

UC San Diego Collection of Sustainability Courses

Collection of Courses Related to Sustainability - Initiated by Students in 2008-09

Last update: January 17, 2014 by the Council for Undergraduate Education

Full Course List

<u>Department/Program</u>	<u>Course #</u>	<u>"Includes Sustainability" or "SC"</u>	<u>Units</u>	<u>Class Title</u>	<u>Description</u>
Anthropology	ANTH 3		4	World Prehistory	This course examines theories and methods used by archaeologists to investigate the origins of human culture. A variety of case studies from around the world are examined. (Recommended for many upper-division archaeology courses.) [Formerly known as ANLD 3.] Credit not allowed for both ANLD 3 and ANTH 3.
	ANTH 23		4	Debating Multiculturalism: Race, Ethnicity, and Class in American Societies	This course focuses on the debate about multiculturalism in American society. It examines the interaction of race, ethnicity, and class, historically and comparatively, and considers the problem of citizenship in relation to the growing polarization of multiple social identities. [Formerly known as ANLD 23.] Credit not allowed for both ANLD 23 and ANTH 23.
	ANTH 101		4	Foundations of Social Complexity	Course examines archaeological evidence for three key "tipping points" in the human career: (1) the origins of modern human social behaviors, (2) the beginnings of agriculture and village life, and (3) the emergence of cities and states. Prerequisite: upper-division standing. (Required for all majors in anthropology.)
	ANAR 118		4	Archaeology of the UCSD Campus	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. Permission of instructor. Credit not allowed for both ANGN 108 and ANAR 118.
	ANAR 181		4	The Archaeology of Hunters-Gatherers	Course examines current theoretical issues in the field of hunter-gatherer archaeology. Considerable emphasis is given to ethnographic and ethno-archaeological sources for understanding such topics as prehistoric hunter-gatherer adaptations, culture change, social organization, and intergroup interaction. [Formerly known as ANGN 103.] ANTH 3 recommended. Credit not allowed for both ANGN 103 and ANAR 181. Prerequisite: upper-division standing.
	ANAR 182		4	Origins of Agriculture and Sedentism	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 World. (Archaeology core sequence course.) [Formerly known as ANGN 182.] ANTH 3 recommended. Credit not allowed for both ANGN 182 and ANAR 182. Prerequisites: upper-division standing.
	ANBI 132 (cross-listed with BIEB 176)		4	Conservation and the Human Predicament	(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.
	ANBI 146		4	Stable Isotopes in Ecology	The stable isotopes of carbon, nitrogen, oxygen, and hydrogen in animal tissues, plant tissues, and soils indicate aspects of diet and ecology. The course will introduce students to this approach for reconstructing paleo-diet, paleo-ecology, and paleo-climate.
	ANSC 160		4	Nature, Culture and Environmentalism	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. Prerequisites: upper-division standing.
	Biological Sciences	BILD 3		4	Organismic and Evolutionary Biology
BILD 18		SC	4	Human Impact on the Environment	Course will focus on issues such as global warming, species extinction, and human impact on the oceans and forests. History and scientific projections will be examined in relation to these events. Possible solutions to these worldwide processes and a critical assessment of their causes and consequences will be covered. Prerequisite: none.
BILD 22			4	Human Nutrition	A survey of our understanding of the basic chemistry and biology of human nutrition; discussions of all aspects of food: nutritional value, diet, nutritional diseases, public health, and public policy. Three hours of lecture and one hour of discussion. This course is designed for non-biology students and does not satisfy a lower-division requirement for any biology major. Note: Students may not receive credit for BILD 22 after receiving credit for BIBC 120.
BILD 36			4	AIDS Science and Society	An introduction to all aspects of the AIDS epidemic. Topics include the epidemiology, biology, and clinical aspects of HIV infection; HIV testing; education and approaches to therapy; and the social, political, and legal impacts of AIDS on the individual and society. In order to count for their major, biology majors must take the upper-division course, BICD 136.

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	BILD 87	SC	1	Earth's Fragile Biosphere	This seminar will address the consequences of human activity on the Earth's biosphere. Topics include species extinction, global warming, habitat destruction, individual responsibility to future generations, and human values/morals.
	BIBC 120		4	Nutrition	Elaborates the relationship between diet and human metabolism, physiology, health, and disease. Covers the functions of carbohydrates, lipids, proteins, vitamins, and minerals, and discusses dietary influences on cardiovascular disease, diabetes, obesity, and cancer. Prerequisite: BIBC 102.
	BIBC 140		4	Introduction to Biofuels	Course will provide an overview of the growing field of biofuels by introducing the basics of renewable biofuel production, including the chemistry of biofuels, the biology of important feedstocks, and the biochemical advances for the next generation of biofuels
	BICD 120		4	Fundamentals of Plant Biology	An introduction to the biology of plants. Basic principles of plant anatomy, physiology, development, and diversity are covered as well as specialized topics, including plant genetic engineering, plant disease and stress, medicinal plants, plants and the environment, and sustainable agriculture. Prerequisites: BILD 1 and 2.
	BICD 122		4	Plant Cellular and Molecular Biology	The cellular and molecular basis of plant development, including plant hormones, signal transduction mechanisms, light and plant growth, plant microorganism interaction, plant transformation, genetic engineering of plants. Prerequisite: BIBC 102 required.
	BICD 123		6	Plant Molecular Genetics and Biotechnology Laboratory	Techniques in plant cell and tissue culture, plant transformation, genetic selection and screening of mutants, host pathogen interactions, gene regulation, organelle isolation, membrane transport. Two hours of lecture and eight hours of laboratory each week. In addition to the formal lab hours, there will be at least eight hours in which students will be required to work in the class laboratory to complete experiments and prepare for presentations. Prerequisite: upper-division standing; BICD 120 strongly recommended. Attendance at the first lecture/lab is required. Nonattendance will result in the student's being dropped from the course roster. It is the student's responsibility to officially drop the course.
	BICD 131		6	Embryology Laboratory	Descriptive and experimental embryology of marine invertebrates and of vertebrates. One and one-half hours of lecture and ten hours of laboratory each week. In addition to the formal lab hours, there will be at least six and a half hours in which students will be required to work in the class laboratory to complete experiments and prepare for presentations. Prerequisites: BILD 1; BILD 2 or BIPN 100. Attendance at the first lecture/lab is required. Nonattendance will result in the student's being dropped from the course roster. It is the student's responsibility to officially drop the course.
	BIEB 100		4	Biostatistics	Application of statistics to biological problems. Topics: descriptive statistics, parametric statistics (t-test, correlation, regression, ANOVA, GLM), non-parametric statistics, experimental design. Mandatory homework to apply theory requires knowledge and application of statistics software. Mandatory one- to two- hour discussion in computer lab. Prerequisite: BILD 3.
	BIEB 102	SC	4	Introductory Ecology - Organisms and Habitat	This course emphasizes principles shaping organisms, habitats, and ecosystems. Topics covered include population regulation, physiological ecology, competition, predation, and human exploitation. This will be an empirical look at general principles in ecology and conservation with emphasis on the unique organisms and habitats of California. Prerequisite: BILD 3 or equivalent.
	BIEB 121	SC	6	Ecology Laboratory	A laboratory course to familiarize students with ecological problem solving and methods. Sections will use the Macintosh computer and also perform outdoor field work. 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. Prerequisite: BIEB 100.
	BIEB 123		4	Molecular Methods in Ecology and Evolution Laboratory	Theory and practice of molecular biology techniques used in ecological and evolutionary research. Includes isolation of DNA and RNA, PCR and its applications, DNA sequencing, gene expression analysis, bioinformatics, and ecological and evolutionary analysis of molecular data. Students may not enroll in or receive credit for both BIBM 101 and BIEB 123. Prerequisite: BILD 3.
	BIEB 126		4	Plant Ecology	This course begins with an introduction to plant population biology including whole-plant growth and physiology. We then focus on three classes of ecological interactions: plant-plant competition, plant-herbivore coevolution, and plant reproductive ecology including animal pollination and seed dispersal. Prerequisite: BILD 3.
	BIEB 128	SC	4	Insect Ecology	This course begins with a survey of insect diversity and phylogenetic relationships. We then address ecological issues including thermal ecology, population dynamics (including outbreaks), movement and migration, competition, predation, herbivory, parasitism, insect defense, mimicry complexes, and sociality. Prerequisite: BILD 3 or equivalent.
	BIEB 130		4	Marine Conservation Biology	Course integrates principles of ecology and marine biology to examine marine biodiversity loss resulting from over-exploitation, habitat loss, invasion, climate change, and pollution. Course examines consequences of biodiversity loss to marine ecosystems and discusses the efficacy of various management regimes. Conservation problems facing the world's oceans with an emphasis on issues important for coastal California will be discussed.
	BIEB 131		4	Marine Invertebrate Lab	A laboratory course introducing students to coastal marine ecology. Students will participate in outdoor fieldwork and work in the laboratory gathering and analyzing ecological data. We will focus on ecological communities from a variety of coastal habitats and use them to learn about basic ecological processes as well as issues related to sustainability and conservation of biodiversity.

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	BIEB 135		4	Aquatic Ecology Lab	Course provides overview of physical, chemical, and biological processes that characterize inland waters (lakes and rivers), estuaries, and near shore environments. Dominant biota of lakes, rivers, and streams, and how they are related to physical and chemical processes of the systems in which they reside will be covered. Methods will be introduced for assessing the chemical composition of water and detecting organisms that affect drinking water quality and coastal water quality management
	BIEB 140	SC	4	Biodiversity	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 143		4	Computer Modeling in Evolution and Ecology	An introduction to computer modeling in evolution and ecology. Students will use the computer language Python to write code to analyze ecological and evolutionary processes. Topics include natural selection, genetic drift, community ecology, game theory, and chaos.
	BIEB 144		4	Quantitative Ecology and Conservation	Introduction to mathematical and statistical tools for prediction of deterministic and stochastic ecological systems, including age-structured population growth; population regulation; interspecific interaction; species diversity. Conservation biology topics include sustainable harvesting; metapopulation dynamics; extinction; case studies of endangered species. Prerequisite: BILD 3; BIEB 100 and BIEB 102 recommended.
	BIEB 145		4	Spatial Analyses in Ecology and Conservation	Course familiarizes students with the concept and application of geographic analyses in biology and, specifically, the use of GIS as analytical tool. Example studies will be performed that range from global ecology to conservation in San Diego county. Prerequisite: BILD 3, BIEB 100, BIEB 102.
	BIEB 150		4	Evolution	Evolutionary processes are discussed in their genetic, historical, and ecological contexts. Microevolution, speciation, macroevolution, and the evolution of adaptations. Three hours of lecture and one hour of recitation. Prerequisite: BILD 3 or equivalent.
	BIEB 165		6	Behavioral Ecology Laboratory	This course will deal 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. 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: BIEB 100 and BIEB 164. (BIEB 164 may be taken concurrently.)
	BIEB 166		4	Animal Behavior and Communication	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 recommended, but not required; Physics 1A or 2A, or equivalent recommended, but not required.
	BIEB 167		6	Animal Communication Laboratory	Laboratory exercises will introduce students to quantitative methods of visual, auditory, and olfactory signal analysis and to lab and field studies of animal signaling. 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: BIEB 100 and BIEB 166. (BIEB 166 may be taken concurrently.)
	BIEB 176 Cross listed ANTH 132	SC	4	Conservation and the Human Predicament	(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 in sustaining future societies. We explore the consequences of habitat destruction and species extinctions on the biosphere and human welfare. Three hours of lecture and one hour of discussion. Prerequisites: upper-division standing and BILD 3 or consent of instructor.
	BIMM 132		4	Molecular Biology of Human Retroviruses	Replication cycle and gene regulation of HIV. Molecular approaches to therapy and vaccines. Three hours of lecture. Prerequisite: BIMM 100.
	BIMM 134		4	Biology of Cancer	This course covers basic processes of transformation and tumor formation in a two-part format. The first section is focused on molecular and cellular mechanisms of carcinogenesis. The second section discusses tumor pathology and metastasis. Open to upper-division students only. Prerequisites: BICD 110 and BIMM 100.
	BIMM 166		4	Environmental and Molecular Toxicology	(Cross-listed with CHEM 166; conjoined with BGGN 256, BIOM 266, and CHEM 266.) This course will investigate approaches to study the impact of environmental toxicants on human health. Other modern approaches that are being implemented to detect and remediate environmental toxicants will also be examined. Graduate students will be required to complete an additional paper and/or exam beyond that expected of undergraduate students. Prerequisites: upper-division standing for BIMM 166 and CHEM 166; graduate standing for BGGN 256, BIOM 266, and CHEM 266.
	BIMM 182		4	Biological Databases	This course provides an introduction to the features of biological data, how that data are organized efficiently in databases, and how existing data resources can be utilized to solve a variety of biological problems. Relational databases, object oriented databases, ontologies, data modeling and description, survey of current biological database with respect to above, implementation of database focused on a biological topic. This course open to bioinformatics majors only. Prerequisite: CSE 100 or Math 176.

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Chemistry/Biochem	BIPN 100		4	Mammalian Physiology I	This course introduces the concepts of physiological regulation, controlled and integrated by the nervous and endocrine systems. It then examines the muscular, cardiovascular, and renal systems in detail and considers their control through the interaction of nervous activity and hormones. Three hours of lecture and one hour of discussion. Prerequisites: BILD 1; BILD 2.
	BIPN 102		4	Mammalian Physiology II	This course completes a survey of organ systems begun in BIPN 100 by considering the respiratory and gastrointestinal systems. Consideration is given to interactions of these systems in weight and temperature regulation, exercise physiology, stress, and pregnancy and reproduction. Three hours of lecture and one hour of section per week. Prerequisite: BIPN 100; BIBC 102 may be taken concurrently.
	BIPN 105		6	Animal Physiology Lab	Experiments are performed on membrane physiology; nerve muscle function; cardiovascular physiology; respiratory, gastrointestinal and renal physiology. Subjects include experimental animals and humans. Prerequisite: BIPN 100 (may be taken concurrently). Three hours of lecture and ten hours of laboratory each week. In addition to the formal lab hours, there will be at least eight hours in which students will be required to work in the class laboratory to complete experiments and prepare for presentations. Attendance at the first lecture/lab is required. Nonattendance will result in the student's being dropped from the course roster. It is the student's responsibility to officially drop the course.
	BIPN 106		4	Comparative Physiology	This course examines the physiological adaptation of animals, invertebrates and vertebrates, to their particular environmental and behavioral niches. Structural, functional, and molecular adaptations of the basic organ systems are discussed. Prerequisites: BILD 2, Chem. 6A-B-C. BILD 3 is recommended.
	BIPN 108		4	Physiology of Exercise	Course addresses the human body's response to exercise, addressing energy metabolism and the effects of both acute and chronic exercise on function in several important organ systems. Designing training regimes and the role of exercise in health will be considered. Prerequisites: BIPN 100; BIPN 102; BIBC 102 recommended.
	CHEM 13		4	Chemistry of Life	Introduction to biochemistry for nonscience majors. Prerequisite: Chem. 12. Cannot be taken for credit after any biochemistry course.
	CHEM 15		4	Chemistry of the Universe	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.
	CHEM 100A		4	Analytical Chemistry Laboratory	Laboratory course emphasizing classical quantitative chemical analysis techniques, including separation and gravimetric methods, as well as an introduction to instrumental analysis. Prerequisites: CHEM 6C or 6CH or equivalent, and CHEM 6BL or equivalent; PHYS 2CL or 2BL recommended. A materials fee is required for this course. A mandatory safety exam must be passed within the first two weeks. (F, W, S)
	CHEM 100B		2	Fundamentals of Instrumental Analysis	Fundamental theoretical principles, capabilities, applications, and limitations of modern analytical instrumentation used for qualitative and quantitative analysis. Students will learn how to define the nature of an analytical problem and how to select and appropriate analytical method. Prerequisites: Chem. 100A or graduate standing, and Phys. 2A-B-D or equivalent; Phys. 2CL or 2BL recommended. (Note: Students may not receive credit for both Chem. 100B and Chem. 106.) (F,W,S)
	CHEM 100BL		3	Instrumental Analysis Laboratory	Hands-on laboratory course focuses on the development of correct laboratory work habits and methodologies for the operation of modern analytical instrumentation. Gas chromatography, gas-chromatography-mass spectrometry, high performance liquid chromatography, ion chromatography, atomic absorption spectroscopy. Chem. 100BL is for undergraduates only. Prerequisites: Chem. 100A; Phys. 2A-2B-2D, or equivalent; concurrent enrollment with Chem. 100B. Phys. 2BL or 2CL recommended. (Note: Students may not receive credit for both Chem. 100B and Chem. 106.) (F, W, S)
	CHEM 118		4	Pharmacology and Toxicology	A survey of the biochemical action of drugs and toxins as well as their absorption and excretion. Prerequisites: Chem. 140C or 141C; and Chem. 114C or consent of instructor.
	CHEM 149A		4	Environmental Chemistry	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.
	CHEM 149B		4	Environmental Chemistry	Agricultural productivity, biological impact on the environment, deforestation, environmental disasters (fires, nuclear winter, and volcanoes), and organic waste handling. Prerequisite: Chem. 149A.
	CHEM 151		4	Molecules that Changed the World	A look at some of nature's most intriguing molecules and the ability of man to discover, synthesize, modify, and use them. The role of chemistry in society, and how chemical synthesis - the art and science of constructing molecules - shapes our world. Prerequisite: Chem. 140A or equivalent
	CHEM 157		4	Bioorganic and Natural Products Chemistry	(Formerly Chem. 142) A comprehensive survey of modern bioorganic and natural products chemistry. Topics will include biosynthesis of natural products, molecular recognition, and small molecule-biomolecule interactions. Prerequisite: Chem. 140C or 141C or 254 or consent of the instructor.
CHEM 166		4	Environmental and Molecular Toxicology	Molecular and cellular mechanisms underlie the actions of environmental toxicants. This course will investigate approaches to study the impact of environmental toxicants on human health. Other modern approaches that are being implemented to detect and remediate environmental toxicants will also be examined. Prerequisites: Chem. 114A-B.	

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Communication	CHEM 173		4	Atmospheric Chemistry	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. Prerequisites: Chem. 6A-6C or 6AH, 6BH, and 6 CH, or equivalent.
	CHEM 174		4	Chemical Principles of Marine Systems	(Cross-listed with SIO 141) Introduction to the chemistry and distribution of the elements in seawater, emphasizing basic chemical principles such as electron structure, chemical bonding, and group and periodic properties and showing how these affect basic aqueous chemistry in marine systems. Prerequisite: Chem. 6C with a grade of C- or better, or consent of instructor. (May not be offered every year.)
	COSF 123		4	Communication, Dissent and Social Movement	Emergence of dissent in different societies, and the relationship of dissent to movements of protest and social change. Movements studied include media concentration, antiwar, antiglobalization, death penalty, national liberation, and labor. Survey of dissenting voices from Tolstoy and Naomi Klein seeking to explain the relationship of ideas to collective action and its outcomes. Prerequisite: COSF 100 or consent of instructor.
	COSF 160		4	Political Economy/Global Consumer Culture	This course critically examines social and economic forces that shape the making of this new global consumer culture by following the flows of consumption and production between the 'developed' and 'developing' worlds in the 1990s. We will consider how consumers, workers, and citizens participate in a new globalized consumer culture that challenges older distinctions between the 'First' and the 'Third World.' In this course, we will focus on the flows between the U.S., Asia, Latin America. Prerequisite: COSF 100 or consent of instructor.
	COSF 185		4	Gender, Labor and Culture in the Global Economy	Course examines the ways in which women participate in the global economy as the producers of consumer products and of cultural goods like entertainment and information. It also examines power as it relates to women's labor in producing such material and cultural goods. Prerequisite: COSF 100 or consent of instructor.
	COCU 141A		4	Media and Technology: Global Nature, Global Culture	Considers globalization's impact on concepts of nature in and through media texts, information systems, circulation of consumer goods and services, the emergence of global brands, science, health initiatives, environmental media activism, technology transfer in the twentieth and early twenty-first centuries. Prerequisite: COSF 100 or COCU 100 or COHI 100 or consent of instructor.
	COCU 141B		4	Media and Technology: Gender and Biomedicine	From historical and cultural aspects of media, information, imaging technology use in biomedical research, clinical care, health communication to constructions of gender, and identity. We approach the subject through audiovisual texts and writings from fields including science and technology studies and cultural studies. Prerequisite: COSF 100 or COCU 100 or COHI 100 or consent of instructor.
	COCU 145		4	Cultures of Consumption	This course examines the cultural politics of consumption across time and cultures through several concepts: commodity fetishism; conspicuous consumption; taste, class, and identity formation; consumption's psychological, phenomenological, and poetic dimensions; and contemporary manifestations of globalization and consumer activism. Prerequisite: COCU 100 or consent of instructor.
	COCU 148		4	Communication and the Environment	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, workplaces, governments, popular culture, and the media. Prerequisite: COCU 100 or consent of instructor.
Economics	COHI 135		4	Language and Globalization	The interaction of language and culture in human communication. New and old languages, standard and dialect, dominant and endangered, are the special focus. Selected languages as examples of how languages exist in contemporary contexts. Prerequisite: COHI 100 or consent of instructor.
	ECON 130		4	Public Policy	Course uses basic microeconomic tools to discuss a wide variety of public issues, including the war on drugs, global warming, natural resources, health care and safety regulation. Appropriate for majors who have not completed ECON 100A-B-C or ECON 170A-B and students from other departments. Prerequisites: ECON 1A-B or 2 or 100A.
	ECON 131		4	Economics of the Environment	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: ECON 1A-B or 2 or 100A.
	ECON 132		4	Energy Economics	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: ECON 1A-B or 2 or 100A; and Math. 10C or 20C.
	ECON 133		4	International Environmental Agreements	Addresses environmental issues that transcend national boundaries, such as climate change, biodiversity loss, over-fishing. Examines why international agreements are required, how they are negotiated and implemented, and studies their effectiveness. Explores whether more effective environmental treaties could be designed. Prerequisites: ECON 1A-B or 2 or 100A.
	ECON 135 (Cross-listed with USP 102)		4	Urban Economics	Economic analysis of why and where cities develop, problems they cause, and public policies to deal with these problems. Determination of urban land rent/use, reasons for suburbanization. Transportation and congestion in cities, zoning, poverty and housing, urban local government. Credit not allowed for both ECON 135 and USP 102. Prerequisites: ECON 1A-B or 2 or 100A; and Math. 10A or 20A.
	ECON 144		4	Economics of Conservation	Examines conservation of biodiversity from an economic perspective. Topics include valuing biodiversity, defining successful conservation, and evaluating the cost effectiveness of policies such as conservation payments, ecotourism, and privatization. Emphasis on forests, coral reefs, elephants, tigers, and sea turtles. Prerequisites: ECON 1A-B or 2 or 100A.

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Chemical Engineering	ECON 145	4	Economics of Ocean Resources	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: ECON 1A-B or 2 or 100A.
	CENG 124A	4	Chemical Plant and Process Design I	Principles of chemical process design and economics. Process flow diagrams and cost estimation. Computer-aided design and analysis. Representation of the structure of complex, interconnected chemical processes with recycle streams. Ethics and professionalism. Health, safety, and the environmental issues. Prerequisites: admission to chemical engineering major and grades of C- or better in CENG 113 and CENG 122 or consent of instructor.
	CENG 124B	4	Chemical Plant and Process Design II	Engineering and economic analysis of integrated chemical processes, equipment, and systems. Cost estimation, heat and mass transfer equipment design and costs. Comprehensive integrated plant design. Optimal design. Profitability. Prerequisites: admission to chemical engineering major and grade of C- or better in CENG 124A.
MAE	MAE 118A	4	Introduction to Energy Systems	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.
	MAE 118B	4	Twenty-First Century Energy Technologies I	A survey of projected energy demands and resources. Climate change physics and impacts on energy systems. Basic physics of photovoltaics, fuel cells, wind power, and other renewable and developing energy technologies. An exploration of the "Hydrogen Economy." Prerequisites: MAE 101A or CENG 101A, or consent of instructor.
	MAE 118C	4	Twenty-First Century Energy Technologies II	Overview of basic fission processes and fusion processes. Elementary fission reactor physics and engineering; environmental and waste disposal issues. Introduction to power producing fusion reactor physics. Survey of fusion technology issues, status and prospects for fusion energy. Prerequisites: MAE 101A or CENG 101A, or consent of instructor.
	MAE 124 (Cross-listed with ESYS 103)	4	The Human Earth: An Introduction to Environmental Engineering and Policy	(Cross-listed with ESYS 103.) 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 governmental regulation on local, national, and global scales. Prerequisites: grade of C- or better in Math. 20B or Math. 10A-C; Phys. 2B or Phys. 1A-C; and Chem. 6B or by consent of instructor.
	MAE 125A	4	Flow and Transport in the Environment	Study of river flow and hydraulic control; surface waves; applications to reservoirs and estuaries. Introduction to stratification and buoyancy; applications to atmospheric surface layer and the ocean mixed layer. Ideas behind turbulent dispersion. Turbulent and scaling laws. Gravity currents and katabatic flows. Prerequisites: engineering majors and students receiving a grade of C- or better in MAE 101A or CENG 103A or CENG 101A.
	MAE 125B	4	Fluid-Solid Interactions in Environment Engineering	Introduction to groundwater flow. Pollution transport through the water table. Chemical processes in ozone hole. Fundamentals of flow. Darcy flow. Diffusion and dispersion. Gravity currents and plumes in porous media. Mushy layers. Chemistry of fluid-solid interactions. Fundamentals of adsorption and surface reactions. Prerequisites: engineering majors and students receiving a grade of C- or better in MAE 125A.
	MAE 125C	4	Case Studies in Environmental Engineering	This course is project-oriented. Students will conduct research in small groups, give oral presentations and write reports. Topics reflect material in MAE 125A and MAE 125B. Possible topics: air pollution modeling, building ventilation, wetland preservation. Prerequisites: engineering majors and students receiving a grade of C- or better in MAE 125A-B.
	MAE 126A	4	Environmental Engineering Laboratory I	Design and analysis of experiments in environmental engineering. Experiments in wind tunnel, water tunnel, and other equipment. Use of instrumentation. Laboratory report writing; error analysis; engineering ethics. Prerequisites: grade of C- or better in MAE 101A or CENG 101A, MAE 125A.
	MAE 126B	4	Environmental Engineering Laboratory II	Design and analysis of original studies in environmental engineering. Students work on environmental projects and use computational and laboratory facilities. Students propose and design studies, collect and analyze data, and prepare a major report. Prerequisite: grade of C- or better in MAE 126A.
	MAE 127	4	Statistical Methods for Environmental Sciences and Engineering	Methods for evaluating environmental data including probability distributions, confidence intervals, functional fitting, spectral analysis, and programming methods for data analysis. Prerequisite: grade of C- or better in Math. 20C.
Structural Engineering	SE 181	4	Geotechnical Engineering	General introduction to physical and engineering properties of soils. Soil classification and identification methods. Compaction and construction control. Total and effective stress. Permeability, seepage, and consolidation phenomena. Shear strength of sand and clay. Prerequisites: grade of C- or better in SE 110A or MAE 131A; SE major.
	SE 182	4	Foundation Engineering	Application of soil mechanics to the analysis, design, and construction of foundations for structures. Soil exploration, sampling, and in-situ testing techniques. Stress distribution and settlement of structures. Bearing capacities of shallow foundations. Axial and lateral capacity of deep foundations, earth pressures on retaining walls. Prerequisites: grade of C- or better in SE 181; SE major.
	SE 183	4	Engineering Geology	Influence of geology on design of engineering works. Mineral and rock identification and their engineering behavior. Geologic mapping. Rock mechanics, rock slope stability, and tunnel engineering. Local field trips.

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Environmental Studies	ENVR 20		4	Coastal Ecology	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. Prerequisites: upper-division standing or consent of instructor.
	ENVR 30	SC	4	Environmental Issues: Natural Sciences	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.
	ENVR 102	SC	4	Selected Topics in Environmental Studies	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.
	ENVR 110		4	Environmental Law	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.
	ENVR 130	SC	4	Environmental Issues: Social Sciences	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.
	ENVR 140	SC	4	Wilderness and Human Values	"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 and includes guest speakers and a field component. Prerequisites: upper-division standing or consent of instructor.
Environmental Systems	ENVR 141	SC	2	Wilderness and Human Values Workshop	A course to prepare students to serve as discussion leaders for ENVR 140, Wilderness and Human Values. Includes reading, discussion, library and online research, and field trips. Prerequisites: consent of instructor and department stamp.
	ESYS 10	SC	4	Introductions to Environmental Systems	This course explores the interdisciplinary character of environmental issues through an examination of a particular topic [climate change, for example] from numerous disciplinary perspectives [e.g., biology, chemistry, physics, political science, and economics]. Prerequisite: none.
	ESYS 90	SC	1	Perspectives on Environmental Issues	Provides an introduction to environmental systems. Faculty members from departments in the natural sciences, geosciences, and social sciences will offer perspectives in these areas.
	ESYS 101	SC	4	Environmental Biology	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.
	ESYS 102		4	The Solid and Fluid Earth	The physical Earth system can be divided into three components: the solid earth, the liquid earth, and the atmosphere. These components are all dynamic and interact in complex ways with profound impacts on our environment. We will examine the controls of natural phenomena such as earthquakes, volcanoes, landslides, soil formation (and destruction), and changes in sea-level and climate. Prerequisites: Math. 10A, 10B, 10C, BILD 3, CHEM 6A-B-C, Physics 1A-B-C plus either Chem/Physics lab.
	ESYS 103 (Cross-listed with MAE 124)	SC	4	Environmental Challenges: Science and Solutions	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 governmental regulation on local, national, and global scales. Prerequisites: grade of C- or better in Math. 20B or Math. 10A-C; Physics 2B or Physics A-C; Chemistry 6B or by consent of instructor. In addition, ESYS majors, must take ESYS 101 and 102 or permission of instructor.
Environmental Systems	ESYS 120	SC	4	Costal Ecology	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.
	ESYS 150	SC	4	Environmental Perils	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.
	ETHN 103		4	Environmental Racism	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.

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History	ETHN 104		4	Race, Space, and Segregation	Through in-depth studies of housing segregation, urban renewal and displacement, neighborhood race effects, and the location of hazards and amenities, this course examines how space becomes racialized and how race becomes spatialized in the contemporary U.S.
	ETHN 105 (Cross-listed with USP 104)		4	Ethnic Diversity and the City	This course will examine the city as a crucible of ethnic identity exploring both the racial and ethnic dimensions of urban life in the U.S. from the Civil War to the present. (Cross-listed with USP 104.)
	ETHN 108		4	Race Culture and Social Change	Aggrieved groups often generate distinctive forms of cultural expression by turning negative ascription into positive affirmation and by transforming segregation into congregation. This course examines the role of cultural expressions in struggles for social change by these communities inside and outside the U.S. (Cross-listed with MUS 151.)
	ETHN 109		4	Race and Social Movement	This course explores collective mobilizations for resources, recognition, and power by members of aggrieved racialized groups, past and present. Emphasis will be placed on the conditions that generate collective movements, the strategies and ideologies that these movements have developed, and on the prospect for collective mobilization for change within aggrieved communities in the present and future.
	ETHN 117		4	Organic Social Movements	Examination of local responses to global change and social disruption through the examination of organic movements in indigenous societies. In-depth analysis of the Kuna Indians of San Blas, Panama; Maya-Zapatistas of Chiapas, Mexico; and Micronesians of the western Pacific.
	ETHN 142		4	Medicine, Race, and the Global Politics of Inequality	Globalization fosters both the transmission of AIDS, cholera, tuberculosis, and other infectious diseases and gross inequalities in the resources available to prevent and cure them. This course focuses on how race, ethnicity, gender, sexuality, class, and nation both shape and are shaped by the social construction of health and disease worldwide.
	ETHN 152		4	Law and Civil Rights	In this course students explore the relationship between race, class, and law as it applies to civil rights both in an historical and a contemporary context. Topics include racism and the law, history of the 14th Amendment, equal protection, school desegregation, and affirmative action.
	HISC 101C		4	Early Modern Science	Early forms of modern science, mid-15th to 17th centuries. The revolution in printing. Sites of knowledge-making: university and court cultures, museums, academies. Astrology, astronomy, literature of the heavens, prophecy and apocalyptic expectation. Natural history, medicine, alchemy, magic and the physico-mathematical sciences. Prerequisite: upper-division standing.
	HISC 102		4	Technology in World History	Technology as an agent of change. How have humans harnessed the power of nature? What factors have contributed to successes and failures? How has technology changed human life? How should we evaluate the quality of these changes? Prerequisite: upper-division standing.
	HISC 104		4	History of Popular Science	Historical aspects of the popularization of science. The changing relation between expert science and popular understanding. The reciprocal impact of scientific discoveries and theories, and popular conceptions of the natural world. Prerequisite: upper-division standing.
	HISC 105		4	History of Environmentalism	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. Prerequisites: upper-division standing or consent of instructor.
	HISC 108		4	Life Sciences in the Twentieth Century	The history of twentieth-century life sciences, with an emphasis on the way in which model organisms such as fruit flies, guinea pigs, bacteriophage, and zebra fish shaped the quest to unlock the secrets of heredity, evolution, and development. Prerequisites: upper-division standing or consent of instructor.
	HISC 111		4	Origins of the Atomic Age	The atomic bomb changed the world. We examine the origins and impact of the atomic age: the discovery of radioactivity; the Manhattan project and bombings of Hiroshima and Nagasaki; the H-bomb, nuclear fallout, and the modern environmental movement. Prerequisite: upper-division standing or consent of instructor.
	HISC 114		4	The Darwinian Legacy	The Origin of Species by means of Natural Selection, and its scientific, intellectual, and political legacies. Topics include social Darwinism, eugenics, Nazi racial hygiene, population control, neo-Malthusianism in the modern environmental movement. Prerequisite: upper-division standing.
	HISC 130		4	Technology in the Twentieth Century	Major technological developments in the twentieth century, including the rise and decline of technologies, unexpected hazards and unanticipated consequences, and why some technologies fail. Prerequisite: upper-division standing.
HISC 131		4	Science, Technology, and Law	Science and law are two of the most powerful establishments of modern Western culture. Science organizes our knowledge of the world; law directs our action in it. Will explore the historical roots of the interplay between them. Prerequisite: upper-division standing.	

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International Studies	HISC 163/263		4	History, Science, and Politics of Climate Change	The complex historical development of human understanding of global climate change, including key scientific work, and the cultural dimensions of proof and persuasion. Special emphasis on the differential political acceptance of the scientific evidence in the U.S. and the world. Graduate students are required to submit an additional paper. Prerequisites: upper-division or graduate standing. Department stamp required.
	HISC 165		4	Topics in Twentieth-Century Science and Culture	This seminar explores topics at the interface of science, technology, and culture, from the late nineteenth century to the present. Topics change yearly; may be repeated for credit with instructor's permission. Prerequisites: upper-division standing or consent of instructor.
	HISC 170/270		4	Topics in the History of Science and Technology	This seminar explores topics at the interface of science, technology, and society, ranging from the seventeenth century to the twentieth. Requirements will vary for undergraduate, M.A., and Ph.D. students. Graduate students are required to submit an additional paper. Prerequisite: upper-division standing or consent of instructor.
	HISC 172/272		4	Building America Technology, Culture, and the Built Environment in the United States	The history of the built environment in the United States, from skyscrapers to suburbs, canals and railroads to factories and department stores. The technological history of structures and infrastructures, and the social and cultural values that have been "built into" our material environment. Graduate students are required to submit an additional paper. Prerequisite: upper-division standing or consent of instructor.
	HIUS 147 (Cross-listed with USP 165)		4	History of the American Suburb	This lecture explores the development of suburbs in America, from the early nineteenth century to the contemporary era. Topics include suburban formation, class, ethnic and racial dimensions, government influences, social life, and cultural responses to suburbia. The class will explore competing theories of suburbanization as it surveys the major literature.
	HIUS 148 (Cross-listed with USP 103)		4	The American City in the Twentieth Century	This course focuses on the phenomenon of modern American urbanization. Case studies of individual cities will help illustrate the social, political, and environmental consequences of rapid urban expansion, as well as the ways in which urban problems have been dealt with historically.
	HIUS 154		4	Western Environmental History	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.
	HIUS 162/262		4	The American West	This seminar will trace major themes in the history of the American West. Topics will include ethnicity, the environment, urbanization, demographics, and shifting concepts surrounding the significance of the West. Graduate students will be required to submit additional work in order to receive graduate credit for the course. Prerequisite: department stamp required.
	INTL 102		4	Economics, Politics and International Change	Examination of the domestic and international sources of economic and political change. Topics include the rise of the nation-state, comparative economic development, authoritarian and democratic regimes, international and civil conflict, globalization and its domestic and international implications. Prerequisites: International Studies major or minor with sophomore, junior, or senior standing.
	Literature	LTWR 122		4	Writing for the Sciences
Philosophy	LTWL 165		4	Literature and the Environment	With primarily American (and a couple of English) readings, the course inquires into the relation of human and nonhuman nature. Topics include wilderness, animals, Native American thought, women in nature, description as a kind of writing, the spirituality of place.
	PHIL 148		4	Philosophy of the Environment	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.
Physics	PHIL 164		4	Technology and Human Values	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.
	PHYS 8		4	Physics of Everyday Life	Examines phenomena and technology encountered in daily life from a physics perspective. Topics include waves, musical instruments, telecommunication, sports, appliances, transportation, computers, and energy sources. Physics concepts will be introduced and discussed as needed employing some algebra. No prior physics knowledge is required. Restricted to P/NP grading option if taken after Physics 1A, 2A, or 4A.
Political Science	PHYS 12		4	Energy and the Environment	A course covering energy fundamentals, energy use in an industrial society and the impact of large-scale energy consumption. It addresses topics on fossil fuel, heat engines, solar energy, nuclear energy, energy conservation, transportation, air pollution and global effects. Concepts and quantitative analysis.
	POLI 13		4	Power and Justice	An exploration of the relationship between power and justice in modern society. Materials include classic and contemporary texts, films and literature.

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	POLI 27 (Cross-listed with PHIL 27)		4	Ethics and Society	(Same as Phil. 27) An examination of ethical principles (e.g., utilitarianism, individual rights, etc.) and their social and political applications to contemporary issues such as abortion, environmental protection, and affirmative action. Ethical principles will also be applied to moral dilemmas familiar in government, law, business, and the professions. Satisfies the Warren College ethics and society requirement. Prerequisites: CAT 2 and 3, DOC 2 and 3, MCWP 40 and 50, Hum. 1 and 2, MMW 2 and 3, WCWP 10A-B, or WARR 11A-B.
	POLI 100E		4	Interest Group Politics	The theory and practice of interest group politics in the United States. Theories of pluralism and collective action, the behavior and influence of lobbies, the role of political action committees, and other important aspects of group action in politics are examined. Prerequisite: sophomore standing.
	POLI 102E (Cross-listed with USP 107)		4	Urban Politics	(Same as USP107) This survey course focuses upon the following six topics: the evolution of urban politics since the mid-nineteenth century; the urban fiscal crisis; federal/urban relationships; the "new" ethnic politics; urban power structure and leadership; and selected contemporary policy issues such as downtown redevelopment, poverty, and race.
	POLI 103A (Cross-listed with USP 109)		4	California Government and Politics	(Same as USP 109) This survey course explores six topics: 1) the state's political history; 2) campaigning, the mass media, and elections; 3) actors and institutions in the making of state policy; 4) local government; 5) contemporary policy issues; e.g., Proposition 13, school desegregation, crime, housing and land use, transportation, water; 6) California's role in national politics.
	POLI 103B (Cross-listed with USP 113)		4	Politics and Policymaking in Los Angeles	(Same as USP 113) This course examines politics and policymaking in the five-county Los Angeles region. It explores the historical development of the city, suburbs, and region; politics, power, and governance; and major policy challenges facing the city and metropolitan area. Prerequisite: upper-division standing.
	POLI 103C (Cross-listed with USP 115)		4	Politics and Policymaking in San Diego	This course examines how major policy decisions are made in San Diego. It analyzes the region's power structure (including the roles of non-governmental organizations and the media), governance systems and reform efforts, and the politics of major infrastructure projects. Prerequisite: Upper-division standing or consent of instructor.
	POLI 120K		4	Politics of Developing Countries	This course critically examines central concepts and theories of development, and assesses their utility in understanding political, economic, and social change in three regions of the developing world: Latin American, sub-Saharan Africa, and Southeast Asia.
	POLI 125		4	The Politics of Conservation in Developing Countries	Conservation in developing countries concerns resources that are extremely important to policymakers, militaries, environmental organizations, communities, and individuals. This course examines these groups' struggle for control over wildlife and forests—from the capital to the village—on several continents.
	POLI 125A		4	Communities and the Environment	A popular new idea in environmental protection is to include local communities in conservation efforts. But what are these communities? What challenges do they face in governing their own resources? This course uses both theory and case studies to explore the political economy of community-based conservations.
	POLI 138D		4	Special Topics in Comparative Politics	An undergraduate course designed to cover various aspects of comparative politics. May be repeated for credit two times, provided each course is a separate topic, for a maximum of twelve units.
	POLI 144E		4	Politics of International Trade	Examines theories of trade and protectionism, focusing both on relations among advanced industrial nations and on relations between developed and developing countries. Topics include standard and strategic trade theory, nontariff barriers to trade, export-led growth strategies, regional trade agreements, and the future of the WTO.
	POLI 144F		4	Politics of International Trade and Finance	Examines the welfare and distributional aspects of international trade and finance as they relate to the politics of economic policymaking. Topics include: globalization in historical perspective; origins and consequences of trade policy; exchange-rate arrangements; international capital flows; currency crises; economic development.
	POLI 160AA (Cross-listed with USP 101)		4	Introduction to Policy Analysis	(Same as USP 101) This course will explore the process by which the preferences of individuals are converted into public policy. Also included will be an examination of the complexity of policy problems, methods for designing better policies, and a review of tools used by analysts and policy makers. Prerequisite: PS 10 or 11.

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Psychology Rady School of Management Science, Technology, and Public Affairs Scripps Institution of Oceanography	POLI 160AB		4	Introduction to Policy Analysis	In this course, students will use their knowledge of the political and economic foundations of public policy making to conduct research in a wide variety of public policy problems. Prerequisite: PS 160AA.
	POLI 162		4	Environmental Policy	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.
	POLI 165		4	Special Topics: Policy Analysis	An undergraduate course designed to cover various aspects of policy analysis. May be repeated for credit two times, provided each course is a separate topic, for a maximum of twelve units.
	POLI 168		4	Policy Assessment	The use of real data to assess policy alternatives. Introduction to benefit/cost analysis, decision theory, and the valuation of public goods. Applications to health, environmental, and regulatory economic policy making.
	PSYC 130/258		4	Delay of Gratification	This course will review the research on delay of gratification. It will cover what makes it in general so tough, what situations make it possible, who can do it, and what the implications of this ability are. Prerequisite: upper-division standing.
	MGT 166		4	Business Ethics and Corporate Responsibility	Will cover ethical conduct issues for leaders from a wide array of organizations and industries including consideration of differences among global trading partners. The issues impacting corporate responsibility will be examined as will full-cycle cost analysis of products and services. Prerequisite: upper-division standing.
	STPA 35		4	Society and the Sea	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.
	SIO 10		4	The Earth	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)
	SIO 12		4	History of the Earth and Evolution	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)
	SIO 15		4	Natural Disasters	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.
	SIO 20		4	The Atmosphere	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.
	SIO 25		4	Climate Change and Society	Climate change is one of the most complex and critical issues affecting societies today. This course will present the scientific evidence for climate change and its impacts and consider governmental policy responses and possible adaptation strategies. Prerequisite: none.
	SIO 30		4	The Oceans	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.
	SIO 35	SC	4	Water	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.
	SIO 40	SC	4	The Biosphere	Explores life on Earth and its relationship to the environment—past, present, and future. Topics include origins of life, earth history, elemental cycles, global climate variability and human impacts on our environment. Prerequisite: none.
SIO 101		4	California Coastal Oceanography	This course examines oceanographic connections between physical and climate forcing and marine ecosystem responses in the California coastal environment. Approach is inquiry-based, combining classroom and experiential learning to build critical and quantitative thinking and research insights and abilities. Prerequisite: SIO 30, Chem. 6A, or consent of instructor.	
SIO 104/255		6	Paleobiology and History of Life	An introduction to the major biological transitions in Earth history from the origins of metabolism and cells to the evolution of complex societies. The nature and limitations of the fossil record, patterns of adaptation and diversity, and the tempo and mode of biological evolution. Laboratories and substantial field component complement and extend the lecture material. Program and/or material fee may apply. Prerequisites: Undergraduate: BILD 3 or consent of instructor. Graduate: graduate-level standing or consent of instructor. Graduate students, additionally, will give oral presentation or research paper. (S)	
SIO 112		4	Urban Landscapes	Introduction to scientific principles, such as conservation of mass and energy and pattern formation, that govern the development of urban centers as complex systems. Contrasts between natural and urban landscapes will be highlighted, with examples including water routing and disease transmission. Prerequisite: upper-division standing or consent of instructor.	

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Sociology	SIO 117		4	The Physical Climate System	This course quantitatively examines the physical processes controlling Earth's climate including radiative transfer and energy balance, atmospheric and ocean circulations, clouds and the hydrological cycle, climate sensitivity and climate feedbacks, and natural and anthropogenic climate change. Prerequisites: Math. 20A-B-C and Phys. 2A-B-C or consent of instructor.
	SIO 142		4	Atmospheric Chemistry and the Biochemical Cycles of Atmospheric Trace Gases	Evolution and processes of the Earth's atmosphere. Topics include effects of "greenhouse" gases such as H2O, CO2 and CH4 in climate modification, destruction of the ozone layer, biogeochemical cycles of radioactively important trace gases and atmospheres of other terrestrial planets. Prerequisites: Chem. 6 sequence or consent of instructor. (
	SIO 148/248		4	Evolution of Earth's Biosphere	Paleoecological development of marine and terrestrial environments during Earth's evolution. Ecological and chemical evolution of the oceans, atmosphere, biogeochemical cycles, and environments with particular emphasis on the long-term history and climate of the Earth's surface. Prerequisites: undergraduate: SIO 104 or consent of instructor. graduate: graduate-level standing or consent of instructor. Additionally, at graduate level oral presentation or research paper required.
	SOC1 20		4	Social Change in the Modern World	A survey of the major economic, political, and social forces that have shaped the contemporary world. The course will provide an introduction to theories of social change, as well as prepare the student for upper-division work in comparative-historical sociology. (This is a required course for the sociology major.)
	SOC1 30		4	Science, Technology, and Society	A series of case studies of the relations between society and modern science, technology, and medicine. Global warming, reproductive medicine, AIDS, and other topical cases prompt students to view science-society interactions as problematic and complex.
	SOC1 115		4	Social Problems	Analyzes selected social problems in the United States, such as those regarding education, race relations, and wealth inequality, from various sociological perspectives, and also examines the various sites of debate discussion, like political institutions, TV and other media, and religious institutions. Prerequisite: upper-division standing and co-requisite of 0-unit AIP.
	SOCC 149		4	Sociology of the Environment	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.
Urban Studies and Planning	USP 1		4	History of US Urban Communities	This course charts the development of urban communities across the United States both temporally and geographically. It examines the patterns of cleavage, conflict, convergence of interest, and consensus that have structured urban life. Social, cultural, and economic forces will be analyzed for the roles they have played in shaping the diverse communities of America's cities.
	USP 2		4	Urban World System	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.
	USP 3		4	The City and Social Theory	An introduction to the sociological study of cities, focusing on urban society in the United States. Students in the course will examine theoretical approaches to the study of urban life; social stratification in the city; urban social and cultural systems—ethnic communities, suburbia, family life in the city, religion, art, and leisure.
	USP 100		4	Introduction to Urban Planning	This course is designed to provide an introduction to the fundamentals of urban planning. It surveys important topics in urban planning, including economic development, urban design, transportation, environmental planning, housing, and the history of urban planning. Prerequisite: upper-division standing or consent of instructor.
	USP 101 (Cross-listed with POLI 160AA)		4	Introduction to Policy Analysis	(Same as Political Science 160AA.) This course will explore the process by which the preferences of individuals are converted into public policy. Also included will be an examination of the complexity of policy problems, methods for designing better policies, and a review of tools used by analysts and policy makers. Prerequisite: upper-division standing or consent of instructor.
	USP 102 (Cross-listed with ECON 135)		4	Urban Economics	(Same as Economics 135.) Economic analysis of why and where cities develop, problems they cause, and public policies to deal with these problems. Determination of urban land rent/use, reasons for suburbanization. Transportation and congestion in cities, zoning, poverty and housing, urban local government. Prerequisites: Economics 1A-B or 1-2 and Mathematics 10A or 20A.
	USP 103 (Cross-listed with HIUS 148)		4	American Cities in the Twentieth Century	(Same as HIUS 148.)This course surveys changes in U.S. cities since about 1900. Case studies of individual cities illustrate the social, political, and environmental consequences of rapid urban expansion, as well as the ways in which "urban problems" have been understood historically. Prerequisite: upper-division standing or consent of instructor

UC San Diego Collection of Sustainability Courses

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	USP 104 (Cross-listed with ETHN 105)		4	Ethnic Diversity and the City	(Same as Ethnic Studies 105.) This course will examine the city as a crucible of ethnic identity exploring both the racial and ethnic dimensions of urban life in the U.S. from the Civil War to the present. Prerequisite: upper-division standing.
	USP 107 (Cross-listed with POLI 102E)		4	Urban Politics	This survey course focuses upon the following six topics: the evolution of urban politics since the mid-nineteenth century; the urban fiscal crisis; federal/urban relationships; the "new" politics; urban power structure and leadership; and selected contemporary policy issues such as downtown redevelopment, poverty, and race.
	USP 109 (Cross-listed with POLI 103A)		4	California Government and Politics	(Same as Political Science 103A.) This survey course explores six topics: 1) the state's political history; 2) campaigning, the mass media, and elections; 3) actors and institutions in the making of state policy; 4) local government; 5) contemporary policy issues; e.g., Proposition 13, school desegregation, crime, housing and land use, transportation, water; 6) California's role in national politics. Prerequisite: upper division standing
	USP 113 (Cross-listed with POLI 103B)		4	Politics and Policymaking in Los Angeles	(Same as Political Science 103B.) This course examines politics and policymaking in the five-county Los Angeles region. It explores the historical development of the city, suburbs, and region; politics, power, and governance; and major policy challenges facing the city and metropolitan area. Prerequisite: upper-division standing.
	USP 115 (Cross-listed with POLI 103C)		4	Politics and Policymaking in San Diego	(Same as Political Science 103C.) This course examines how major policy decisions are made in San Diego. It analyzes the region's power structure (including the roles of non-governmental organizations and the media), governance systems and reform efforts, and the politics of major infrastructure projects. Prerequisite: upper-division standing or consent of instructor.
	USP 124		4	Land Use Planning	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.
	USP 137		4	Housing and Community Development Policy and Practice	History, theory, and practice of U.S. housing and community development. Public, private, and nonprofit sectors shape and implement planning and policy decisions at the federal, state, local and neighborhood levels. Prerequisite: upper-division standing.
	USP 144		4	Environmental and Preventative Health Issues	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.
	USP 165 (Cross-listed with HIUS 147)		4	History of the American Suburb	(Same as HIUS 147.) This lecture course explores the development of suburbs in America, from the early nineteenth-century to the contemporary era. Topics include suburban formation, class, ethnic and racial dimensions, government influences, social life, and cultural responses to suburbia. The class will explore competing theories of suburbanization as it surveys the major literature. Prerequisite: upper-division standing.
	USP 166		4	History of San Diego	Course surveys the social, political, economic, cultural and environmental history of the San Diego region from pre-colonial times to the present, with an emphasis on the urban development that has occurred since 1900. Prerequisite: upper-division standing.
	USP 170		4	Sustainable Planning	This course will explore the different factors and processes that shape a sustainable city. Contemporary green planning techniques and values will be evaluated. The course will also discuss planning, designing, and implementation of sustainable facilities that will reduce sprawl. Prerequisite: upper-division standing or consent of instructor.
	USP 171		4	Sustainable Development	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.

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Visual Arts	USP 173		4	History of Urban Planning and Design	The analysis of the evolution of city designs over time; study of the forces that influence the form and content of a city: why cities change; comparison of urban planning and architecture in Europe and the United States. Prerequisite: upper-division standing.
	USP 174		4	Regional Governance and Planning Reconsidered	Regional planning and local governance in California, focusing upon San Diego. Current system, the state/local relationship, and the incentives and disincentives for restructuring regional and local governance and planning. Prerequisite: upper-division standing.
	USP 178		4	Urban Design for Redevelopment	This course addresses inner-city and suburban redevelopment focusing on urban design, ecological, and ethnic issues using advanced physical planning and urban design methods. Also included will be the environmental-impact assessments of redevelopment projects. Prerequisite: upper-division standing.
	USP 179		4	Urban Design, Theory, and Practice	Roles of the urban designer, preparing schematic proposals and performance statements, identifying opportunities for and constraints on designers. Each student will prepare a practical exercise in urban design using various urban design methods. Prerequisite: upper-division standing.
	USP 180		4	Transportation Planning	Introduction to the history and current state of urban transportation planning, including the relationship between transportation and urban form; role of automotive, mass transit, and alternative modes; methods for transportation systems analysis; decision-making, regulatory, and financing mechanisms; and public attitudes. Prerequisite: upper-division standing.
	USP 181		4	Public Transportation	Livable cities rely on balanced transportation systems that can mitigate the negative impacts of a car-oriented environment and society. This course will explore the role of public transit in creating a balanced transportation system. A variety of public transportation systems will be analyzed. Prerequisite: upper-division standing or consent of instructor.
	USP 191		4	GIS for Urban and Community Planning	Introduction to Geographic Information Systems and using GIS to make decisions: acquiring data and organizing data in useful formats; demographic mapping; geocoding. Selected exercises examine crime data, political campaigns, banking and environmental planning, patterns of bank lending and finance. Prerequisites: upper-division standing, USP major.
	VIS 110G		4	The Natural and Altered Environment	Explores the natural and altered environment as a basis for subject as well as placement of work pertaining to the environment. Prerequisites: two from VIS 104CN, 105C, 106C, 107CN and 147B.