

# Sustainability Curriculum



2018-2019

**SEWANEE**  

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**THE UNIVERSITY OF THE SOUTH**

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## Anthropology

### **ANTH 298: Ecological Anthropology** (Includes Sustainability in Course)

This course will examine human-environmental relationships from the anthropological perspective. Consideration of theoretical approaches and practical applications will be supplemented by archaeological, ethnographical, and ethnohistorical case studies. We will consider various ecosystems and landscapes as palimpsests that reveal cultural footprints to the archaeologist and human choices to the ethnographer. We will explore how an understanding of both can greatly inform ecological studies and further new thinking about environmental policy.

### **ANTH 305: Cultures of Latin America** (Includes Sustainability in Course)

An introduction to Latin American cultural traditions as they relate to social identities, religious beliefs, economic practices, political systems, and natural environments. Students examine diverse regional contexts, including the Peruvian Andes, Central American urban centers, and the Brazilian Amazon. Legacies of inequality and political violence are contrasted with powerful social movements and creative cultural productions.

### **ANTH 312: Place, Ritual and Belief** (Includes Sustainability in Course)

An upper-division seminar designed to enhance students' research skills and engage students in thoughtful examination of the relationship between religious beliefs and practices, and natural environments. While including the major religious traditions, the course will focus on indigenous, historic and prehistoric traditions within band, tribe, chiefdom and state societies. The course will focus on religious syncretism due to historical conquest or latter 20th century globalization as it impacts human-historical environmental relationships.

### **ANTH 316: Archaeology of the Cumberland Plateau** (Includes Sustainability in Course)

This course examines the cultural history of the Cumberland Plateau through anthropological archaeology. After a brief consideration of the subject's environmental context within one of the most biologically diverse regions on earth, the class investigates the Plateau's rich prehistoric and historic archaeological record, which spans at least 12,000 years. In addition to ethnohistorical research, students actively engage in laboratory analysis of artifacts from the University Domain. Students also participate in site visits and field survey to explore both the Native American and European American record left as rock art, as well as that found in open habitation, cave, and rockshelter sites.

## Archaeology

### **ARCH 332: Archaeological Resource Management and Policy** (Sustainability Course)

This course explores international and national approaches to archaeological heritage management. It includes review of public policy that protect sites (much of it incorporated into environmental legislation) and of regulations that guide the process. The course centers around study of how the determination of such policies affects negotiation between the past and present as archaeologists, various governments, descendant communities, and others try to balance a concern for preservation with growing demand for development and sustainability. Interwoven into the course are topics such as how diverse cultures view the past, the growing commodification of archaeological sites in the tourist trade, the antiquities market, and careers in cultural resource management.

## Art

### **ART 242: The Lens and the Landscape: Documentary Studies and the Environment** (Includes Sustainability in Course)

This course studies the human, ecological, and environmental histories of the region through the lens and practice of documentary production. In collaboration with historians, archaeologists, and biologists, students develop individual and group projects to create short documentaries about a diverse range of topics focused on the past and present environmental conditions of the Domain and its surroundings.

### **ART 282: Sustainable Structures** (Sustainability Course)

Through the study and application of sustainable materials as media for sculpture, design, and architecture, this course examines relationships among landscape, physical culture, and the built environment. With the benefit of various locally grown and recycled materials used to build a series of projects, the course employs new technologies and discusses issues related to the practical integration of ecologically sound aesthetics into contemporary culture.

## Art History

### **ARTH 306: Art and Disaster in Modern and Contemporary Japan** (Includes Sustainability in Course)

Using disaster as a starting point for understanding the visual culture of modern and contemporary Japan, this course provides students with a survey of Japanese art history from 1850 to the present day. Considers the intersections of popular culture and fine art, examines painting, sculpture, architecture, memorials, photography, prints, video, and installation art. Explores the impact and legacy of natural disasters, war, the nuclear bomb, imperialism, environmental issues, and terrorism in the visual arts, analyzing various artistic responses to calamity.

## Biology

### **BIOL 105: Biology and People** (Sustainability Course)

An exploration of the biological nature of people and their role in the biosphere that includes such topics as anatomy; physiology; and the genetic, nutritional, infectious, and environmental aspects of diseases. This course may count toward fulfilling the college's requirement for a non-laboratory science course. It cannot be taken for credit if the student has already received credit for BIOL 100.

### **BIOL 210: Ecology (Lab)** (Sustainability Course)

A survey of the principles and applications of ecological science. Lecture will cover the ecology of individuals, populations, communities, and ecosystems. Lab will emphasize field experimentation in the local environment. Laboratory course.

### **BIOL 221: Environmental Physiology of Plants (Lab)** (Includes Sustainability in Course)

A study of plant physiological processes and how adaptations shared by plant functional groups are shaped by environment. The course covers energy and carbon balance, water and nutrient relations, and interactions with other organisms and physiological responses to environmental stress. Labs focus on instrumentation and field methods used to test ecophysiological hypotheses.

### **BIOL 232: Human Health and the Environment (Lab)** (Sustainability Course)

A course integrating concepts in ecology and public health through the study of environmental threats to human health. Topics include population growth and food security, toxicity and toxins, food borne illness, emerging disease, waste and wastewater, air pollution and climate change. Students explore the interaction of poverty, environmental degradation and disease through projects examining local environmental health issues. Laboratory course.

### **BIOL 313: Ecosystems and Global Change (Lab)** (Sustainability Course)

A study of how the cycling of elements among the atmosphere, soil, water and living organisms sustains ecosystems, and how disruptions in these cycles, both natural and human-induced, bring about environmental change. In the field, students evaluate the sustainability of land use by quantifying elemental cycles in natural and human-altered ecosystems. Laboratory course.

### **BIOL 323: Environment and Development** (Sustainability Course)

An integrative study of how environment affects development, with emphasis on underlying molecular and cell signaling pathways. The course explores links between environmental conditions during development and lifetime outcomes, such as reproductive success and disease risk. Discussions address implications for human health, ecosystem function, and evolutionary patterns.

## Chemistry

### **CHEM 120: General Chemistry (Lab)** (Includes Sustainability in Course)

A survey of the basic chemical principles and theories, with emphasis on applying these concepts to chemically related fields such as environmental science and biological chemistry. Topics considered include atomistic and molecular structure, kinetics, thermodynamics, and chemical equilibrium. The course's laboratory portion emphasizes the collection and interpretation of data, as well as the formation and testing of hypotheses. Lecture, three hours; laboratory, three hours.

### **CHEM 412: Advanced Environmental Geochemistry** (Sustainability Course)

An examination of the chemical principles that determine how natural systems work and how anthropogenic activities can have an impact on the function of these systems. Topics include both fundamental chemical principles and case studies of particular environmental systems. Lecture, three hours.

## Economics

### **ECON 335: Environmental Economics** (Sustainability Course)

A study of the causes of and solutions for pollution and environmental degradation weighs the value of ecosystems and their role in sustaining economic activity. Applies cost/benefit analysis to environmental issues and provides an introduction to economics of nonrenewable and renewable resources such as mines, forests, and fish.

### **ECON 336: Energy Economics** (Sustainability Course)

This course applies microeconomic principles to the energy sector, focusing on energy supply and demand in the U.S. and global markets. It uses economic theory and an empirical perspective to examine markets for coal, electricity, natural gas, and renewable energy resources. It also assesses public policies that affect energy markets, including those related to energy taxes and subsidies, deregulation, and other policy instruments for pollution control.

### **ECON 338: The Economics of Food Policy** (Sustainability Course)

This course analyzes a broad range of government policies affecting our food system, from producers to consumers. The focus is on contemporary policy issues. Examples include farm income support, environmental regulation, fuel production, consumer protection, trade distortions and food aid.

### **ECON 347: Microfinance Institutions in South Asia** (Sustainability Course)

The course provides an overview of the microfinance industry: its origins, evolution, theoretical underpinnings and empirical evidence. It focuses on both the tools of microfinance operation such as financial management and lending methodologies, and on the basic issues and policy debates in microfinance, such as impact assessment, poverty

targeting and measurement and sustainability. This course is offered as part of the Summer in South Asia Program.

## Education

### **EDUC 205: Introduction to Environmental Education** (Sustainability Course)

An introduction to the philosophy, goals, theory, and practice of environmental education.

The history of environmental education, as it pertains to environmental literacy, implementation, and professional responsibility, is explored through hands-on learning activities as well as use of texts. Educational models which promote ecologically sustainable behaviors are considered as well. This course includes some field trips.

## English

### **ENGL 320: Poetry, Nature, and Contemplation** (Sustainability Course)

This course approaches the reading and writing of poems as contemplative practices through a diverse selection of poetry with environmental themes, combined with daily meditation in and outside of class, and assigned journals and other writing. In doing so, it explores the relationship of the self to its surroundings and the role of the written word in defining that relationship.

### **ENGL 396: American Environmental Literature** (Sustainability Course)

A study of writings from the colonial era to our own day reflecting diverse ways of imagining humanity's relation to the natural environment. Readings include both traditional literary texts by authors such as Thoreau, Cather, and Frost and seminal nonfiction by figures such as Aldo Leopold, John Muir, Rachel Carson, and Wendell Berry.

## Environmental Sciences

### **ESCI 444: Independent Study** (Sustainability Course)

A supervised field or laboratory investigation of an interdisciplinary topic in environmental science.

### **ESCI 450: Readings in Environmental Sciences** (Sustainability Course)

A course exploring and integrating themes in current and historical literature in archaeology, earth sciences, forestry, geography, spatial analysis, and watershed sciences. Open only to seniors pursuing majors in forestry, geology, or natural resources and the environment.

## Environmental Studies

### **ENST 100: Walking the Land** (Sustainability Course)

A field-oriented geology and writing course, conducted on the Cumberland Plateau and surrounding provinces. The emphasis will be on observation of geological features, particularly geomorphology, and how these relate to other natural parts of the landscape. Historical aspects of human use of the land will also be emphasized. Extensive walking and hiking. Field journals will be part of the writing-intensive approach.

### **ENST 101: Introduction of Environmental Studies** (Sustainability Course)

An interdisciplinary introduction to Environmental Studies through the examination of the scientific and social aspects of environmental issues. Field components of the course focus on the University Domain and the surrounding area. This course is required for all students who major or minor in environmental studies and should be taken before the junior year.

### **ENST 140: Readings in Island Ecology** (Sustainability Course)

Supervised readings and discussion in geology, hydrology, invertebrate zoology, marine zoology, maritime plant communities, and wildlife behavior as preparation for participation in the interdisciplinary summer Island Ecology program.

### **ENST 201: Foundations of Food and Agriculture** (Sustainability Course)

Integrating local, regional, and global perspectives, this course outlines the history of agriculture, introduces the development of food systems and policy, and reviews the environmental impact of food production. Among topics addressed are the history of agricultural expansion in the US, the development of agriculture and food policies, interaction among agricultural markets at home as well as abroad, and sustainable agriculture. Classroom activities emphasize the involvement of multiple constituencies in identifying and articulating agricultural issues. Field opportunities include garden activities and local trips aimed at relating broader issues to how livelihoods are pursued on the Cumberland Plateau.

### **ENST 209: Ecosystems of the Ocean** (Sustainability Course)

As an introduction to the geologic, physical, chemical, and biological processes of the world's ocean, this course emphasizes its complex relationships with human cultures. Students in this course engage with a mix of readings from scientific journals, textbooks, and classic literature while conducting their own scientific reviews to pursue questions at the frontiers of ocean sciences.

### **ENST 211: Sustainability and Global Environmental Change Seminar** (Sustainability Course)

This seminar-style course exposes students to literature on a variety of issues related to climate change and other examples of our dynamic global environment including natural resource use and natural hazards



**ENST 212: Sustainability and Global Environmental Change Field Studies**

(Sustainability Course)

This course is an interdisciplinary field immersion into a selected location that provides tangible experience of the concepts introduced in ENST 211. Students travel throughout the field site, exploring real-world examples of sustainability efforts in the context of our changing global environment. Concepts of sustainability, climate change, natural resource use, and natural hazards will be explored in the field context. Field sites may change from year to year.

**ENST 217: Fundamentals of GIS (Includes Sustainability in Course)**

An introduction to the basic concepts and applications of geographic information systems (GIS). Topics include geographic data acquisition, data management, cartography, and methods of geospatial analysis. Laboratory exercises and projects focus on applications of GIS in understanding and managing the environment. Laboratory course.

**ENST 235: Freshwater Conservation (Sustainability Course)**

A survey of existing and emerging threats to wetland ecosystems and the consequences for animal and human populations. This course discusses causes, consequences, and solutions for issues of international and local concern based on an understanding of freshwater ecology and function. Also considers multiple perspectives on water use and attempts to reconcile these differences so as to identify and publicize potential conservation solutions.

**ENST 240: Island Ecology (Lab) (Sustainability Course)**

This interdisciplinary field course combines the study of geology, oceanography, marine biology, botany, and wildlife behavior in a single coastal island ecosystem.

**ENST 250: Environmental and Biological Non-Fiction (Sustainability Course)**

An examination of contemporary intersections among literature, journalism, biological science, and the study of the environment, supplemented by readings of nineteenth- and twentieth-century antecedents. Assignments allow students to develop their own writing abilities in these areas. Consideration is also given to the relationships among non-fiction, fiction, and other forms of creative expression.

**ENST 263: Photography for Environmental and Social Impact (Sustainability Course)**

This course explores the ways in which environmental and social issues influence the economic, political, and cultural aspects of communities. Through interdisciplinary approaches with photography, students consider how an understanding of environmental and social relationships can lead to resilient, innovative communities and to community-based action.

**ENST 285: The Development of Aldo Leopold's Land Ethic** (Sustainability Course)

This course traces the development of Aldo Leopold's famous essay "The Land Ethic" through his 40-year career at the beginning of the ecology and conservation movements. Early writings by this noted conservationist are analyzed from the perspectives of environmental history and natural resource management and policy. Leopold essays from a broad spectrum of time (1915-1949) are discussed. Topics include ecosystem management, wildlife conservation and utilization; outdoor recreation, public lands, and wilderness; and agriculture as a land use. To contextualize Leopold's historical voice, perspectives on modern issues are contrasted with perspectives contemporary to Leopold.

**ENST 304: Community Development and Place in Rural Appalachia** (Sustainability Course)

Focusing on the rural counties of the Cumberland Plateau near Sewanee, this course explores environmental, cultural, historical, and political narratives that define the people and places of rural Appalachia. Economic and community development are examined not only through the literature on these topics but also through hands-on, applied learning in partnership with local communities, organizations, institutions, and leaders.

**ENST 305: Ecological Integrity in Agriculture** (Sustainability Course)

This course develops a critique of problems and solutions relating to agricultural technology, policy, and practice with a specific focus on ecology and ecological integrity. The course begins with a brief survey of agricultural history, through the era of modern food systems, with emphasis on the development of industrial agriculture. After evaluating the environmental impact of modern agriculture, the course addresses the foundations of sustainability, with specific reference to the ecology of sustainable agriculture. Field opportunities are provided for students to interact with local producers on their farms and to engage directly the ecological processes involved in food production on the Domain.

**ENST 310: Comparative Watershed Studies** (Sustainability Course)

The course compares watersheds of the Cumberland Plateau to those of the Kraichgau region of southwestern Germany. Emphasis is on the hydrology, geology, forest cover, and history of human use of select watersheds and how these factors have defined the present natural and cultural landscapes.

**ENST 311: Comparative Watershed Studies Field Course** (Sustainability Course)

A two-week field course in the Kraichgau region of southwestern Germany. The course is hiking-based and requires students to keep a detailed notebook.

**ENST 317: Advanced Applications of GIS** (Includes Sustainability in Course)

This course uses spatial analysis methods for environmental analysis and management. Topics include remote sensing and image analysis, surface analysis, spatial statistics, internet mapping, visualization of geographic data, and other advanced GIS methods.

**ENST 320: Environment and Sustainability Colloquium** (Sustainability Course)

This required course for junior environment and sustainability majors addresses some topical themes from an interdisciplinary perspective and with focus on the connections between science and policy. Colloquium themes vary from year to year, and students present relevant research articles and lead discussions with emphasis on developing skill in public speaking. Students also work with course instructors and faculty mentor(s) to propose a research project to be completed as part of their senior environment and sustainability capstone.

**ENST 325: Environmental Arts and Humanities Seminar** (Sustainability Course)

Required for junior Environmental Arts and Humanities majors, this course introduces students to noteworthy contemporary works in the fields of environmental arts and humanities, with a special emphasis on interdisciplinary sources. Students work on in-depth projects of their own in collaboration with environmental arts and humanities faculty, complete a proposal for their senior capstone project, and engage in substantive peer evaluation and critique. Open only to juniors pursuing majors in Environmental Arts and Humanities.

**ENST 334: Environmental Policy and Law** (Sustainability Course)

This course combines the study of public policy with the study of major environmental problems. Students will explore public policy concepts and the instruments used in environmental regulation. Topics will include air and water quality issues hazardous waste and risk management, natural resources and biological diversity. The course will also discuss the impact of environmental groups and citizen activism on this highly complex area of public policy.

**ENST 336: Environmental Land-Use Policy** (Sustainability Course)

This course examines the complex systems and values influencing land-use decision-making in both rural and urban settings throughout the U.S. and abroad. Students learn how government agencies and local citizens often conflict in their attitudes and values regarding the costs and benefits of growth and development. Particular attention is paid to forest conversion issues on the South Cumberland Plateau. Students attend local planning sessions and meetings with local officials.

**ENST 340: Tools for Environmental Policy Analysis** (Sustainability Course)

This course introduces students to quantitative tools applicable to the analysis of environmental policy-including forecasting methods, simulation modeling, and mathematical programming. Probability distributions, risk modeling, and decision-making under uncertainty are also addressed. Students apply such tools to a range of policy analyses and also, where relevant, learn to work with large-scale models developed by others.

**ENST 350: "Nature" Writing (Sustainability Course)**

An exploration of the literature of "nature." Students interrogate ideas of nature and investigate literary responses to these ideas. Readings for the class include works from multiple cultural perspectives, including texts by writers for whom the idea of nature is alien or oppressive.

**ENST 351: Field Studies in "Nature" Writing (Sustainability Course)**

Students conduct experiments in writing and critique, informed by contemplative engagement with the community of life on the University's land.

**ENST 400: Environmental Arts and Humanities Capstone (Sustainability Course)**

A capstone experience for Environmental Arts and Humanities majors. An examination of selected environmental issues from a variety of perspectives in the natural and social sciences and humanities. Special emphasis on student research on the Domain and in the region.

**ENST 421: Environment and Sustainability Capstone (Sustainability Course)**

This course provides a capstone experience for the Environment and Sustainability major. Major components include independent student research projects and an examination of selected environmental issues from a variety of perspectives in the natural and social sciences.

**ENST 431: Practicum in Religion and Environment (Sustainability Course)**

This course, which calls for involvement in some faith-based or otherwise engaged form of appropriate activity or service, offers students a capstone opportunity to examine their spiritual experiences and religious beliefs in the context of active engagement with environmental issues in a variety of ways. Reflection on the engagement experience, expressed both in written form and through oral presentation, is required.

**ENST 444: Independent Study (Sustainability Course)**

An opportunity for students to explore a topic of interest in an independent or directed manner.

## **First Year Program**

**FYRP 104: First-Year Seminar: The Ecology of Place (Sustainability Course)**

This course explores how the natural environment has influenced human interactions, past and present, and how these interactions have shaped ecosystems on the Cumberland Plateau as well as the economy, culture, and health of communities in this region. Field trips and plenary lectures allow students to explore the region, engage in the practice of place-making, and synthesize knowledge across disciplines. Capstone projects provide opportunities for in-depth exploration.

**FYRP 106: First-Year Seminar: Walking in Place** (Sustainability Course)

Class readings, journal work, and discussions are based on the canon of literature on walking and environmental awareness. Authors include John Muir, Wendell Berry, Edward Abbey, Colin Fletcher, and Mary Oliver. Extensive walking and regular visits to a place of contemplation are required. Field trips and plenary lectures allow students to explore the region, engage in the practice of place-making, and synthesize knowledge across disciplines. Capstone projects provide opportunities for in-depth exploration.

**FYRP 111: First-Year Seminar: "Your Place or Mine?" The Tension of Place in Narrative and Story-telling** (Includes Sustainability in Course)

This course examines the many aspects of "place" revealed by the stories told about it. The readings illustrate disparate views of those born and those who choose to move into an environment. Students learn how stories shape and expose the culture of place through images of the land, language, and common legends and analyze the tensions evoked by different cultures living in close proximity. Field trips and plenary lectures allow students to explore the region, engage in the practice of place-making, and synthesize knowledge across disciplines. Journal response and revision lets students integrate their own narratives into the story of this place. Capstone projects provide opportunities for in-depth exploration.

**FYRP 112: First-Year Seminar: A Landscape for Memory** (Includes Sustainability in Course)

This course pursues a deeper understanding of the ways human action and the natural environment have shaped and been shaped by one another. Students explore the area's background, current status, and ongoing possibilities, from the deep time of geology to the era of human history and prospects for future development. Field trips and plenary lectures allow students to explore the region, engage in the practice of place-making, and synthesize knowledge across disciplines. Capstone projects provide opportunities for in-depth exploration.

**FYRP 114: First-Year Seminar: The Psychology of People in Places** (Includes Sustainability in Course)

Places are powerful, not just for where they exist, but for how they impact our mental processes and behavior. This course examines how psychology is embedded in places like Sewanee, at once dynamically interacting with and creating norms, histories, cultures, environments, educational practices, and social groups. Field trips and plenary lectures allow students to explore the region, engage in the practice of place-making, and synthesize knowledge across disciplines. Capstone projects provide opportunities for in-depth exploration.

**FYRP 117: First-Year Seminar: Community Narratives of the South Cumberland Plateau** (Includes Sustainability in Course)

This course introduces students to people, places, and events that helped shape the history, culture, and environment of the South Cumberland Plateau. Students explore multiple cultural, historical, and political narratives that tell the story of the region.

Particular emphasis is placed on the role of historical and current land-use in shaping local environmental attitudes and perceptions. Field trips and plenary lectures allow students to explore the region, engage in the practice of place-making, and synthesize knowledge across disciplines. Capstone projects provide opportunities for in-depth exploration.

**FYRP 120: First-Year Seminar: The Local Place and the Forces of Globalization**  
(Includes Sustainability in Course)

This course explores forces of globalization to understand the complexities of local place. It examines how this place is influenced by trade, migration, health issues, environmental pressures, human rights, and the global rise of populism. Field trips to international businesses, groups addressing global health, and human rights organizations will illustrate how the geographic and political borders of place are relatively porous and the identities of people within those places are shaped by local and global forces. Journals, student-led discussions, and a capstone project provide the opportunity to link readings on globalization and place to observations and investigations about the local community.

## Forestry

**FORS 121: Introduction to Forestry (Lab)** (Sustainability Course)

An environmental survey course which addresses the important features, processes, and issues of forested landscapes. Topics include major tree species, forest biology and ecology, tree structure and function, silviculture, forest management, forest products, and U.S. forest policy and laws. The focus on North American forests is set within a context of global forest issues. Lab exercise emphasize fieldwork, utilizing the diverse array of local forest types present on the Cumberland

Plateau and nearby Appalachian Mountains. Lecture, three hours, laboratory and field trips.

**FORS 204: Forest Wildlife Management** (Sustainability Course)

A survey and analysis of how vertebrate animals affect forest processes, with particular emphasis on forest regeneration on the Cumberland Plateau. This discussion-oriented class will also address the history and current status of U.S. and international wildlife management, and the effects of forest management on game and non-game species. Students will interact with wildlife management professionals in Tennessee and will design and implement a field study to quantify the effects of vertebrate animals on forest growth and development.

**FORS 211 Dendrology (Lab)** (Sustainability Course)

This course explores the identification, biology and morphology of woody plants, with emphasis on the major forest species of North America. Primary focus is on the ecophysiological characteristics of species and their roles in forest succession, species distribution across the landscape, and responses to disturbance and environmental stress. Includes field identification of native trees and shrubs of the eastern U.S., with special

emphasis on the Cumberland Plateau and the southeast. Lecture, laboratory, and weekend field trips.

**FORS 212: Forestry in the Developing World (Sustainability Course)**

An introduction to the use and management of trees in the developing world. Social and technical aspects of forestry will be considered. Topics will include the role of forestry in development, land and tree tenure, the role of women in forestry projects, agroforestry, trees in traditional systems, the forest as habitat, and the role of western technology as applied to forestry in the developing world.

**FORS 215: Fisheries Ecology and Management (Lab) (Sustainability Course)**

An introduction to the theory and practice of fisheries science. Particular emphasis is placed on approaches and techniques for assessing and managing fish populations, habitats, and ecosystems under commercial and recreational harvest; on human dimensions in fisheries management and policy; and on case studies of flawed management approaches throughout history.

**FORS 230: Urban Forest Management (Sustainability Course)**

Study of the environmental stresses associated with urban landscapes and their impact on establishing and maintaining trees in urban environments. Topics include the theory and practice of individual tree care; biology of tree response to stress, disease, and nutrient assessment; impacts of trees on urban climate; and urban forest inventory and planning.

**FORS 240: Special Topics (Sustainability Course)**

A seminar on a topic related to forestry and natural resources.

**FORS 250: Forests: Food, Medicine, and More (Sustainability Course)**

An exploration of the wide range of edible, medicinal, and otherwise useful forest products found in forests of western and eastern North America, including the forests of Sewanee. In addition to learning about the biology and distribution of these plants, and about how they are gathered and processed, students discuss the ecological implications of harvesting these interesting plants and fungi. Note: The class involves some eating.

**FORS 260: Forest Watershed Measurements (Sustainability Course)**

A field and analysis course in which students learn the techniques of stream and watershed evaluation through active participation in a watershed monitoring project. Activities will focus upon stream and watershed sampling procedures, analytical laboratory techniques, and the synthesis, analysis, and reporting of data.  
Non-laboratory course.

**FORS 262: Forest and Watershed Restoration (Lab) (Sustainability Course)**

A study of the principles and practices employed in forest and watershed restoration across North America. Emphasis placed on the scientific tenets of restoration (ecosystem

function and process), field monitoring techniques, the concept of adaptive management, collaboration and conflict resolution, and the development of restoration policy.  
Laboratory course.

**FORS 270: Water Resource Policy and Law (Sustainability Course)**

This case-studies based course focuses on the protection and management of water resources and associated biodiversity. Students are introduced to the principal federal and state laws governing the rights and responsibilities of landowners, with emphasis on how such regulation affects management decisions and economic outcomes. The course promotes understanding of the legal/regulatory environment through study of common and statutory law, as well as critical analysis of the outcomes. Case studies involve both international and local problems. Students gain practical experience by applying science-based monitoring guidelines and methods, together with opportunities for community engagement work.

**FORS 303: Soils (Lab) (Sustainability Course)**

A study of soils as they relate to land use, bedrock and geomorphology, site quality, and vegetation processes. Emphasizes field interpretation of soils as one component of terrestrial ecosystems. Lecture, three hours; laboratory and field trips.

**FORS 305: Forest Ecology (Lab) (Sustainability Course)**

Explores the interrelationships between structure and function of forested ecosystems, approaching the forest community from a physiological perspective. Emphasizes the influence of microclimate, nutrient cycling, and disturbance on community productivity and composition. Lecture, three hours; laboratory and field trips.

**FORS 312: Silviculture (Lab) (Sustainability Course)**

Principles and practices of establishing, tending, and harvesting forest stands on a sustainable basis. Emphasis on ecologically sound techniques of managing forests to meet diverse landowner objectives such as watershed management, wildlife habitat enhancement, recreational use, insect and disease control, and/or timber production.

**FORS 314: Hydrology (Lab) (Sustainability Course)**

Occurrence, movement, quality, and behavior of water in the hydrologic cycle with emphasis on surface and underground water. Includes techniques and problems of measurement and utilization. Lectures, three hours; laboratory and field trips, three hours.

**FORS 319: Natural Resource Management and Decisions (Sustainability Course)**

A survey of theory and methods used in natural resource management analysis and decision making with an emphasis on forests and some other renewable resources such as wildlife. Students will use resource modeling and decision-making software to address problems in managing multiple resources. Emphasis will be on (1) evaluation of the effects of land characteristics, tax policy, risk, and interest rates on management; (2) choice among policy alternatives proposed by competing groups; and (3) application of



concepts of management, policy, economics, and spatial analysis to land management. Practicums will involve analysis of resource data and presentation of preferred strategies.

## Geology

### **GEOL 121: Physical Geology (Lab)** (Sustainability Course)

A study of the geological features and processes that shape the earth's surface and subsurface. Lectures detail major components of the earth and the dynamic processes that generate them (including rocks, minerals, fossils, mountain belts, ocean basins, tectonic activity, magma formation, and climate change). Environmental issues related to geology (earthquakes, landslides, volcanic activity, groundwater contamination, and coastal and stream erosion) are major topics of discussion. Field-oriented lab exercises utilize excellent geological exposures of the Cumberland Plateau and the nearby Appalachian Mountains. Lecture, three hours; laboratory and field trips (including one weekend trip).

### **GEOL 218: Geoarcheology** (Sustainability Course)

Geoarchaeology is broadly defined as the application of earth sciences method and theory to archaeological questions. Using a variety of environments as case studies for discussion, this class explores the character and classification of soils, sediments, landforms and formation processes across multiple scales as they relate to the archaeological record.

### **GEOL 235: Earth Systems and Climate Change** (Sustainability Course)

A study of climate change, its causes, and the impact of such change on sea level, glacial regimes, and the development of life through geologic time. Special emphasis on evidence for past and recent climate change.

### **GEOL 305: Economic Geological Resources (Lab)** (Sustainability Course)

A study of economically valuable minerals and rocks (including metals, nonmetals, industrial minerals, and hydrocarbons) in terms of their origin, tectonic settings, extraction, and use. Topics include global distribution and genesis of deposits in relation to plate tectonic theory, prospecting techniques, mining methods, mining laws, economics of the mineral and petroleum industries, and environmental problems associated with exploration and development. Lecture, three hours; laboratory and field trips.

## History

### **HIST 117: Discovering America, 1400-2000** (Includes Sustainability in Course)

This course examines the history of North America through the lens of "discovering America," a prevalent expression in discussions of the region's landscape and people from 1400 to 2000. Using art, fiction, popular entertainments, travel writing as well as

works by historians, the course focuses on early encounters between indigenous and European peoples, the importance of stories of discovery in politics and culture, and Americans' efforts to describe and assign value to the natural environment as the United States emerged as a nation and world power in the nineteenth and twentieth centuries.

**HIST 215: Southern African History** (Includes Sustainability in Course)

This course encompasses both the established history of the southern African region c. 1500-2004 and recent historiographical developments. As a result of this dual focus, the course highlights the production of southern African history, considering how, for whom, and why that history has been written. Topics include: the environment in history; the creation and interactions of racial groups; the mineral revolution and capitalist development; white domination, segregation, and apartheid; and political and popular resistance to these oppressive racial regimes. The course ends with the transition to majority rule, the role of the Truth and Reconciliation Commission, and the democratic future of South Africa.

**HIST 219: History of Africa to 1880** (Includes Sustainability in Course)

A historical introduction to the African continent from human origins until the imposition of European colonial control. Topics addressed include environmental constraints, relations between elites and peasants, the rise of states and empires, the emergence of diverse religious systems, artistic production, slavery and the slave trades, and the interchange between Africa and other parts of the world.

**HIST 283: Environmental History** (Sustainability Course)

An introduction to the field of environmental history, which asks how the natural world has shaped the course of human civilization, and how humans, in turn, have shaped the natural world, over time.

**HIST 386: African Environmental History** (Sustainability Course)

A survey of African environmental and agrarian history, focusing on the historical interrelationship between Africans and their environment. Topics include colonial misconceptions of Africans and their environment; key environmental factors in the development of African societies and the slave trade; agrarian history with its focus on agricultural production; colonial-era developments leading to food insecurity; the failure of large-scale "development" and modernization projects and ideologies; the creation of nature reserves; the denial of African hunting traditions, and the promotion of the "great white hunter" and safari culture. This seminar class emphasizes historiography, primary sources, and discussion.

**HIST 421: The History of Sustainability and Sustainable Development** (Sustainable Course)

An examination of the historical origins and development of the discourses of sustainability, sustainable development, and the green economy, which have been ubiquitous, influential, and critically and historiographically under-examined in

contemporary U.S. and global society. The course draws on contemporary global environmental historiography, while analyzing key primary sources such as Malthus' An Essay on the Principles of Population, Marsh's Man and Nature, Ehrlich's Population Bomb, Club of Rome's Limits to Growth, the United Nations' Brundtland Commission's "Our Common Future," the United Nations' Millennium Development Goals, and the University of the South's Sustainability Master Plan.

## International and Global Studies

### **INGS 103: The Global Detective** (Includes Sustainability in Course)

This course examines the globalization of terrorism, environmental problems, and immigration through fiction. Readings include Olivier Truc's *Forty Days without Shadow*, Maj Sjöwall's and Per Wahlöö's *The Terrorists*, and Eva Dolan's *Long Way Home*.

### **INGS 310: Brazilian Tropicália: The Myth and Reality of an Emerging Power** (Includes Sustainability in Course)

A comprehensive study of perhaps the most democratic and developed of the so-called BRIC nations. Readings and topics include Brazilian history; political institutions and parties; the economy; social movements; ethnic diversity (including indigenous, Portuguese and African influences on Brazilian culture and society); sustainability and the environment; the planned city of Brasília; literature; music; art; salient political and cultural figures. Conducted as an on-site, study abroad summer offering.

### **INGS 311: Islam and Ecology** (Sustainability Course)

Based on a study of classical and contemporary Islamic texts, this course considers how narrative and language contribute to shaping distinct ecological world views. The course raises questions of how sacred narratives and concepts shape the way that Muslims experience the natural world and value different elements of their environment. The course also considers the efforts of contemporary Muslim environmental activists to change the relationship of humanity to natural resources and surroundings with reference to the Islamic faith.

## Mathematics

### **MATH 332: Mathematical Modeling** (Includes Sustainability in Course)

An introduction to the creation of mathematical models, both deterministic and probabilistic, for the description of problems drawn from physical, biological, social, and environmental sources.

## Philosophy

### **PHIL 222: Contemporary Moral Issues** (Includes Sustainability in Course)

A philosophical examination of moral issues in contemporary life, such as abortion, euthanasia, sexual morality, capital punishment, environmental pollution, world hunger, and nuclear disarmament. Class lectures and discussions will help clarify the nature of each issue and examine the various arguments that have been advanced.

### **PHIL 230: Environmental Ethics** (Sustainability Course)

Examines a wide range of controversial issues concerning the moral responsibilities of human beings toward the natural environment with special attention to competing philosophical theories on the moral status of non-human species and natural ecosystems.

### **PHIL 232: Business Ethics** (Includes Sustainability in Course)

An examination of the moral dimensions of business activity, especially within the context of a democratic society. Topics may include social and economic justice, the nature of corporations, corporate accountability, social responsibility, the morality of hiring and firing, employee rights and duties, advertising, product safety, obligations to the environment, and international business.

## Physics

### **PHYS 105: Energy and the Environment** (Sustainability Course)

This course examines the various energy sources currently being used in our society and those proposed for future use. The fundamental physical principles underlying the production, transmission and use of these sources are studied. Particular application is made to the analysis of local energy production and usage.

### **PHYS 106: Foundations of Global Warming** (Sustainability Course)

A study of the physical principles and mechanisms underlying global warming. Influences of the sun, earth surface, atmosphere, and oceans are considered. Observational records that describe surface temperatures and changes in the gaseous atmosphere are examined. Also discussed are effects of global warming and possible future scenarios.

## Politics

### **POLS 107: Critical Issues in American Politics** (Includes Sustainability in Course)

A course devoted to examining a variety of politically-related contemporary issues, such as those related to education, health, or the environment. Presupposes students have at least some prior knowledge of governmental institutions and processes. Students join written and oral discourse to consider the background of problems, their political development, and possible resolution.

**POLS 223: Public Policy** (Sustainability Course)

Students are introduced to foundational theories of public policy, gaining valuable insight into "who gets what, when, and how" in the political process. Through a series of case studies in environmental, social welfare, criminal justice, and health policy, students are asked to apply and critically evaluate policy problems and solutions, given existing public policy theories.

**POL 248: China's Environmental Crisis** (Sustainability Course)

This course analyzes the emergence of China's environmental crisis and its national and global implications. Students explore the historical development of China's current environmental crisis, with special focus on institutions, laws, and regulations that have contributed to environmental degradation during the post-1949 era. The course addresses the efforts, and limited ability, of civil society and China's state to rein in pollution and remediate environmental damage, as well as China's engagement with global environmental norms and policymaking.

**POLS 260: Political Theory of the Environment** (Sustainability Course)

An applied course in the theoretical literature that underlies understandings of the natural environment, human interaction with the environment, and the rights both of humans and of elements of the natural order. Readings and discussion emphasize the theoretical underpinning of environmental justice, both domestic and international, as well as the intersection of environmental theory with international political economy.

**POLS 270: Introduction to International Security** (Includes Sustainability in Course)

A study of the major concepts, theories, methods, and issues involved in international security. The course considers competing contentions about how security should be understood and the impact of such debate on the evolving subfield of security studies. It covers traditional security topics like conventional weapons proliferation, militarized interstate disputes, nuclear deterrence, and international terrorism as well as emerging issues involving criminal, energy, environmental, and cyberspace security.

**POLS 280: The Politics of Development and Foreign Aid** (Includes Sustainability in Course)

An introduction to the major political, social, historic, and economic reasons for development and underdevelopment in the Global South. This course explores the theoretical approaches of neoliberalism, dependency, human capabilities, and post-development, as well as topics such as gender, globalization, non-governmental organizations, sustainability, and foreign aid policies. International, national, and local institutions and actors involved with development processes are investigated, as well as questions of power, representation and accountability in both donor and developing states.

**POLS 313: Environmental Politics and Policy** (Sustainability Course)

The course explores the ideas that influence environmental thought, examines various environmental problems and suggested solutions, and critically evaluates the role that political institutions play in creating and enforcing environmental policy. Specific topics include environmental justice, environmental federalism, environmental health, and regulatory behavior.

**POLS 339: The Political Economy of Development in Zambia and Botswana** (Includes Sustainability in Course)

This course explores the social, political and economic development of Africa using the cases of Zambia and Botswana. It examines how donors, local NGOs, faith-based organizations, and activists affect governance, health, education, entrepreneurship, and environmental protection. Students attend classes taught by Zambian scholars, as well as presentations by NGO officials, political activists, and business leaders. Site visits to health centers, NGO projects, agricultural enterprises, and national parks demonstrate the complexity of development processes. The sites of Copperbelt, Lusaka, and Livingstone (in Zambia) and Chobe National Park (Botswana) illustrate development concepts, as does community engagement with an AIDS support group and a home for orphaned children.

**POLS 346: Contemporary Social Movements** (Includes Sustainability in Course)

This course examines 1) some of the major social and political ideologies of the 20th century (such as liberalism, socialism, nationalism, feminism, environmentalism); 2) theories of social and political movements in modern societies and market democracies; and 3) concrete examples of such social and political movements in the contemporary world.

**POLS 382: International Environmental Policy** (Sustainability Course)

Growing human impact on the natural environment, together with the broadening linkages among states, international organizations, multinational corporations, and border migration, provide the context for this course. Among the central concepts and debates it addresses are the history of international environmental thought, relevant actors, the intersection of environmental policy and international trade, finance and investment, and the creation of international environmental law. Students also discuss issues of sustainable development, global governance, and global environmental justice.

## Religion

**RELG 307: Religious Environmentalism** (Sustainability Course)

An exploration of the religious aspects of contemporary environmentalism and religious critiques of the emphasis by Americans on the values of consumerism and convenience. A service-learning component requires students to participate in a local environmental project and to reflect on both their own ethical commitments and those of the University.

### **RELG 341: Religion and Ecology** (Sustainability Course)

Considers the relationship between the natural and the sacred in selected traditions such as Amerindian religions, Hinduism, Buddhism, Daoism, Judaeo-Christian tradition, and contemporary eco-religion. Emphasizes analysis of latent ecological/environmental resources or conflicts in each tradition studied.

### **RELG 353: Buddhism and the Environment** (Sustainability Course)

An investigation of Buddhist images, symbols, stories, doctrines, ethics, and practices as they relate to understanding the environment and humanity's relationship with it. Classical texts as well as modern commentaries by Buddhist teachers, writers and activists will be examined.

## **Russian**

### **RUSN 363: Environmentalism and Ecocide in Russian Literature and Culture** (Sustainability Course)

A study of representations of the natural world in selected Russian and Soviet texts and images. Students examine the development of nineteenth-century pastoralism and nature writing, emergent environmentalism, Stalinist industrialization, and the threat of environmental decimation (exemplified by the Chernobyl disaster) in the twentieth century and beyond. Topics explored include the political appropriation of natural motifs; ecology, nationalism, and national identity; totalitarian culture and the environment; health, food, and ethics; "hero projects" glorifying technological achievement and the mastery of nature; and demographic crisis. This course is taught in English and does not satisfy the foreign language requirement.

## **Spanish**

### **SPAN 390: Latin America Literature and the Environment** (Sustainability Course)

A study of diverse ways in which Latin American literature and culture have portrayed the relationship between humans and the natural environment. Students study texts, films, and other materials from selected geographic regions to foster understanding of the cultural, political, and ecological history of environmental issues in Latin America.

## **Women's and Gender Studies**

### **WMST 100: Introduction to Women's and Gender Studies** (Includes Sustainability in Course)

This course provides an introduction to contemporary analyses of women's economic, cultural, biological, environmental, and political conditions. We will explore commonalities and differences among women, both in the United States and in other nations. In so doing, we will engage the concept of gender as an historical and critical category relating to a woman's ethnicity, class, sexuality, and race. The course also will

examine varieties of recent feminist thought, paying particular attention to the impact of this scholarship on traditional academic disciplines.