Anthropology

ANAR 118. Archaeology of the UCSD Campus (4) Our campus houses some of the earliest human settlements in North America. This course reviews the archaeology, climate, and environment of the sites and outlines research aimed at understanding the lives of these early peoples. [Formerly known as ANGN 108.] **Prerequisites:** upper-division standing. Consent of instructors. Credit not allowed for both ANGN 108 and ANAR 118.

ANAR 182. Origins of Agriculture and Sedentism (4) Varying theoretical models and available archaeological evidence are examined to illuminate the socio-evolutionary transition from nomadic hunter-gathering groups to fully sedentary agricultural societies in the Old and New Worlds. (Archaeology core sequence course.) [Formerly known as ANGN 182.] ANTH 3 recommended. Credit not allowed for both ANGN 182 and ANAR 182. **Prerequisite:** upper-division standing.

ANBI 132. Conservation and the Human Predicament (4) (Same as BIEB 176.) Interdisciplinary discussion of the human predicament, biodiversity crisis, and importance of biological conservation. Examines issues from biological, cultural, historical, economic, social, political, and ethical perspectives emphasizing new approaches and new techniques for safeguarding the future of humans and other biosphere inhabitants. **Prerequisites:** upper-division standing, ANTH 2, or consent of instructor.

ANSC 160. Nature, Culture, and Environmentalism (4) Course examines theories concerning the relation of nature and culture. Particular attention is paid to explanations of differing ways cultures conceptualize nature. Along with examples from non-Western societies, the course examines the Western environmental ideas embedded in contemporary environmentalism. [Formerly known as ANGN 160.] Credit not allowed for both ANGN 160 and ANSC 160. **Prerequisite:** upper-division standing.

Biology

BILD 3. Organismic and Evolutionary Biology (4) The first principles of evolutionary theory, classification, ecology, and behavior; a phylogenetic synopsis of the major groups of organisms from viruses to primates. **Prerequisite:** none. (Note: E.B.E. majors should complete this course during their first year at UCSD.)

BIBC 130 Marine Biochemistry (4) Biochemical mechanisms of adaptation in organisms to the marine environment. Special emphasis will be on the effects of pressure, temperature, salinity, oxygen, and light on the physiology and biochemistry. **Prerequisite:** BIBC 102 or consent of instructor.

BIEB 121. Ecology Laboratory (6) A laboratory course to familiarize students with ecological problem solving and methods. Students will perform outdoor field work and use the Macintosh computer for data exploration and analysis. Two hours of lecture and eight hours of laboratory each week. **Prerequisite:** BIEB 100. Attendance at the first lecture/lab is required. Nonattendance will result in the student's being dropped from the course roster.

BIEB 131. Marine Invertebrate Ecology Laboratory (6) A laboratory course introducing students to marine ecology. Students will participate in outdoor fieldwork and work in the laboratory gathering and analyzing ecological data. We will focus on ecological communities in estuary, sandy beach, and rocky intertidal habitats. Two hours of lecture and eight hours of laboratory each week. In addition to

the formal lab hours, there will be at least nine hours in which students will be required to work in the class laboratory to complete experiments and prepare for presentations. **Prerequisites:** BILD 3; BIEB 100. Attendance at the first lecture/lab is required. Nonattendance will result in the student's being dropped from the course roster.

BIEB 132. Introduction to Marine Biology (4) Overview of marine organisms and their adaptations to sea life. Selected examples of physiological, behavioral, and evolutionary adaptations in response to the unique challenges of a maritime environment. **Prerequisite:** BILD 3.

BIEB 134. Introduction to Biological Oceanography (4) Basis for understanding the ecology of marine communities. The approach is process-oriented, focusing on major functional groups of organisms, their food-web interactions and community responses to environmental forcing, and contemporary issues in human and climate influences. **Prerequisite:** upper-division standing; BILD 3 is recommended.

BIEB 140. Biodiversity (4) An introduction to the patterns of geographic distribution and natural history of plants and animals living in terrestrial and marine ecosystems. We will explore: ecological and evolutionary processes responsible for generating and maintaining biological diversity; and the nature of extinction both in past and present ecosystem. **Prerequisite:** BILD 3.

BIEB 165. Behavioral Ecology Laboratory (6) This course deals with quantitative methods for the study of animal social behaviors. Topics include spatial patterns, mating systems, and cooperation. The course includes both lab exercises and field trips. Two hours of lecture and eight hours of laboratory each week **Prerequisites:** BIEB 100 and BIEB 164. (BIEB 164 may be taken concurrently.) Attendance at the first lecture/lab is required. Nonattendance will result in the student's being dropped from the courts roster.

BIEB 166. Animal Behavior and Communication (4) An integrated approach to animal behavior focusing on mechanisms of acoustic, visual, and olfactory communication. Course covers ethology and the genetics and neurobiology of behavior; orientation and navigation; and signal origins, properties, design, and evolution. **Prerequisite:** BILD 3.

BIEB 176. Conservation and the Human Predicament (4) (Cross-listed with ANTH/BIO 132; however, biology majors must take the course as Biology 176.) An interdisciplinary discussion of the human predicament, the biodiversity crisis, and the importance of biological and environmental conservation. Examines issues from biological, cultural, historical, economic, social, political, and ethical perspectives emphasizing new approaches and new techniques for safeguarding the future of humans and other biosphere inhabitants. **Prerequisites:** upper-division standing and BILD 3 or consent of instructor.

Chemistry (CHEM)

15. Chemistry of the Universe (4) This is a one-quarter, nonmathematical chemistry course for nonscience majors covering the origin of the universe, the elements, and the formation of the solar system. The evolution of the Earth's atmosphere, hydrosphere, geosphere, and biosphere will be covered, as well as contemporary problems in environmental chemistry. Cannot be taken for credit after any other chemistry course.

149A. Environmental Chemistry (4) The chemical basis of air and water pollution, chlorofluorocarbons and the ozone hole, the environmental impact of radioactive waste disposal, mineral resource usage, and nuclear energy. **Prerequisite:** Chem. 6C or 6CH or equivalent. (F)

149B. Environmental Chemistry (4) Agricultural productivity, biological impact on the environment, deforestation, environmental disasters (fires, nuclear winter, and volcanoes), and organic waste handling. **Prerequisite:** Chem. 149A. (W)

173. Atmospheric Chemistry (4) (Conjoined with Chem. 273.) Chemical principles applied to the study of atmospheres. Atmospheric photochemistry, radical reactions, chemical lifetime determinations, acid rain, greenhouse effects, ozone cycle, and evolution are discussed. Chem. 273 students will be required to complete an additional assignment/exam beyond that expected of students in Chem. 173. **Prerequisites:** Chem. 6A-6C or 6AH, 6BH, and 6 CH, or quivalent. (S)

Communication

COCU 148. Communication and the Environment (4) Survey of the communication practices found in environment controversies. The sociological aspects of environmental issues will provide background for the investigation of environmental disputes in particular contested areas, such as scientific institutions, communities, work-places, governments, popular culture, and the media. **Prerequisite:** COCU 100 or consent of instructor.

Economics (ECON)

131. Economics of the Environment (4) Environmental issues from an economic perspective. Relation of the environment to economic growth. Management of natural resources, such as forest and fresh water. Policies on air, water, and toxic waste pollution. International issues such as ozone depletion and sustainable development. *Prerequisites: Economics 1A-B or 1-2.*

132. Energy Economics (4) Energy from an economic perspective. Fuel cycles for coal, hydro, nuclear, oil, and solar energy. Emphasis on efficiency and control of pollution. Comparison of energy use across sectors and across countries. Global warming. Role of energy in the international economy. *Prerequisites: Economics 1A-B or 1-2.*

145. Economics of Ocean Resources (4) Economic issues associated with oceans.
Economics of managing renewable resources in the oceans, with an emphasis on fisheries, economics of conservation and biodiversity preservation for living marine resources, with an emphasis on whales, dolphins, sea-turtles, and coral reefs. *Prerequisites: Economics 1A-B or 1-2-3.*

Environmental Studies (ENVR)

30. Environmental Issues: Natural Sciences (4) Examines global and regional environmental issues. The approach is to consider the scientific basis for policy options. Simple principles of chemistry and biology are introduced. The scope of problems include: air and water pollution, climate modification, solid-waste disposal, hazardous-waste treatment, and environmental impact assessment. **Prerequisite:** none.

102. Selected Topics in Environmental Studies (4) An interdisciplinary course focusing on one of a variety of topics related to environmental studies such as environmental policy and politics, foreign

study in environmental problems, environmental history, nature writers, ethics and the environment. May be repeated for credit as topics vary. **Prerequisite:** upper-division standing or consent of instructor.

110. Environmental Law (4) Explores environmental policy in the United States and the ways in which it is reflected in law. The social and political issues addressed include environmental justice and environmental racism, as well as the role of government in implementing environmental law. **Prerequisite:** upper-division standing or consent of instructor.

120. Coastal Ecology (4) Explores the diverse ecosystems of coastal San Diego County (salt marsh, rocky intertidal, sandy beach, etc.) in the classroom and in the field with attention to basic principles of field ecology, natural history, and techniques for collecting ecological data. Course and/or materials fee may apply. **Prerequisite:** upper-division standing or consent of instructor.

130. Environmental Issues: Social Sciences (4) Explores contemporary environmental issues from the perspective of the social sciences. It includes the cultural framing of environmental issues and appropriate social action, the analysis of economic incentives and constraints, and a comparison of policy approaches. **Prerequisite:** upper-division standing or consent of instructor.

140. Wilderness and Human Values (4) "Wilderness" plays a central role in the consciousness of American environmentalists and serves as focal point for public policies, recreation, and political activism. This course explores its evolving historical, philosophical, ecological and aesthetic meanings, includes guest speakers and field component. **Prerequisite**: upper division standing or consent of instructor.

141. Wilderness and Human Values Workshop (2) Through reading, discussion, library and online research, as well as field trips, this course is designed to prepare students to serve as discussion leaders for ENVR 140: Wilderness and Human Values. **Prerequisite**: upper-division standing and consent of instructor.

Environmental Systems (ESYS)

101. Environmental Biology (4) This course surveys biochemical and physiological processes governing the relationship between organisms and their environments, such as those involved in element cycling and cellular homeostasis. The course introduces biological perspectives on human activities ranging from antibiotic use to genetic engineering. **Prerequisite:** BILD 1 or 2 or equivalent, or consent of instructor. (F)

102. The Solid and Fluid Earth (4) Earth's dynamic physical systems interact in complex ways with profound impact on our environment. Processes such as volcanism and weathering enable geochemical exchange between solid and fluid (ocean and atmosphere) systems. Sea-level and climate changes interface with tectonic processes. **Prerequisites:** Math. 10A, Chem. 6A, Physics 1A or consent of instructor. (W)

103. Environmental Challenges: Science and Solutions (4) This course explores the impacts of human, social, economic, and industrial activity on the environment. It highlights the central roles in ensuring sustainable development played by market forces, technological innovation, and government

regulation on local, national, and global scales. **Prerequisite:** grade of C– or better in Math. 20B or Math. 10A-C; or by consent of instructor. (S) **(Cross-listed with MAE 124)**

120. Science and Environmental Writing (4) Course designed to improve the written communication of science majors through frequent writing assignments that develop the practical skills needed to communicate science to lay audiences. Topics include news writing, news releases, grant writing, broadcast script writing, and editorial writing. **Prerequisites:** upper-division standing in science or mathematics major and completion of college composition requirement (or consent of instructor). (W)

150. Environmental Perils (4) An advanced field-oriented course for engineering and science students stressing the geologic basis for environmental perils such as earthquakes, erosion, flooding, and waste disposal. Two one-hour lectures, and a two-hour lab/field trip each week. **Prerequisites:** Math. 10 A-B-C sequence and Physics 1A,AL; 1B,BL; 1C,1CL sequence or equivalent. (S)

Ethnic Studies (ETHN)

103. Environmental Racism (4) This course will examine the concept of environmental racism, the empirical evidence of its widespread existence, and the efforts by government, residents, workers, and activists to combat it. We will examine those forces that create environmental injustices in order to understand its causes as well as its consequences. Students are expected to learn and apply several concepts and social scientific theories to the course material.

History

HISC 105. History of Environmentalism (4) History of human effects on the natural environment, with emphasis on understanding the roles of the physical and biological sciences in providing insights into environmental processes. **Prerequisite:** upper-division standing or consent of instructor.

HIUS 154. Western Environmental History (4) This course examines human interaction with the western American environment and explores the distinction between the objective environmental understanding of science and the subjective views of history and historians. The course will also analyze the most compelling environmental issues in the contemporary West.

Graduate School of International Relations and Pacific Studies (IR/PS)

455. Economic Theories of Regional Integration (4) The first part of the course covers the basic economics of trading blocs and proceeds to more complicated topics in the theory of preferential trading arrangements, customs unions, and currency unions. In the second part we use the formal theory to compare economic integration in different parts of the world. **Prerequisites:** IRCO 401 and 403 or consent of instructor.

458. International Environmental Policy and Politics (4) This course analyzes multilateral environmental agreements and negotiating positions of key countries on climate change, biodiversity conservation, sustainable development, and other subjects. It explores the challenges countries face to balance economic development objectives with global environmental concerns.

Mechanical and Aerospace Engineering (MAE)

118A. Introduction to Energy Systems (4) Overview of present-day primary energy sources and availability; stationary and mobile power plant technologies; air pollution and controls; introduction to climate change; overview of renewable energy resources and technologies. **Prerequisites:** MAE 101A or CENG 101A, or consent of instructor.

Philosophy (PHIL)

148. Philosophy and the Environment (4) Investigation of ethical and epistemological questions concerning our relationship to the environment. Topics may include the value of nature, biodiversity, policy and science, and responsibility to future generations. **Prerequisite:** upper-division standing or consent of instructor.

164. Technology and Human Values (4) Philosophical issues involved in the development of modern science, the growth of technology, and control of the natural environment. The interaction of science and technology with human nature and political and moral ideals. **Prerequisite:** upper-division standing or consent of instructor.

Political Science (POLI)

162. Environmental Policy (4) This course will explore contemporary environmental issues such as global warming, endangered species, and land use. Students will be asked to analyze various policy options and to write case analyses. Policies may be debated in class.

Science, Technology and Public Affairs (STPA)

35. Society and the Sea (4) Introduction to the oceans and their relationship to humankind. Selected topics include ocean-related science, engineering, research, economics, and international relations (emphasizing countries of the Pacific Rim); living and nonliving resources; coastal zone management; military and social aspects; and the sea in weather and climate. *Prerequisite: none.* (F)

Scripps Institution of Oceanography (SIO)

10. The Earth (4) An introduction to structure of the Earth and the processes which form and modify it. Emphasizes material which is useful for understanding geological events as reported in the news and for making intelligent decisions regarding the future of our environment. **Prerequisite:** none. (W)

12. History of the Earth and Evolution (4) Evolution of the Earth from its origin in the early solar system to formation of continents and ocean basins, and how the planet became habitable. It examines the geologic record of evolution, extinction, plate tectonics, and climate changes through time. **Prerequisite:** none. (S)

15. Natural Disasters (4) Introduction to environmental perils and their impact on everyday life. Geological and meteorological processes, including earthquakes, volcanic activity, large storms, global

climate change, mass extinctions throughout Earth's history, and human activity that causes and prevents natural disasters. **Prerequisite:** none. (F)

16. Geology of the National Parks (4) An introduction to fundamental concepts of geology and environmental science through the lens of the national park system. Topics covered include the geologic time scale; plate tectonics; igneous, metamorphic, and sedimentary processes; geomorphology; climate change; and environmental degradation. **Prerequisite:** none. (W)

20. The Atmosphere (4) Descriptive introduction to meteorology and climate studies. Topics include global and wind and precipitation patterns, weather forecasting, present climate and past climate changes (including droughts, El Niño events), "greenhouse" gas effects, ozone destruction, the "little ice age," acid rain. **Prerequisite:** none. (W)

30. The Oceans (4) Presents modern ideas and descriptions of the physical, chemical, biological, and geological aspects of oceanography, and considers the interactions between these aspects. Intended for students interested in the oceans, but who do not necessarily intend to become professional scientists. **Prerequisite:** none. (F)

35. Water (4) This course will examine the properties of water that make it unique and vital to living things. Origin of water on Earth and neighboring planets will be explored. Socially relevant issues concerning water use and contamination will be covered. **Prerequisite:** none. (S)

110. Introduction to GIS and GPS for Scientists (4) A hands-on introduction to science applications of geographic information systems and global positioning system. Students acquire data through GPS field surveys, design and construct GIS using ESRI's ArcGIS software, analyze spatial data, and present the results in a Web-based environment. **Prerequisite:** upper-division standing or consent of instructor. (S)

Sociology (SOCI)

149. Sociology of the Environment (4) The "environment" as a socially and technically shaped milieu in which competing values and interests play out. Relation of humanity to nature; conflicts between preservation and development; environmental pollution and contested illnesses. Will not receive credit for SOCI 149 and SOCC 149.

Urban Studies and Planning (USP)

2. Urban World System (4) Examines cities and the environment in a global context. Emphasizes how the world's economy and the earth's ecology are increasingly interdependent. Focuses on biophysical and ethicosocial concerns rooted in the contemporary division of labor among cities, Third World industrialization, and the post-industrial transformation of U.S. cities.

124. Land Use Planning (4) Introduction to land use planning in the United States: zoning and subdivision, regulation, growth management, farmland preservation, environmental protection, and comprehensive planning. **Prerequisite:** upper-division standing or consent of instructor.

144. Environmental and Preventive Health Issues (4) This course will analyze needs of populations, highlighting current major public health problems such as chronic and communicable diseases, environmental hazards of diseases, psychiatric problems and additional diseases, new social mores affecting health maintenance, consumer health awareness and health practices, special needs of economically and socially disadvantaged populations. The focus is on selected areas of public and environmental health, namely: epidemiology, preventive services in family health, communicable and chronic disease control, and occupational health. **Prerequisite:** upper-division standing or consent of instructor. (Offered fall quarter.)

171. Sustainable Development (4) Sustainable development is a concept invoked by an increasingly wide range of scholars, activists, and organizations dedicated to promoting environmentally sound approaches to economic development. This course critically examines the diverse, often contradictory, interests in sustainability. It provides a transdisciplinary overview of emergent theories and practices. **Prerequisite:** upper-division standing.