of theoretical tools to understand environmental justice and explore their implications on the ground. Student will use these tools and experiences to better interrogate their own social and environmental position. P. Critical Issues in Human Inquiry course; senior standing.

**EVS 485. Marine And Freshwater Ecology. 3 credits. SP (Same as BIO 485)**

An introduction to the community structure, biological production, and physical and chemical properties of aquatic ecosystems. The major features of water columns, benthic substrates, and lotic zones will be reviewed and compared. P. BIO 201, BIO 202, BIO 205 and BIO 206.

**EVS 486. Freshwater Ecology Laboratory. 2 credits. SP (Same as BIO 486)**

Introduction to methods for analyzing lake, stream, and wetland habitats. Exercises will examine physical and chemical properties, biological production and food chains, and water quality of freshwater ecosystems. P or CO: EVS 485.

**EVS 487. Marine Ecology Laboratory. 2 credits. SP (Same as BIO 487)**

Direct observation of marine coastal habitats (reefs, sea grass beds, mangrove forests, rocky intertidal zones, and offshore waters) at Roatan Island, Honduras. Exercises in the field and campus laboratory sessions will examine physical and chemical properties; marine organisms and community structure and productivity of marine ecosystems. CO: EVS 485 or IC; P. BIO 201/BIO 205 and BIO 202/BIO 206.

**EVS 488. Global Environmental History. 3 credits.**

What has been humanity's role in changing the face of the earth? What part has the environment played in shaping human history? These questions drive the study of environmental history. This course surveys the history of humanity's ever-changing relationship with nature, from fire-wielding hunter-gatherers to the present. It emphasizes new global perspectives on environmental history and focuses on themes such as agroecology, invasion, sustainability, energy, urbanization, and empire. It will also introduce students to the diverse methods of investigating our environmental past including documentary and material sources, natural archives, and geospatial analysis. P. Critical Issues in Human Inquiry; Contemporary Composition; Oral Communication; Ethics; Senior standing.

**EVS 490. Senior Seminar:Discussion. 1 credit.**

The Senior Seminar: Discussion is required of all EVS and SUS students as the first of two capstone courses. The course provides an opportunity for students to interact with natural and social scientists as well as others engaged in environmental research, policy, and practice. Students will learn about the fields of interest of peers and hear from others working in environment-related fields.

**EVS 491. Senior Seminar. 1 credit. FA, SP (Same as SUS 491)**

This course is the capstone course required for all Environmental Science and Sustainability majors. Each student will design and deliver a professional presentation on an environmental topic agreed upon by the student and faculty seminar coordinator(s). If time allows, seminars may also be given by invited, outside speakers. The course provides an opportunity for students to interact with natural and social scientists as well as others engaged in environmental research, policy, and practice. Students will learn about the fields of interest of peers and hear from others working in environment-related fields. P. Oral Communication.

**EVS 493. Directed Independent Readings. 0-3 credits. FA, SP, SU**

Assigned readings in the student's area of interest. Course is only an addition to and not a substitution for any portion of the major requirement. May be repeated to a limit of six hours. P. Jr. stdg.; IC.

**EVS 495. Directed Independent Study. 0-3 credits. FA, SP, SU**

A program of independent study with emphasis on activities other than laboratory or field research. (Examples include library research or special course attendance). Course is only an addition to and not a substitution for any portion of the major requirement. May be repeated to a limit of six hours. P. Jr. stdg.; IC.

**EVS 497. Directed Independent Research. 0-3 credits. FA, SP, SU**

A program of independent study with emphasis on laboratory or field research. Course is only an addition to and not a substitution for any portion of the major requirement. May be repeated to a limit of six hours. P. Jr. stdg.; IC.

**EVS 506. Environmental Chemistry and Natural Resources. 3 credits. OD (Same as CHM 506)**

The nature, identification, and quantitative determination of air and water pollutants. Study of natural resources and energy production. Topics covered include the atmosphere, ozone, the troposphere, natural water, acid rain, drinking water, metals, organochlorine compounds and waste management. P. CHM 205.

**EVS 533. Physical Climatology and Climate Change. 3 credits. FA (Same as ATS 533)**

This course stresses the theories and models of natural climate change and of that induced by human beings. The ethical issues of inadvertent and planned change of climate by humans will be raised. Major topics include effects of CO<sub>2</sub> warming (greenhouse effect), ozone depletion; human-induced desertification; acid rain; urban microclimates. Methods of monitoring these systems will be stressed relative to an increased world-wide need to limit or prevent human-induced climate changes.

**EVS 539. Ecology of Zoonotic Diseases. 3 credits. (Same as BIO 539)**

Over the past few decades there has been a resurgence of zoonotic diseases such as SARS and Avian Influenza. Why do zoonotic diseases emerge, and what factors lead to epidemics? This course will address these questions, and apply an ecological approach to an understanding of epidemiology in human, livestock, and wildlife populations. P. One of the following: BIO 432 or BIO 481; Contemporary Composition; Oral Communication; Senior standing or IC.

**EVS 541. Special Topics in Plant Biology. 3 credits. (Same as BIO 541)**

This course focuses on historical and current questions in plant biology. Students will explore the evolution, function, and development of plants from the genetic, cellular, and organismal perspective. Specific topics may include hormone function, plant responses to stimuli, the evolution of plant structures, and plant reproductive strategies. 3R. P. BIO 201, BIO 202, BIO 205 and BIO 206; Contemporary Composition; Oral Communication; Senior standing or IC.

**EVS 545. Plant Diversity and Evolution. 4 credits. (Same as BIO 545)**

Lecture and laboratory of the diversity, morphology, and evolution of fossil and living plants. Topics emphasized include the origin of land plants, plant life cycles, evolution of the vascular cylinder, leaf, seed and flower, and the origin of flowering plants. P. BIO 201, BIO 202, BIO 205, and BIO 206; Contemporary Composition; Oral Communication; Senior standing or IC.

**EVS 549. Environmental Physiology. 3 credits. FA (Same as BIO 549)**

Impact of environmental changes and environmental extremes on animals and their physiological mechanisms. Examines primarily vertebrates and their responses to variations in temperature, pressure, and salinity. Basic physiological principles associated with each adaptive response covered in lecture and reading assignments. P. EVS 335/BIO 335, BIO 383, BIO 433 or BIO 449.

**EVS 559. Environmental Communication. 3 credits. (Same as COM 449, 549 Magis Do Soc Sci, Design Written Comm)**

Our communication about the natural world both interprets and defines it. We experience and understand the natural world through communication, through different channels, and through discourses that have evolved over time. This course interrogates this communication as well as the underlying assumptions that ground such communication. In doing so, we will evaluate the social construction of the environment and environmental issues through media and other communication processes. This will allow us an opportunity to recognize how dominant discourses shape individual and societal choices. Satisfies Magis Core Doing Social Science, Designated Written Communication course. P. Understanding Social Science; Contemporary Composition.

**EVS 570. Making Maps that Matter: Introduction to GIS. 4 credits. ENY, SP (Same as AMS 570, ANT 570, SOC 570)**

An introduction to the design, development, and application of geographic information systems (GIS) and related technologies to conduct spatial analysis in applied research settings that require the integration of data from diverse sources. Students will complete individual projects focusing on a topical area of their choice in order to develop an understanding of the basic technologies, and to demonstrate their skill in using these technologies to analyze a research topic. Research topics may be drawn from any subject field for which data sets with geographic variables are available. These may include anthropology, criminal justice, demography, economics, environmental science, health care, marketing, political science, sociology and social work.

**EVS 580. Current Topics in Ecology. 3 credits. (Same as BIO 580)**

The focus of this course will be advanced topics in ecology, with an emphasis on the concepts and current approaches in ecosystem ecology. Primary literature will serve as a key resource for students. The structure and function of several model ecosystems will be explored in detail, with particular attention to the concepts of biodiversity, productivity, decomposition and nutrient cycling. In addition, the degree of human alteration of ecosystem structure and function as well as consequences for global ecological processes will be presented. P. EVS 390, 481, 485 or BIO 390; Contemporary Composition; Oral Communication.

**EVS 581. Evolution. 4 credits. FA, SU (Same as BIO 581)**

Lectures and discussion designed to provide junior and senior students with a broad understanding of the science of evolutionary biology. Organized in three parts, each takes a chronological approach: (A) evolutionary theory, (B) mechanisms of evolution, (C) the implications and consequences of theory and mechanism; and as part of both the lecture and laboratory experience in (C, above) topics in evolutionary medicine will be covered. Laboratory sessions include computer modeling exercises to illustrate the mechanisms of evolutionary changes, an excellent film series, discussion opportunities designated to explore in more depth questions and topics associated with speciation, biodiversity and human evolution as well as a review session prior to each exam. 3R, 3L. P. One upper-division BIO course or Jr. stdg.