

# Environmental Studies Concentration

## Environmental Studies Concentration Classes

### ECOL 211: Sustainable Aquaculture

This class will provide you with an introduction to the science of aquaculture: historically known as fish farming. Although we will be spending the majority of time talking about fishes, aquaculture also includes the farming of invertebrates, as well as plants. During the semester, we will be discussing all aspects of aquaculture including economics, diseases, nutritional requirements, and rearing techniques for various aquatic species.

**Units:** 3

**Program:** [Ecology](#)

### ECOL 330: Fish Biology

An introduction to species diversity, natural history, and ecological and evolutionary relationships of fishes. Emphasis on form and function, ecology, behavior, sensory modes, fishery management, global crises in fisheries, and marine protected areas. Laboratories include identification of major groups of fishes, methodology and experimental approaches to the study of fishes.

**Units:** 4

**Prerequisites:**

any BIO, ECOL, EOS, or CHEM course, or consent of instructor.

**Program:** [Ecology](#)

### ECOL 370: Terrestrial Plant Ecology

Terrestrial plants have been present on this planet for 440 million years and play a critical role as the basis of the terrestrial food chain. This course introduces students to the diversity of plant life and how plants have evolved and adapted to their respective environments. Topics include plant structure and growth, species interaction, community ecology, and succession.

**Units:** 4

**Program:** [Ecology](#)

### ECOL 402: Aquatic Conservation

This course examines the problem of maintaining biological diversity in a human dominated world within the aquatic ecosystems. Emphasis is on the biological concepts involved in population biology, genetics and community ecology, and their use in conservation and management of biodiversity. We will investigate the impacts of human-induced climate change, pollution, introduction of exotic species, over fishing, and endangered species conservation.

**Units:** 3

**Prerequisites:**

Any BIO, ECOL, EOS, or CHEM course, or consent of instructor.

**Program:** [Ecology](#)

# ECOL 435: Alien Invaders

This course is designed to provide students with perspective on the impacts of exotic species, those organisms that are not native to a geographical area, primarily within Southern California but will also cover major invasions in the USA. The ecological, genetic, and evolutionary impacts of the invasions will be explored. Additionally, the management and control of exotic species will be discussed.

**Units:** 3

**Prerequisites:**

any BIO, ECOL, EOS, or CHEM course, or consent of instructor.

**Program:** [Ecology](#)

# ECOL 444: Ecological Methods

Students learn experimental design, data collection, analysis, synthesis, and interpretation of data derived from field sampling and experiments in ecological studies. The class also covers data collection for impact assessment and environmental monitoring.

**Units:** 3

**Prerequisites:**

any BIO, ECOL, EOS, or CHEM course, or consent of instructor.

**Program:** [Ecology](#)

# EMP 320: Environmental Planning and Practice

This course covers the fundamentals of environmental planning and practice, including water supply, air quality, waste treatment, recycling, the protection of farmland, open spaces, wetlands and sensitive coastal habitats as well as best practices in transportation, energy, urban planning and design. How does land use planning work? Who plans? Why, when and how are environmental impact assessments and environmental reviews performed and by whom? How do public authorities, planners, developers, and concerned citizens negotiate intricate land use conflicts, especially in the case of major new infrastructures such as rail corridors, freeways, (air)port expansions or larger, master planned communities?

**Units:** 3

**Program:** [Environmental Management and Policy](#)

# EMP 325: Public and Environmental Health Policy

This interdisciplinary policy course examines the prevention and management of threats to human health caused by interacting environmental conditions and social forces. Major topics in this course include air and water pollution control, toxic substances control, climate change and environmental health, disease control, pandemics, public health emergency management, and public health leadership. This course covers public and environmental health policies at the community, national, and international levels.

**Units:** 3

**Program:** [Environmental Management and Policy](#)

# EMP 330: Sustainable Cities

More than half of the world's 7 billion people live in cities. Urban societies need to find ways to reduce their negative environmental impacts on the Earth's eco-system. This course focuses on the analysis of urban development patterns in North America and Europe. Students will learn how to create and plan for human settlements that are less carbon-intensive, more ecologically responsible, and more socially sound. Via a variety of case studies, students will be introduced to sustainability concepts such as ecological urbanism, green building certification (LEED), smart growth, transit-oriented development and suburban retrofitting.

**Units:** 3

**Program:** [Environmental Management and Policy](#)

# EMP 335: Cities and the Environment in the Global South

Between 2000 and 2030, the urban populations of the developing regions in the Global South will double from 2 to 4 billion people, accounting for the vast majority of urban growth on this planet. Taking a comparative view of urbanization and development, this course focuses on a select number of mega-cities in the Global South where millions of urban dwellers lack adequate shelter and access to clean water, sanitation and other basic infrastructure. What are the causes and environmental consequences of rapid urbanization and urban expansion in cities as diverse as Rio de Janeiro, Nairobi, Lagos, Mumbai or Chongqing? What strategies, programs and policies exist that can steer future urban development in a more environmentally sustainable direction?

**Units:** 3

**Program:** [Environmental Management and Policy](#)

# EMP 340: Environmental Movements

This course examines the role of environmental movements in the development of policies for environmental protection and on the role of nongovernmental organizations in environmental politics and policy more generally.

**Units:** 3

**Program:** [Environmental Management and Policy](#)

# EMP 350: Environmental Policy

Environmental policies are social actions designed to protect the environment. This course examines the processes and consequences of policies for environmental protection. This course also examines the roles of leadership, laws, and organizations in environmental protection.

**Units:** 3

**Program:** [Environmental Management and Policy](#)

# EMP 380: Environmental Law

Environmental law plays a critical role in the practice of environmental protection. This course provides a general introduction to environmental laws and legal processes at the national and international levels.

**Units:** 3

**Program:** [Environmental Management and Policy](#)

# EMP 400: Environmental Management

This course focuses on case studies of the development and management of policies for environmental protection. These case studies allow a detailed examination of the practical challenges facing environmental managers and leaders today, and an examination of the possibilities for new approaches to environmental management and policy in the future.

**Units:** 3

**Program:** [Environmental Management and Policy](#)

# EMP 410: International and Comparative Environmental Policy

This course examines the processes and consequences of policies for environmental protection in an international and comparative context. The course focuses on the role of institutional processes, government organizations, and nongovernmental organizations in environmental politics and policy across the world.

**Units:** 3

**Program:** [Environmental Management and Policy](#)

# EMP 430: Urban Planning and the Built Environment

A full and deep understanding of our complex relationships with the natural environment also requires sophisticated and advanced knowledge of the different and specific ways in which our human settlements evolved over the course of history. This course provides a critical introduction to the interdisciplinary world of urban planning. Most of the cities, towns or neighborhoods we encounter did not simply “happen” – they were formally founded and planned by someone. Many of the world’s most famous cities were carefully laid out in relationship to their natural surroundings. And even haphazardly placed self-built homes still require access to public infrastructures and social institutions such water, sewer and power lines, roads, schools or hospitals. We will start of learning about the history and theory of planning as it was and is practiced in the United States but we will then soon expand our perspective to look at urban planning and built environment issues through a global lens. Which cities were or are global leaders in the world of city building and urban design? What are the most important issues and topics for planning practitioners right now? What do planners do when they “plan”? How do we justify planning? How do we define the public interest the profession purports to serve? What are the key conflicts and ethical dilemmas? How does the global threat of climate change and sea level rise change the way we plan and manage cities?

**Units:** 3

**Prerequisites:**

Instructor Consent Required.

**Program:** [Environmental Management and Policy](#)

# ENVST 170: Environmental Ethics

This course considers the role ethics and philosophy play in how wo/man relates to her and his human and natural environment. The central themes of the course are the relationship between human centered and nature centered views of the universe and wo/man’s responsibility for the care of the universe. Philosophies considered include but are not limited to Anthropocentrism, Confucianism, Taoism, Aristotelianism, Humanism, Transcendentalism, American Indian, EcoFeminism and Deep Ecology. Same as: PHIL170.

**Units:** 3

# ENVST 215: Music and Ecology: Studies in Interconnection

This course will examine embedded views of the relationship between humans and their environments in the context and function of music in different times and cultures. Music is both commonly a means of the most profound communication between humans and nature, and embodies cultural understanding and expression of the relationship, humans place in nature. Readings will include examination of music cultures, the expressed views and philosophies of the people in those music cultures, and studies of the ecological systems and ecological impacts of human actions where those people live. Same as: MUSICHST215.

**Units:** 3

# ENVST 290: Topics in Environmental Studies

**Units:** 1-4

# ENVST 298, 398, and 498: Special Study

**Units:** 1-4

# ENVST 299, 399, and 499: Independent Study

**Units:** 1-4

# ENVST 360/ECON 360: Environmental Economics

This upper division course combines theory and policy application in studying environmental issues from an economist's perspective. Major topics include theoretical and applied modeling of economy-environment relations, causes and consequences of market failure affecting environmental services, design and evaluation of environmental policy instruments, and the political economy of environmental policy. Students will learn to identify the economic components of an environmental issue, analyze the effects of human economic activity on the environment, and to present and discuss the pros and cons of various environmental policies.

**Units:** 3

**Prerequisites:**

ECON 100/INTS 100.

**Program:** [Economics](#)

# ENVST 390 and 490: Advanced Topics in Environmental Studies

**Units:** 1-4

# EOS 280: Sustainable Agriculture and Gardening

Although humans can obtain the air and (to a lesser extent) the water they need freely, we must work to provide our bodies with food. Before the industrial era, hunting, gathering, and farming were the primary human activities. Technology and industrialization have greatly reduced the human labor required to produce food, and farming has become the specialized occupation of the few. However, in the process, modern industrialized agriculture has developed into a system with many impacts, such as water pollution, greenhouse gas production, and the health consequences of highly processed diets. These impacts of industrialized agriculture are unsustainable as population increases, water resources become scarce, and global warming makes the intensive use of fossil fuels undesirable. In this course, we will examine what a more sustainable mode of food production might look like through class work as well as hands-on work in the Soka Instructional Garden.

**Units:** 3

**Program:** [Earth and Ocean Systems](#)

# GEOG 440: Biogeography

Biogeography is the science of the distribution of plants and animals and the patterns and processes responsible for these distributions. This course introduces students to the discipline of biogeography and its major topics such as island biogeography, speciation and extinction, diversification, and conservation from a more geographical perspective emphasizing large scale patterns through space and time.

**Units:** 3

**Prerequisites:**

any BIO, ECOL, EOS, or CHEM course, or consent of instructor.

**Program:** [Geography](#)

# EOS 322: Water Resources

The struggle to manage water resources has shaped societies in the past and continues to do so today. Human use of water for drinking, sanitation, and agriculture is controlled by natural processes, by engineering, and by the institutions that manage water for the benefit of societies. In this course students will study how these processes control the availability and quality of water. Students will explore water resources in the local area through field visits to both natural and engineered sites and will learn to apply some of the techniques of water resource managers.

**Units:** 4

**Program:** [Earth and Ocean Systems](#)

# EOS 402: Climate Change

The Earth's climate is changing because human activity is increasing the levels of greenhouse gases such as carbon dioxide and methane in the atmosphere. You will learn what causes climate change, as well as its present and future effects on both the earth and society. You will also learn about the responses society and individuals can make to prevent and adapt to climate change. In the laboratory portion of this class, you will learn how to plan and perform a scientific experiment measuring greenhouse gases.

**Units:** 3

**Program:** [Earth and Ocean Systems](#)

# GEOG 110: Regional Geography of the Pacific Rim

This course provides students with an introduction to geographic concepts and perspectives from both physical and human geography while exploring the five major regions along the Pacific Rim: North America, Central and South America, Australia and Oceania, East Asia, and Southeast Asia. Topics covered include the physical environment, environmental issues, human patterns over time, economic and political issues, and sociocultural issues.

**Units:** 3

**Program:** [Geography](#)

# GEOG 250: Physical Geography

Physical Geography is the science of the physical environment on Earth. This includes fundamental principles, processes, and perspectives from three major subject areas: (1) atmosphere and weather, (2) biogeography, and (3) geology and landforms. In this field- and laboratory based course, students will gain knowledge, understanding, and appreciation of our planet.

**Units:** 4

**Program:** [Geography](#)

# GEOG 350: Introduction to Geographic Information Systems

Geographic Information Systems (GIS) is a computer system for storing, managing, and displaying (mapping) the locations and attributes of spatial features. These features can come from any discipline and could represent any human or physical information. Due to its versatility, GIS is used in a wide range of applications such as resource management, city planning, transportation, business, and crime hot spot analysis. This course introduces students to this powerful software through lectures in GIScience and computer labs with ArcGIS.

**Units:** 4

**Program:** [Geography](#)

# GEOG 400: Advanced Geographic Information Systems

This advanced course provides further instruction in Geographic Information Science and ArcGIS applications. It is geared towards making students more familiar with the geospatial career field through interaction with GIS employers, GIS professionals, and a conference attendance (when possible). Course topics include more in-depth vector and raster data analysis, terrain mapping, viewshed and watershed analysis, spatial interpolation, modeling, and some python programming.

**Units:** 3

**Prerequisites:**

GEOG 350 or similar course.

**Program:** [Geography](#)

# CAPSTONE 390

This is a 1 unit P/NP course where students will select and work with a faculty mentor to complete a proposal for the capstone research project.

**Units:** 1

# CAPSTONE 400: Capstone I

All SUA students participate in a capstone research project over the last block and semester of their senior year. This research project is intended to be a culminating experience, drawing upon the skills and expertise that they have developed during their career at SUA. Each student works with a faculty mentor to propose, develop, and carry out a research project. Students meet regularly with their capstone mentor for support and feedback.

**Units:** 4

**Prerequisites:**

Senior standing. CAPSTONE 390. Instructor Consent Required. This course cannot be taken on a P/NP basis.

# CAPSTONE 450: Capstone II

Continues Capstone I. All SUA students will participate in a capstone research project over the last block and semester of their senior year. This research project will be a culminating experience, drawing upon the skills and expertise that they have developed during their career at SUA. Each student will work with a faculty mentor to propose, develop and carry out a research project. Students will meet regularly with their capstone mentor for support and feedback.

**Units:** 4

**Prerequisites:**

Senior Standing or CAPSTONE 390. Instructor consent required. This course cannot be taken on a P/NP basis.