**List of courses that include sustainability:**

Note: Course numbers greater than 199 are graduate level courses.

ANTH 1 Introduction Biological Anthropology: Covers the concepts, methods of inquiry, and theory of biological evolution and their application to the human species. There is a specific focus on molecular, Mendelian and population genetics, mechanisms of evolution, primatology, paleoanthropology, biocultural adaptations, and human variation. The scientific method serves as the foundation to the course. Data can be sustainability related.

ANTH 1A Laboratory in Biological Anthropology: Designed to familiarize the student with the materials and techniques of physical anthropology. Includes human and other primate osteology, anthropometric techniques, and allied methods in the gathering and analysis of physical anthropological data. Through working with the departmental collection of fossil casts and a wide variety of charts and models, the student also becomes familiar with the stages of human and primate evolution. Data can be sustainability related.

ANTH 2 Introduction to Cultural Anthropology . Introduction to anthropological approaches in the study of people and cultures. Using ethnographic case studies, the course contributes to a critical understanding of continuity and diversity in peoples' lifestyles, social institutions, and cultural practices in different societies around the world. The course also examines the impact of political, economic, and social changes, such as colonization, decolonization, and globalization on people and cultures over the last century. Certain subjects touch on the social aspect of sustainability.

ANTH 3 Introduction to Archaeology **.** Introduces students to the methods and theories used by archaeologists to find, recover, and interpret such remains in an effort to reconstruct and understand the lives of earlier peoples. The class uses archaeological case studies, films, and hands-on examples of tools and other artifacts produced by simple stone age hunters and more complex civilizations that lived in California and other parts of the world. Data can be sustainability related.

ANTH 108 Economic Anthropology (ANTH 146 or instructor permission). What happens to society when exchange fails? The root of economy is the household, whose members make a living in relation to other people, and in culturally shaped ways. The ''world economic system" of the late 20th Century global village consists of many ill-fitting parts with different histories and goals. These functioning and changing households, markets, technologies, and concepts of work, property, and the good life are studied from a cross-cultural perspective. Also focuses on the impact of industrial societies on tribal and peasant economies. Certain subjects touch on the economic aspect of sustainability.

ANTH 109 Ecological and Evolutionary Approaches to Anthropology. Survey of anthropological research regarding the relationships between human behavior, ecology, and evolution. Reviews historic development of research in this field, and contrasts approaches based in ecological and evolutionary theory. Reviews and evaluates of case studies. Topics include hunter-gatherer and hominid economy and social organization, foraging theory, work effort, population growth and regulation, origins of agriculture, warfare, ritual and resource conservation, and origins of complex society. Some topics are sustainability related.

ANTH 111 California Archaeology. Pre-contact California encompassed some of the most extensive environmental and cultural diversity ever to exist on the planet, containing widely divergent biota, many distinct languages and cultures, and among the densest hunter-gatherer populations ever recorded. At least 11,000-12,000 years of human occupation have been marked by multiple migrations and major shifts in technological and social organization. Explores long-term trends in cultural development across the state, and examines models used to explain why semi-permanent settlements, intensive subsistence strategies, and complex social institutions arose in some times/places and not others. Some topics are sustainability related.

ANTH 112 Great Basin Archaeology. Explores the cultural and natural history of the Great Basin from the last glacial maximum into the historic era. Though largely arid, this region in fact manifests considerable environmental variability and has seen significant climatic alterations since the Pleistocene. Human occupation of the Great Basin witnessed major changes in demography, technology, subsistence practices, and sociopolitical organization over the last 10-12,000 years. The course looks to understand cultural and environmental variability across the region through examination of the long-term material record and consideration of anthropological and biological models. Some topics are sustainability related.

ANTH 113 Prehistory of Southwest. Survey of the prehistory of the Arizona, New Mexico, Western Colorado, Utah, and adjacent regions of Nevada, Texas and northwestern Mexico. Major prehistoric cultures of the Southwest (Hohokam, Anasazi, Mogollon, Fremont) are covered in detail. Focus on major transitions in subsistence and social organization emphasizing current issues of archaeological research. Cultural influences from outside areas are also considered. Some topics are sustainability related.

ANTH 114 North American Prehistory**.** Familiarizes students with the archaeological record of North America, and provides an analytical framework through which it may be understood in anthropologically meaningful terms. This will be accomplished by considering some of the explanations that have been proposed to account for the prehistory of the continent, and by examining the archaeological remains and cultural sequences found in various areas, including the North and Southeast, Great Plains, Pacific Northwest, and arctic/subarctic regions. Some topics are sustainability related.

ANTH 115 Origins of Agriculture. Surveys and evaluates worldwide anthropological perspectives of the origins of agriculture and the rise of complex society. Traces the development of major archaeological theories for the inception and spread of agriculture and civilization, acquainting students with groundbreaking archaeological research associated with each theoretical perspective. Current archaeological research is reviewed in-depth, providing a context for critique of the theories. Examples from North America, Latin America, the Middle East, India and China are compared and contrasted using movies, readings, and lectures.Some topics are sustainability related.

ANTH 124 Environmental Archaeology. All human societies depend on their natural surroundings, and so the reconstruction of prehistoric environments is an essential part of archaeological interpretation. Three interrelated aspects of environmental archaeology are considered: (1) general approaches to paleoenvironmental reconstruction, employing various biological and geological indicators; (2) the analysis of human plant and animal food remains; and (3) the geological and other processes that are responsible for the formation of archaeological deposits. Field trip. Some topics are sustainability related.

ANTH 127 Cultural Resource Management in Theory and Practice. Takes a wide-ranging look at how cultural resources are managed and preserved in California, the greater U.S., and other parts of the world. More than just a review of applicable laws and regulations, it is designed to offer a history of historic preservation, examine its role in our society, and explore the prospects for its continued presence. Practical aspects of Cultural Resource Management (CRM) are reviewed with respect to designing, budgeting, and performing archaeological surveys, site evaluation studies, and data recovery or mitigation programs. Some topics are sustainability related.

ANTH 128 Indians of California. Provides a survey of the traditional cultures of California Native American groups as they existed immediately after Western contact. Exploration of the ecological linguistic, economic, social, political, and religious diversity of California Native American groups provides a background for analysis of current anthropological theories of hunter-gatherer adaptations, subsistence intensification, political economy, cultural complexity, and California prehistory. Some topics are sustainability related.

ANTH 135 Indians of North America. Provides a survey of traditional Native American societies and culture areas north of Mexico. Readings, lectures, and discussions emphasize primary ethnographic and historic data that provide the richest accounts of Amerindian cultures at the time of European contact and shortly thereafter. Some topics are sustainability related.

ANTH 140 Social Anthropology (ANTH 146 or instructor permission). Cross-cultural comparisons of the structures and functions of non-literate and complex societies; the diversity of social and territorial units, their analysis and classification; and the study of social organization and control and social change in relation to kinship, marriage and family, lineage and clan, law, politics, economics and religion in diverse societies. Some topics are sustainability related.

ANTH 141 Culture Theory (ANTH 146 or instructor permission). Exploration of the concepts, dimensions and dynamics of culture theory, viewing culture as an adaptive, comparative, cognitive, structural and symbolic system. Some topics are sustainability related.

ANTH 142 Political Anthropology (ANTH 146 or instructor permission). Explores political anthropology as a specialized field of anthropological inquiry. Analyzes the articulation of power, authority, and legitimacy in non-state and state based societies. Contributes to an understanding of the transforming powers of modernity and resistance to it and develops a critical appreciation of how age, status, class, ethnicity, race, gender and religious ideologies shape political order within various societies around the world. Some topics are sustainability related.

ANTH 143 Culture and Society in Mexico. Introduction to the cultural and social institutions of the Mexican people. The changing patterns of family, economic, political, religious, and educational systems in Mexico. Some topics are sustainability related.

ANTH 149 Cultures of South Asia. Exploration of cultural practices in different South Asian societies. Analyzes the impact of colonialism, post-colonialism and discourses of modernity on South Asian societies. Examines the process of state formation, nation-building, communal conflict, economic transformations and the politics of caste, gender and class in contemporary South Asia. Some topics are sustainability related.

ANTH 152 Primate Adaptations. Covers the significant dental, skeletal, and soft-anatomical adaptations of the major living families and/or subfamilies within the Order Primates. In the process of surveying the adaptations, the student will become familiar with evolutionary theory, taxonomy, embryology, ecology, social systems, biomechanics, effects of size, and the functional morphology of the skeletal system in primates. Three-hour seminar, with some lecture and hands-on experience with skeletons and casts. Some topics are sustainability related.

ANTH 153 Evolutionary Medicine (ANTH 1, BIO 10, or PSYC 2 is recommended). Introduction to the application of evolutionary theory to human health and disease. Evolutionary medicine is a rapidly growing interdisciplinary specialization utilizing insights from evolutionary theory and human evolutionary ecology to inform understandings of human health, development and disease; and also to critique existing biomedical theory about the human condition. Topics include reproduction, child birth, lactation, growth and development, infectious diseases, parasites, diet and nutrition, mental and behavioral disorders, and substance use and addiction. Some topics are sustainability related.

ANTH 154 Primate Behavior. Survey of the genetic, ecological and social influences on non-human primate behavior from an evolutionary perspective; covers the major non-human primate groups, including their taxonomy, major adaptations, and their present geographic distribution. The history and development of primate behavior also will be considered with an emphasis on various models for interpreting behavior. Some topics are sustainability related.

ANTH 155 Fundamentals of Biological Anthropology (ANTH 1, ANTH 1A). Survey of the development of method and theory in physical anthropology from its origins in zoology, anatomy, and medicine, to the various approaches currently used in the study of human biology and evolution. Concepts considered include the scientific method, modern genetics, evolutionary theory, the race concept and other approaches to explaining human variation, taxonomy and systematics, and macro-evolutionary models. Critical reading and analytical skills will be emphasized. Some topics are sustainability related.

ANTH 156 Evolution of Human Behavior (ANTH 1, BIO 10 , or PSYC 2 recommended). Introduction to the application of evolutionary theory to human behavior and psychology. Reviews and contrasts contemporary perspectives of human behavioral evolution with emphasis on insights from the emerging field of evolutionary psychology. Topics include human behavior and cognition as adaptations, "selfish genes," game theory, evolution of social behavior, evolution of altruism, human mating strategies, parenting, behavioral disorders, evolution of the life cycle, human behavioral ecology, Darwinian medicine, and evolutionary psychology. Some topics are sustainability related.

ANTH 163 Urban Anthropology (ANTH 146 or instructor permission).  Overview of both anthropological method and theory applied to research of urban environments and a survey of significant anthropological studies that have been conducted in these settings. Examines such topics as the urbanization process, the culture of cities, urban sub-cultures, social problems in urban areas, social networks and adaptive kinship strategies in cities, and the concentration and exercise of power, wealth and influence in urban centers. Some topics are sustainability related.

ANTH 164 Culture Change (ANTH 146 or instructor permission). Anthropological study of mechanisms and process of social and culture change; basic theories of ecological adaptation and cultural evolution; action chains and cultural patterns; technological innovation, migration, acculturation, cultural dissonance, conflict, and cultural revitalization; analysis of case studies emphasizing contemporary conditions and problems; rapid technological innovation, population control, immigration and acculturation, social diversification, ethnic conflict. Some topics are sustainability related.

ANTH 167 Religion and Culture (ANTH 146 or instructor permission).  Examines ethnographic perspectives on the character and intersections of religion, ritual, and culture. Surveys the thought of "classical" social theorists (e.g., Durkheim, Tylor, Weber, and Evans-Pritchard), and concentrates on central topics in the anthropology of religion. Including the political nature of embodiment and trance, religion and nationalism, the significance of language and performance, the gendered character of many religious phenomena, and science and religion as competing epistemologies. Some topics are sustainability related.

ANTH 181 Anthropology of Human Rights (ANTH 146 or instructor permission) Examines multiple dimensions of human rights from an anthropological perspective. Explores the history and development of human rights ideas and legal conventions, and how these ideas and conventions are appropriated, adapted, contested or rejected in different cultural and political contexts. Using ethnographic case studies from around the world, addresses how the human rights discourse mediates the relationship between specific groups of people, their national states and international conventions and institutions. Some topics are sustainability related.

ANTH 183 Women Cross-Culturally. Position of women in various societies, preliterate through contemporary industrial; the evolution of women's roles and rights cross-culturally. Some topics are sustainability related.

ANTH 202 Biological Anthropology Seminar. Survey of contemporary issues in physical anthropology. Some issues are sustainability related.

ANTH 500 Master's Thesis. Completion of a thesis approved for the master's degree. Number of units of credit is determined by the candidate's Master's degree advisory committee. Some projects are sustainability oriented.

ART 20A Beginning Drawing. Introduction to various techniques of and approaches to drawing, using still lifes, landscapes, and figures. Selected topics include various aspects of sustainability.

ART 20B Intermediate Drawing. Extension of drawing experiences initiated in ART 20A, with emphasis on surveying materials and concepts pertinent to contemporary and historical drawing. Selected topics include various aspects of sustainability.

ART 22 Beginning Painting. Introduction to the methods and problems of painting in oil or acrylic medium. Selected topics include various aspects of sustainability.

ART 24 Beginning Watercolor. Introduction to both transparent and opaque watercolor. Selected topics include various aspects of sustainability.

ART 3B Modern and Contemporary Asian Art. Covers the art and architecture of Asia from the modern period to the present day. Attention will be given to the impact of outside influences upon the development of art in several Asian countries, including India, Thailand, Vietnam, Indonesia, Philippines, China, Korea, and Japan. Contacts between those countries, their exposure to western visual culture through new or increased contact with the west, and the spread of Christianity all had an impact on Asian art during the period under consideration. Selected topics include aspects of sustainability.

ART 40E Basic Printmaking: Silkscreen. Introduction to silkscreen processes and printing. Includes the construction of the equipment necessary to print direct drawing materials, and photo-established imagery. Selected topics include aspects of sustainability.

ART 50 Beginning Ceramics. Projects in basic techniques and approaches to the potter's wheel. Selected topics include aspects of sustainability.

ART 86 Clay Sculpture. Includes work with the various forms of hand-built sculpture in both low- and high-fire clay. Glazes are used sparingly to stress forms and their relationships. Selected topics include aspects of sustainability.

ART 88 Beginning Sculpture. Introduction to traditional and non-traditional processes of sculpture and three-dimensional forms in space. Students can expect to use the following materials: cardboard, clay, metals, plaster, plastics, wire and wood to explore the making of three-dimensional imagery. Investigations will include the formulation of ideas relative to sculptural problem solving while discovering historical and contemporary examples of sculpture. Selected topics include aspects of sustainability.

ART 97 Beginning Electronic Art. Explores the creative potential of imaging software used by visual artists. Familiarity with software, hardware and output devices will be established. The creation of digital art will be considered within the framework of current ideas in art and culture. Selected topics include aspects of sustainability.

ART 112 Contemporary Art. Beginning with international Pop art and Minimalism in the 1960s, surveys the history of contemporary art from the end of avant-garde modernism to the postmodernism and globalism of today. Lectures, discussions, readings and assignments offer insights into the contexts, attitudes, and ideas behind current art and visual culture. Selected topics include aspects of sustainability.

ART 116 Topics in Modern and Contemporary Art.  Seminar on topics in modern and contemporary art history. Selected topics include aspects of sustainability.

ART 118A Modern Architecture. A survey of modern architecture which covers the architectural theories and principles underlying certain significant structures. Special consideration is given to an analysis of the works of 20th century pioneers and their followers, such as Wright, Gropius, Le Corbusier, Van der Rohe, Aalto, and Johnson, among others, and to certain movements, such as the International Style, Brutalism, and Formalism. Selected topics include aspects of sustainability.

ART 118B California Architecture and Urban History. Survey of the history of California architecture and its impact on the urban environment from Native Americans to the 20th century. Particular attention will be given to architecture as a symbol or statement of social, economic, and political empowerment. Selected topics include aspects of sustainability.

ART 120 Advanced Drawing. Continuing investigation of drawing. Emphasis is on the development of individual style. Selected topics include aspects of sustainability.

ART 122A Intermediate Painting. Continuing investigation of the technical and conceptual issues of painting. Selected topics include aspects of sustainability.

ART 122B Advanced Painting. Continuing investigation of the technical and conceptual issues of painting, with an emphasis on intensive individual exploration. Selected topics include aspects of sustainability.

ART 124A Intermediate Watercolor.  Continuing investigation of the technical and conceptual issues of painting, using transparent water media. Selected topics include aspects of sustainability.

ART 124B Advanced Watercolor. Continuing investigation of the techniques and conceptual issues of painting using transparent water media, with emphasis on intensive individual exploration. Selected topics include aspects of sustainability.

ART 126 Painting and Drawing in the Field. Further development of painting and drawing skills with emphasis on direct observation and use of color to make form. Class will meet at specific landscape sites to work, with primary focus on painting. In addition, work will be developed in the classroom based on prior field study. Critiques will examine how one situation is variously interpreted. Selected topics include aspects of sustainability.

ART 127 Collage and Assemblage. Use of found and readily available materials to make 2-dimensional collage and 3-dimensional assemblage. Most projects are conceptual, a few purely visual, and take from one to three class periods, including critique, and class discussions. Selected topics include aspects of sustainability.

ART 129\* Painting/Drawing Studio. Open to upper division art majors or minors only who have completed 9 units in a specialized area. Selected topics include aspects of sustainability.

ART 133 Elementary School Art Education. Intended for students who are preparing to become elementary school teachers in California, providing subject matter study in art appropriate for grades 1-6. Students will learn the components and strands of visual arts education found in the California Visual and Performing Arts Framework. Students will explore five major areas: artistic perception, creative expression, historical and cultural contexts, aesthetic valuing, and the connections and relationships between the visual arts and other disciplines. Selected topics include aspects of sustainability.

ART 134 Interdisciplinary Art. Students learn how to make connections and relationships between visual art and curriculum subjects such as ecology, history, anthropology, language arts, theatre and music. Through studio activities and interdisciplinary themes, students will learn how to integrate the California Visual Art Content Standards. Selected topics include aspects of sustainability.

ART 141 Advanced Silkscreen. Advanced work in silkscreen including photo-silkscreen. Emphasis is on exploration of color and imagery. Selected topics include aspects of sustainability.

ART 147 Video Art.  The creation and analysis of video artwork; including techniques of video production, post-production manipulation and critique, within the context of art and communication. The techniques and theory of producing and editing video will serve as a foundation for the pursuit of individual, creative projects. Selected topics include aspects of sustainability.

ART 148 Barrio Art for Ethnic Groups. Provides a cultural situation for students who expect to work with the Mexican American community. Involves personal contact with persons in that community. Uses poetry, music, slides, and film to understand art as a non-verbal language. Selected topics include aspects of sustainability.

ART 150 Advanced Ceramics. Advanced study of ceramic techniques leading toward the development of an individual creative expression. Selected topics include aspects of sustainability.

ART 153 Hand-Built Ceramic Techniques. Specialization in hand-built clay forms. Methods of working include coil, slab, pinch, and combinations of techniques which might include some wheel-thrown parts, decoration, and glazing of forms. Selected topics include aspects of sustainability.

ART 159\* Ceramics Studio. Study of ceramic techniques leading toward the development of an individual creative expression. Selected topics include aspects of sustainability.

ART 169 Photography Studio. Study of photography techniques leading toward the development of an individual creative expression. Selected topics include aspects of sustainability.

ART 179\* Small Metals Studio. Study of small metal techniques leading toward the development of an individual creative expression. Selected topics include aspects of sustainability.

ART 182 Intermediate Sculpture. Intermediate explorations with traditional and non-traditional processes of sculpture, three-dimensional form and spatial relationships. Students will expect to explore concept based learning through visual problem solving while accumulating in depth techniques and skills in a variety of sculpture materials. Includes study of historical and contemporary examples of sculpture and other relevant forms of art. Selected topics include aspects of sustainability.

ART 183 Advanced Sculpture. Advanced explorations and study in sculpture, three-dimensional media and imagery and conceptual based art. Students can explore sculpture, advanced three-dimensional design, mixed media, installation art, site specificity, performance art, public art or other. Study will be both assignment based or self-directed. Selected topics include aspects of sustainability.

ART 187 Installation and Performance Art. Explores the practice, theory and history of making installation and performance art. Students will study contemporary artists of this genre while designing, modeling and creating installation projects. Performances are not mandatory. Students will exhibit their works in traditional campus galleries alternative spaces. Emphasizes individual investigation and discovery while remaining open to collaborative projects that may cross disciplines. Selected topics include aspects of sustainability.

ART 189 Sculpture Studio. Study of sculpture techniques leading toward the development of an individual creative expression. Selected topics include aspects of sustainability.

ART 191 Film as an Art Form. Wide range of theory and criticism of film, photography, and painting in the 20th century is presented from which the student may cultivate a coherent critical awareness. The development of realism in Western art, the photographic image, narrative in film, montage, and the development of cinematography will be included with special attention given to the films of D.W. Griffith, Sergei Eisenstein, Jean Renoir, Alfred Hitchcock, and Orsen Welles. Selected topics include aspects of sustainability.

ART 192A Senior Seminar in Studio Art. Culminating studio art course designed to deepen experiences in diverse visual arts. Emphasis placed on independent studio practice with additional development in verbal and written skills in a variety of art disciplines. Selected topics include aspects of sustainability.

ART 192B Senior Seminar in Art History. Focuses on the research, writing, and oral presentation of a 25-35 page thesis in the student's area of interest. Seminar readings, discussions, and weekly workshops support the thesis project and develop basic career skills. Explores how to employ traditional and new research technologies and develops writing skills. Career topics include how to locate appropriate jobs, professional schools, and graduate programs; how to write professional resumes, correspondence, including graduate school and grant applications. Selected projects may include aspects of sustainability.

ART 196 Experimental Offerings in Art. Undergraduate seminar in art. Selected topics include aspects of sustainability.

ART 197 Intermediate Electronic Art . Explores the creative potential of digital imaging and multimedia art making techniques. Teaching methods will include hands on demonstrations, lab workshops, creative projects, reading assignments, seminars, discussion and critiques. The development of technical fluency will be stressed, and the creative potential of digital media within the framework of contemporary art, design and culture will be emphasized. Selected topics include aspects of sustainability.

ART 199\* Special Problems. Individual projects or directed reading. Open only to students who are competent to carry on individual work. Selected topics include aspects of sustainability.

ART 212 Contemporary Art. Beginning with international Pop art and Minimalism in the 1960s, surveys the history of contemporary art from the end of avant-garde modernism to the postmodernism and globalism of today. Lectures, discussions, readings and assignments, offer insights into the contexts, attitudes and ideas behind current art and visual culture. Selected topics include aspects of sustainability.

ART 229\* Painting/Drawing Studio. Further development of painting and drawing skills. Selected topics include aspects of sustainability.

ART 259\* Ceramics Studio. Further development of ceramic skills. Selected topics include aspects of sustainability.

ART 269\* Photography Studio. Further development of photography skills. Selected topics include aspects of sustainability.

ART 283\* Graduate Sculpture. Special problems in sculpture, mixed media, installation art, site specific art, performance art, public art or other. Selected topics include aspects of sustainability.

ART 289\* Sculpture Studio. Further development of sculpture skills. Selected topics include aspects of sustainability.

ART 297 New Media 1. Students will work on self-directed video and new media with the supervision of the instructor. The work will focus on projects that are either entirely based in new media and video, or on works that also utilize other media or processes combined with video and/or interactive processes, such as intermedia, mixed media and installation work. The course also includes reading assignments, critique and discussion. Selected topics include aspects of sustainability.

ART 298 New Media 2. Students will work on self-directed video and new media with the supervision of the instructor. The work will focus on projects that are either entirely based in new media and video, or on works that also utilize other media or processes combined with video and/or interactive processes, such as intermedia, mixed media and installation work. The course also includes reading assignments, critique and discussion. Selected topics include aspects of sustainability.

ASIA 96. The Way of Chanoyu: An Interdisciplinary Approach to the Japanese Tea Gathering. This course traces the development of a multifaceted cultural practice integrating architecture, garden design, art, painting, and calligraphy into a carefully constructed hospitality ritual. Students explore multiple aspects of Japanese Chado via hands-on learning including aesthetic, economic, scientific, socio-political and cultural dimensions associated with tea. The course is taught in the Nakatani Tea Room, including weekly classroom lectures and discussions, demonstrations, on-line learning modules, a group project, and typically, a day field trip to San Francisco. Selected topics include various aspects of sustainability.

ASIA 134.  History of Korea: Antiquity to Present.  This course traces the historical development of Korean culture from the period the Three Kingdoms to the present. In addition to the texts and records, other sources such as literature, religion, and art will be examined to gain an understanding of and appreciation for the longevity of Korea as a culture and a polity. Selected topics include aspects of sustainability.

ASIA 195 Internship: Asian Studies.  Supervised work experience on topics related to the study of Asia's art, culture, economics, geography, environment, politics, and government and social issues. Selected topics include aspects of sustainability.

ASIA 198 Asia in the World Today. Senior seminar in recent scholarship and current issues concerning Asia in the world today. A capstone course for Asian Studies majors, as well as graduate students interested in Asia. Selected topics include aspects of sustainability.

ASIA 199  Special Problems. Individual research projects, including directed readings, under the direction of an Asian Studies faculty person. Selected topics include aspects of sustainability.

ASTR 4C.Introduction to Astrobiology. Nature and history of scientific inquiry into life outside the Earth. Definitions of life. Habitability of planets and moons in our Solar System and of extrasolar planets. Likelihood of intelligent life outside Earth and rationale for the Search for Extra-Terrestrial Intelligence. Some topics are sustainability related.

ASTR 6.  Astronomical Observation Laboratory. Study and use of various telescopes; field observation of planets, stars, meteors, asteroids, the moon and sun; laboratory activities relevant to astronomy.

ASTR 131.The Solar System and Space Exploration. Planets and satellites, including their composition, structure, and atmospheres, with emphasis on modern techniques and observations. Solar surface phenomena and their influence on planets through the solar wind. Comets, meteorites, and their implications for the origin and evolution of planets. Physical effects governing feasible forms of space exploration and colonization. Some topics are sustainability related.

ASTR 199. Special Problems. Individual projects or directed reading. Some topics are sustainability related. Some topics are sustainability related.

BIO 2. Cells, Molecules and Genes. Introduction to molecular and cellular biology and genetics. Topics include biomolecules, cell structure and function, cellular energetics, molecular flow of information, cell division, and genetic inheritance. Development of scientific skills and a scientific mindset will be emphasized throughout the course, particularly in lab exercises and activities. Some topics are sustainability related.

BIO 7. Introduction to the Science of Biology. Introduction to major concepts of biology, including properties of living things, cells and their molecular constituents, the unity and diversity of organisms, genetics, ecology, evolution, and the scientific methods of investigation employed by biologists. Some topics are sustainability related.

BIO 10. Basic Biological Concepts. An intensive introductory course for non-majors who will take additional course work in biology or related disciplines, including the allied health sciences. Introduction to the biological sciences with strong emphasis on cellular structure and metabolism, molecular biology and genetics, as well as concepts and principles common to all living systems including ecology and evolution. Some topics are sustainability related.

BIO 15L. Laboratory Investigations in Biology. Introductory laboratory investigation of the major principles of biology, including properties of all living things, the unity and diversity of organisms, structure and function of cells, energy and metabolism, genetics, ecology, evolution, and the scientific methods of investigation employed by biologists. Some topics are sustainability related.

BIO 197A. Laboratory Teaching Assistant. Supervised experiences will include aspects of laboratory preparation and aspects of teaching biology laboratory courses. Conferences and laboratory experiences four to eight hours weekly. Some projects are sustainability related.

BIO 197D. Advanced Laboratory Exploration. Advanced, supervised experiences that explore the science behind laboratory experiences and discussion regarding aspects of specific laboratories that promote understanding of scientific content. Conferences and laboratory experiences four to eight hours weekly; written assignments and/or oral presentations required. Some projects are sustainability related.

BIO 197E. Intermediate Lab Techniques. Supervised laboratory experiences for skilled students in the organization and techniques for operation of a basic sciences laboratory. Conferences and laboratory experiences four to eight hours weekly. Admission requires approval of instructor and Department Chair. Some projects are sustainability related.

BIO 197F. Advanced Lab Techniques. Advanced supervised laboratory experiences for skilled students in the organization and techniques for operation of a basic sciences laboratory. Conferences and laboratory experiences four to eight hours weekly. Some projects are sustainability related.

BIO 198A. Honors Pro-seminar and Research. Contemporary topics in biology selected by students in the course will form the basis for an introduction to scientific journals, the scientific method, and research as a professional pursuit. Each student develops a refined research proposal and prepares a seminar summarizing the proposal and the current state of knowledge in the topic area. Some projects are sustainability related.

BIO 198B. Honors Research and Seminar. Directed research involving completion of an independently conducted research project for which a proposal and methodology was developed in BIO 198A. Data collection, summary and analysis, and formulation of conclusions based on the data will be discussed periodically with a faculty sponsor. Culmination will consist of preparation of an undergraduate thesis, poster and presentation of a seminar summarizing results and conclusions. Some projects are sustainability related.

BIO 199A. Introductory Undergraduate Research. Student conducts introductory, independent laboratory or field research on an original question. Research must culminate in a formal report. Weekly meetings may be required. Students must have a research prospectus approved by faculty mentor and Department Chair. Some projects are sustainability related.

BIO 199B. Directed Readings. Directed Readings on a topic in Biology culminating in a research paper. Admission requires submission of a prospectus approved by the faculty member under whom the work is to be conducted and the Department Chair. Some topics are sustainability related.

BIO 199C. Intermediate Undergraduate Research. Student conducts independent laboratory or field research on an original question. Research must culminate in a formal report. Weekly meetings may be required. Students must have a research prospectus approved by faculty mentor and Department Chair. Some projects are sustainability related.

BIO 199D. Advanced Undergraduate Research. Advanced laboratory or field research on an original question. The research must culminate in a formal report. Weekly meetings may be required. Students must have a prospectus approved by the faculty member and the Department Chair. Some projects are sustainability related.

BIO 100. Introduction to Scientific Analysis. Covers anatomy of scientific literature, reading and writing scientific papers, proper citation formats, basic interpretation of tables and figures, graphical analysis, basic statistical analysis, experimental design to effectively test a hypothesis, and effective presentation of an experiment. Some topics are sustainability related.

BIO 106. Genetics: From Mendel to Molecules. Introduction to the principles of genetics and scientific approaches used to define those principles. The physical basis of heredity, the impact of selective breeding and genetic engineering will be discussed. Some topics are sustainability related.

BIO 121. Molecular Cell Biology. Comparison of the cellular and molecular biology of prokaryotic and eukaryotic cells. Emphasis will be placed on membrane structures, transport phenomena, cell to cell communication, cellular reproduction, genetic architecture, gene expression and metabolism, as well as the eukaryotic endomembrane, cytoskeleton and extracellular matrix systems. Some topics are sustainability related.

BIO 126. Comparative Vertebrate Morphology. Study of the anatomical systems of vertebrates in an evolutionary and functional context. Covers vertebrate form, function, development and phylogeny, overviews of organ systems, and how their modification founded the major events of vertebrate evolution including metamorphosis, water-to-land transition, tetrapodal locomotion, feeding and reproduction. Some topics are sustainability related.

BIO 128. Plant Anatomy and Physiology. An integrative examination of our current understanding of plant structure and function. Students will apply fundamental principles of cell and molecular biology, evolution, and ecology to understand the relationships between plant anatomy and plant physiology that have enabled plants to achieve such a high level of success as primary producers on our planet. Some topics are sustainability related.

BIO 167. Quantitative Methods in Biology. Focuses on statistical hypothesis testing and experimental design in the biological sciences. Topics include the development of a hypothesis, study design and implementation, management and presentation of data, identification of data types, and appropriate use of statistical procedures. General application to a wide range of biological disciplines and will emphasize the scientific process, critical thinking skills, and the interpretation of statistical results, which will include a project culminating a scientific paper and presentation. Some topics are sustainability related.

BIO 180. Advanced Molecular Biology. Examination of the structure of genes and genomes, the mechanisms by which they change, and the use of evolutionary relationships to understand function. Mechanisms of the regulation of gene expression from gene to phenotype and the tools used o study these processes. Applications of molecular tools in medicine and biotechnology and the ethics around these approaches. Some topics are sustainability related.

BIO 184. General Genetics. Principles of inheritance as they relate to microorganisms, plants, animals and humans. Genetic mechanisms are analyzed according to evidence derived from both classical and current research. The nature, structure, and function of the genome are considered at the molecular level. Some topics are sustainability related.

BIO 185. Topics in Biology. Current topics in cellular, developmental and/or molecular biology. Some topics are sustainability related. Some topics are sustainability related.

BIO 187. Advanced Cell Biology.  Advanced cellular and molecular biology of eukaryotic cells. Comparison to prokaryotic organism will be made as needed to illustrate key concepts. Emphasis will be placed on cellular functions and utilize two or more cellular systems; including cell to cell communication, regulation of gene expression, uptake and secretion, regulation of cytoskeletal configuration, cell migration and cellular reproduction. Some topics are sustainability related.

BIO 127. Developmental Biology. This course examines the progression of fertilized eggs of vertebrate organisms through embryonic development. This progression will be studied at biochemical, molecular, genetic, morphological and physiological levels, with an emphasis on the progressive changes that occur within cells, tissues and organs in the embryo. We will use a comparative approach between a variety of model organisms to understand similarities and differences among vertebrate and selected invertebrate species. Some topics are sustainability related.

BIO 139. General Microbiology. Introduction to microorganisms, particularly bacteria and viruses, their physiology and metabolism. Laboratory work includes aseptic techniques, methods of cultivating and identifying bacteria, and demonstration of microbial properties. Some topics are sustainability related.

BIO 140. Medical Microbiology and Emerging Infectious Diseases. Lectures, discussions, and readings regarding infectious viruses, bacteria, fungi, and parasites, with an emphasis on highly relevant pathogens including emerging infectious agents and microbes that are regionally endemic. The clinical syndrome, along with the molecular and cellular aspects of the course of infection of each pathogen will be discussed. Additionally, the history of microbiology and medicine as well as a brief overview of laboratory methods used for diagnosis will also be covered. Some topics are sustainability related.

BIO 143. General Virology. Lectures and demonstrations on the fundamental characteristics and properties of plant, animal and bacterial viruses. Some topics are sustainability related.

BIO 144. Pathogenic Bacteriology. Morphological, physiological and immunological characteristics of pathogenic bacteria. In the laboratory, pure culture studies are emphasized. Some topics are sustainability related.

BIO 152. Human Parasitology.  Examines, in detail, the most important species of protozoans, flukes, tapeworms and roundworms that infect humans. Life cycles, pathology and prophylaxis constitute the principal topics in lectures. Morphology, physiology, taxonomy and diagnosis constitute the principal topics in the laboratory. Some topics are sustainability related.

BIO 156. Food Microbiology. Microbiology of food fermentations, food preservation and spoilage. Some topics are sustainability related.

BIO 221A. Cell and Molecular Methods and Techniques.  Introduction to research methods in molecular and cellular biology. Students learn both cell and molecular techniques in the context of hypothesis-driven research to answer questions relating to a specific gene and cellular system. Experimental design and commonly used laboratory techniques will be explored. Two three hour laboratory periods. Some topics are sustainability related.

BIO 222. Molecular Biology. Processes and control of DNA replication, transcription, and translation developed from a consideration of the current literature. Some topics are sustainability related.

BIO 223. Human Molecular Genetics. In-depth study of the molecular basis of human disease, emphasizing current experimental approaches and technologies. Topics include the isolation and analysis of disease genes, the influence of teratogans and random environmental events on human embryonic development, the molecular and biochemical consequences of mutagenesis, and ethical issues that currently surround the field. Some topics are sustainability related.

BIO 224. Genomics, Proteomics, and Bioinformatics. Examination of current approaches in structural genomics, functional genomics and proteomics, and the bioinformatics tools utilized to understand genome organization, the regulation of gene expression, gene function and the evolutionary relationships within and between genomes. Some topics are sustainability related.

BIO 245. Host/Pathogen Interactions. Critical reading and discussion of current literature on host/pathogen interactions. Topics to be covered include: alteration of host intracellular trafficking, subversion of cell cytoskeleton for invasion, intracellular survival mechanisms, pathogen-induced cell killing, and evasion and subversion of the host immune system. Some topics are sustainability related.

BIO 247. Contemporary Topics in Immunology. Readings and discussions of current literature emphasizing new field developments and controversies. Some topics are sustainability related.

BIO 294A. Seminar in Molecular and Cellular Biology. Review and discussion of scientific literature in cell and molecular biology. Seminar topics will vary by semester. Some topics are sustainability related.

BIO 297A. Teaching Biology Seminar. Training for graduate students who wish to participate in the Department's Graduate Teaching Associate (GTA) Program and others interested in teaching biology. Weekly seminar session covering aspects of teaching biology laboratories. Some topics are sustainability related.

BIO 297B. Laboratory Teaching. Training for graduate students admitted to the Graduate Teaching Associate (GTA) Program. Students assist in teaching three hours of biology laboratory weekly under the supervision of a laboratory instructor. Some topics are sustainability related.

BIO 299. Problems in Biological Sciences. Library research, short-term original research, technique development, or thesis research site selection and preliminary field observations. Culminating experience will be in the format of a scientific paper, annotated bibliography, demonstration of technique mastery, or oral presentation. Some topics are sustainability related.

BIO 500. Master's Thesis. Completion of a thesis approved for the Master's degree. Some topics are sustainability related.

BIO 293. Research Conference. Presentation and discussion of graduate student and faculty research and current literature with emphasis on critical evaluation of research design, data analysis and presentation techniques. Some topics are sustainability related.

BIO 285. Topics in Biology. Readings and discussions of current literature emphasizing new developments and controversies in a comparatively narrow range of biological topics. Topics will vary with each offering, encompassing one recognized specialty in biology. Some topics are sustainability related.

BIO 282. Evolution. Process of evolution throughout the taxonomic hierarchy and factors responsible for the generation of variability of the gene, cell, organism and population levels are explored through lectures, text readings and a survey of current periodical literature. Some topics are sustainability related.

BIO 221C. Exploration of Biological Methodology. Intended for students in the MA grant proposal track, this course explores a selected topic from multiple scientific perspectives. A discovery-based laboratory project using cell and molecular techniques complimented with lectures, discussions and field trips that investigate the ecological, environmental, and evolutionary aspects of the same topic. The laboratory project will focus on a current biological topic (such as genetically modified organisms) in accordance with the instructor's interests and expertise. One hour lecture, six hours lab per week. Some topics are sustainability related.

BIO 220. Introduction to Scientific Inquiry. Graduate level introduction to scientific inquiry in the biological sciences. Students learn to apply the scientific method, critically evaluate the scientific literature, initiate their graduate project, and develop written and oral scientific presentation skills. Some topics are sustainability related.

ACCY 161. Government and Nonprofit Accounting. **.** Fundamentals of accounting and financial reporting for governmental units and institutions; accounting for various types of funds; accounting aspects of budgetary control. Selected topics include aspects of sustainability.

ACCY 171. Federal Tax Procedures I. Federal taxation concepts are used in effective decision making; a working knowledge of the concepts of gross income, deductions, tax rates, and property transactions as they pertain to C corporations, partnerships, S corporations, and individuals; and proficiency in the application of tax concepts as they pertain to business and individual taxpayers. Selected topics include aspects of sustainability.

ACCY 172. Federal Tax Procedures II. Business entity formation, operation, and termination and business taxation principles and concepts used in effective decision-making. Students develop the ability to understand and apply business tax principles and the critical and analytical skills that are necessary in the study and application of taxation and tax law. Selected topics include aspects of sustainability.

ACCY 190. International Accounting. Accounting concepts, principles, and methods applicable to multinational transactions and global corporations. Contents include the translation of financial statements, comparative accounting systems, financial reporting, currency risk management, international accounting standards and organizations, taxation problems, and the managerial aspects of multinational transactions. Selected topics include aspects of sustainability.

ACCY 199. Special Problems in Accountancy. Individual projects or directed reading for students qualified to carry on independent work. Selected topics include aspects of sustainability.

ACCY 250. Financial Reporting I.  Corporate financial reporting to external users in accordance with US Generally Accepted Accounting Principles (GAAP), including financial information about a company's economic resources, obligations, owners' equity, income, case flow, and use of information to evaluate a company's return on investment, risk, financial flexibility, liquidity, and operational capability. Selected topics include aspects of sustainability.

ACCY 251. Foundations of International Accounting. The role of culture in accounting; comparative international financial and managerial accounting fundamentals; international financial statement analysis; international accounting standards and U.S. GAAP convergence; international business combinations; foreign exchange; international auditing; international taxation; and international capital flows. Selected topics include aspects of sustainability.

ACCY 260. **Financial Reporting II.** In-depth study of technical financial accounting issues including accounting for pensions and leases, income tax, accounting changes, consolidated financial statements, and foreign currency. Selected topics include aspects of sustainability.

ACCY 261. Cost Analysis and Control. Fundamentals of cost accounting concepts and practice relating to cost accumulation, control, and analysis for managerial planning and decision making. Specific topics generally include product costing, standards, cost allocation, estimation, budgeting, transfer pricing, and performance evaluation. Emphasis is on current issues. Selected topics include aspects of sustainability.

ACCY 263. Governmental and Non-Profit Accounting. This course provides an in depth study of accounting and reporting for state and local governmental and non-profit entities. The course emphasizes the governmental reporting environment, the accounting for various types of funds, the accounting aspects of budgetary control, and the preparation of governmental financial information to be included in the Comprehensive Annual Financial Report. This course also emphasizes the key differences between governmental and non-profit organizations, and the financial accounting and reporting for non-profit organizations. Selected topics include aspects of sustainability.

ACCY 264. Taxation of Business Entities. Covers the topics for corporate tax, partnership tax, estate and gift tax, and tax planning. Corporate tax includes taxation of transactions between corporations and their shareholders, transfers to corporations, dividends and non-liquidating distributions, stock redemptions, corporate liquidations, and S corporation. Partnership tax includes operation and liquidation, dissolution, sales, and exchange of partnership interests. Estate and gift tax addresses the types of transfers for federal gift tax. Selected topics include aspects of sustainability.

ACCY 266. Business Environment and Concepts.  Designed to provide understanding of knowledge and skills necessary for the general business environment and business operation. In addition, students are required to apply that knowledge in performing professional responsibilities. Topics include corporate governance, business cycles, global economic markets, business strategy, effect of financial management policies on accounting transactions, economic substance of transactions and their accounting implications, and budgeting/forecasting techniques. Selected topics include aspects of sustainability.

ACCY 270. Tax Research and Procedure.  Tax reporting and collection procedure; administrative and judicial procedures governing tax controversies; the rights and obligations of the taxpayer. Intensive training in performing and communicating tax research. Includes use of current database programs. Lecture basis, followed by "hands-on" application of research methods. Selected topics include aspects of sustainability.

ACCY 271. Tax Accounting Periods and Methods. Concepts and principles of the overall cash, accrual and hybrid methods of tax accounting. Applications of specific methods such as: inventory costing and capitalization rules, installment sales, long-term contracts, and original issue discount/time value of money will be examined. Lecture format to present the underlying rules and concepts. Case studies will then be analyzed and discussed by the students to examine the topics in a "real-world" context. Selected topics include aspects of sustainability.

ACCY 272. Taxation of Business Enterprises I - Corporations. Discusses federal tax law as it applies to corporations, including the following topics: special deductions, formation, distributions, and complete liquidations. Incorporates problem sets, case analysis, a corporate tax return project, and a research project to enhance analytical and critical thinking skills and compliance experience. Selected topics include aspects of sustainability.

ACCY 273. Taxation of Business Enterprises II - Partnerships. Discusses general concepts, acquisitions and basis of partnerships interests, operations, transfers of partnership interests, and distributions. Incorporates problem sets, a partnership tax return project, and research projects to enhance analytical and critical thinking skills and compliance experience and to develop students' technical proficiency in the application of partnership concepts. Selected topics include aspects of sustainability.

ACCY 275. International Wealth and Asset Management. Importance of global asset protection and wealth management; domestic Statutory and case law authorities of selected European, American and Asian countries as they relate to wealth protection and asset management; bi-lateral international agreements relating to wealth management and asset protection; Multilateral agreement affecting wealth management and asset protection; tax and legal liability minimizing models. Selected topics include aspects of sustainability.

ACCY 277. Comparative International Tax Systems. The similarities and differences between current global tax systems including jurisdiction and conflict of laws issues; the role of bilateral international tax treaties and other international tax related agreements in business operations; international tax planning for individuals and multinational enterprise including corporations, partnerships and estates and trusts. Selected topics include aspects of sustainability.

ACCY 278. International and Multi-State Taxation. Focuses on the taxation of cross-border transactions which encompasses discussion of the laws, rules, and regulations that affect transactions that cross both state and national borders. It covers various issues such as income sourcing and jurisdiction to tax. This course generally discusses these issues from the perspective of a U.S. person, but emphasizes and illustrates the general applicability of these rules for the tax regimes as established by other countries and states. Selected topics include aspects of sustainability.

ACCY 295. Internship in Accountancy. Supervised work experience in business, governmental service, or agencies for the purpose of increasing and enhancing student understanding of the nature and scope of the organization's accounting operations. Supervision is provided by the faculty and the cooperating agencies. Selected topics include aspects of sustainability.

BHON 102. Business Communication. Provides basic concepts for the understanding and practice of communication for managers and professionals. Examines the use of language and conversations in business settings and their role in coordinating actions, resolving breakdowns in work performance, and providing customer satisfaction. Topics include professional styles and formats of business writing and development of competence in business conversation skills (written, electronic and oral). Selected topics include aspects of sustainability.

BHON 106. Business Data Analysis. Applies statistical methods to solve business problems and inform managerial decision making. Topics include data analysis, statistical reasoning, model building and communication of statistical results. A statistical computer package is used in this course. Prerequisite: Admitted into Business Honors Program. Selected topics include aspects of sustainability.

BHON 107. Business Finance. Study of principles of finance and their application to typical financial problems of business enterprises. Topics include financial analysis, management of working capital, capital budgeting, long-term financing, dividend policy, internal financing, and time value of money. Selected topics include aspects of sustainability.

BHON 120. Business Intelligence. Focuses on enterprise problem solving and decision making using information technology, and data and financial analyses for mission critical and integral applications in planning and control. Alternative solutions are examined and evaluated for their effectiveness in achieving results. Selected topics include aspects of sustainability.

BHON 130. Value Chain and Supply Chain Management. Methods used for developing effective organizational value chains that integrate strategic planning, procurement, R&D, production, warehousing, distribution, and customer service to support business strategy. Includes critical decisions surrounding various organizational stakeholders, such as customer and supplier management, and the movement of goods and information throughout a supply chain network. Selected topics include aspects of sustainability.

BHON 150. Entrepreneurship and Innovation. An application based course that provides a broad understanding of the new venture processes. Discusses fundamental tools and skills necessary to create, run, and grow a successful new venture. Offers a multidisciplinary framework for studying and developing innovative and creative capabilities of entrepreneurs. Selected topics include aspects of sustainability.

BHON 160. Project Management. Methods and processes used for planning, controlling and managing projects. Includes project selection and scope, scheduling methodologies, economic analysis, the use of software, and life-cycle costing for managing different phases of projects. Emphasis on effective management of projects to achieve operational, managerial and strategic goals of organizations. Selected topics include aspects of sustainability.

BHON 170. Strategy and Leadership. An introduction to traditional and contemporary theories of business strategy, corporate strategy and strategic leadership. Compares and contrasts theories in strategy and styles of strategic leadership through case studies, current research, and conversations with business leaders. Selected topics include aspects of sustainability.

BHON 190. Practicum in Business. A series of forums that exposes students to practical business issues that have significant impact on the enterprise. Discussions with managers who have effectively led planning and operations. Compares and contrasts business concepts and principles to their practical applications. Selected topics include aspects of sustainability.

FIN 137. Financial Institutions and Markets. Designed to broaden understanding of the financial system to include the network of institutions which bring into existence the increasingly important substitutes for money in the traditional sense. Emphasis is given to flow of funds analysis within the context of emerging financial theories. Selected topics include aspects of sustainability.

FIN 190. Multinational Business Finance. Principles of international financial management. Issues covered include the international environment of financial management, uses of foreign exchange spot, forward, futures, options, and swap markets, foreign exchange risk management, international investment and financing decisions. Prerequisite: FIN 101 or instructor permission. Prior additional course in finance or international business recommended but not required. Selected topics include aspects of sustainability.

FIN 195A. Internship in Real Estate and Land Use Affairs. Supervised work experience in business, governmental or service agencies for the purpose of increasing student understanding of the nature and scope of their operations. Supervision is provided by the faculty and the cooperating agencies. Selected topics include aspects of sustainability.

FIN 19. Real Estate Principles. Examination of real estate principles and practices necessary for the acquisition, financing, management, and disposition of real estate. Incidents of ownership, the brokerage business, state regulation and transactional ethics are emphasized. Selected topics include aspects of sustainability.

FIN 101. Business Finance. Study of principles of finance and their application to typical financial problems of business enterprises. Special emphasis on financial analysis, management of working capital, cost of capital, capital budgeting, long-term financing, dividend policy, and internal financing. Selected topics include aspects of sustainability.

FIN 134. Financial Management. Trends in the development of financial policy are analyzed and reports on specific aspects are presented in class. The student is placed in the position of the financial manager who must make decisions and implement them. Selected topics include aspects of sustainability.

FIN 135. Investments. Significant characteristics of numerous types of investments; securities markets and financial institutions; principles of investment analysis; investment management. Selected topics include aspects of sustainability.

FIN 142. Real Estate Finance. Examination of the mechanisms of real estate finance, sources of funds, loan contracts, principles of mortgage risk analysis, and the role of group equity investment. The evolution of secondary mortgage markets, government policy, and market interference will be investigated from a risk management standpoint. Selected topics include aspects of sustainability.

FIN 143. Real Estate Investment. Analyzes non-financial and financial factors influencing investment decision making in income producing property. Topics include: location and its linkages; methods of estimating demand for real estate; methods for evaluating competing supply; use of market analysis in decision making; development of cash flow statements, alternative investment criteria, risk, legal, financing, and tax analysis, operating, financing investment and reversion decisions. Selected topics include aspects of sustainability.

FIN 149. Current Topics in Real Estate. Examines contemporary and emerging issues in land use regulation, market analysis, mortgage markets, property markets, real estate cycles, real estate development, real estate finance and investments, real estate securities, real estate portfolio management, and/or real estate taxation. Selected topics include aspects of sustainability.

FIN 200. Financial Reporting and Analysis. Designed for business students with prior knowledge of accounting who intend to use corporate financial statements intensively in valuation, credit or equity analysis, or strategic competitor analysis. Topics include inventory, pensions, business combination, income tax and other current issues for their impacts on financial statement. Emphasis on financial statement analysis and interpretation of financial disclosures for improving risk assessment, forecasting, and decision-making. Selected topics include aspects of sustainability.

FIN 210. Financial Institution Management. Develop an understanding of the theory and practice of the management of financial institutions. Emphasis is placed on risk measurement and management. Financial institutions include commercial banks, investment banks, savings banks, credit unions insurance companies and financial companies such as mutual funds. Selected topics include aspects of sustainability.

FIN 220. Corporate Finance. Investigate the principles that corporations use in their investing, financing, and day-to-day management decisions. Topics include financial statement analysis, capital investment decision, capital structure, dividend policy, mergers and acquisitions, corporate governance and its impact on valuation. Selected topics include aspects of sustainability.

FIN 230. Equity Analyses. Covers advanced concepts and techniques essential to asset valuation. Key topics include, but not limited to, free cash flow, price multiples, asset-based and contingent claim valuations. Applications of various valuation techniques are emphasized. Provides a framework for selecting the most appropriate model for specific circumstances. Selected topics include aspects of sustainability.

FIN 260. Alternative Investments. Discuss major types of alternative investments including real estate, hedge funds, commodities, private equity, and venture capital. Emphasis on the technical aspects and the performance analyses of alternative investments, their advantages and disadvantages, role of alternative investments, and strategies of selection. Selected topics include aspects of sustainability.

FIN 280. Global Financial Markets. Cover advanced concepts and applied techniques essential to understand the mechanism of the global financial markets. Key topics include global capital allocation, international tax management, foreign exchange markets, derivatives, parity relationships, and others. Focuses on the core concepts and techniques are applied in the global financial markets using different case studies. Integrate the key principles of finance and extends them to a multinational setting. Selected topics include aspects of sustainability.

FIN 299. Special Problems in Finance. Individual projects or directed reading for students qualified to carry on independent work. Some projects include aspects of sustainability.

HROB 155. Conflict Management and Negotiation. Analyzes conflict in organizations, and strategies and processes for effective settlement or resolution of that conflict. Emphasis on the practical aspects of institutional and extra-institutional processes outside the conventional legal system. These dispute resolution methods include negotiation, mediation, arbitration and fair hearing. Students participate in a variety of exercises including simulated negotiations. Through these exercises students explore the basic theoretical models of bargaining and test and improve individual negotiation skills. Class format includes lecture, class discussion, simulation/role-play, expert guests and video demonstrations. Selected topics include aspects of sustainability.

IBUS 190. International Business. Analyzes international business: foreign markets; export-import trade; licensing agreements; foreign exchange problems; role of the multinational firm; intergovernmental trade agreements; balance of payments; decision making in foreign environments. Selected topics include aspects of sustainability.

IBUS 195. Internship in International Business. Supervised work experience in business, governmental or service agencies for the purpose of increasing student understanding of the nature and scope of their operations. Supervision is provided by the faculty and the cooperating agencies. Some projects include aspects of sustainability.

IBUS 199. Special Problems in International Business. Individual projects or directed reading for students qualified to carry on independent work. Some projects include aspects of sustainability.

MGMT 10. Introduction to Business Law. Study of business law for the future business professional. Introduces students to basic business problems that have legal consequences. Encourages the identification of ethical concerns along with the ability to anticipate potential legal problems with the goal of preventing them. Covers introduction to the legal system; court procedures; contracts and sales; business organizations; real and personal property; labor and employment law; product liability, and the government regulation of business. Selected topics include aspects of sustainability.

MGMT 102. Business Communications Provides basic concepts for understanding and practice of communication in the changing world of business for managers and professionals. It examines the use of language and conversations in business settings and their role in coordinating actions, resolving breakdowns in work performance, and providing customer satisfaction. Topics include: Practice in professional styles of business writing and formats, preparation of a formal report, development of competence in business conversation skills (written, electronic, and oral), and other selected topics. International, technical, and linguistic developments are integrated into the various applications of business communication. Selected topics include aspects of sustainability.

MGMT 117. Business, Ethics and Society. Investigation of contemporary business issues and management dilemmas in relation to broad social concerns. Focus is upon public and private decision making in the business environment and how business practices, ethics, and social concerns interrelate. Topics such as the nature of property and profits, efficiency and human values, the balancing of claims of owners, employees, customers, and others in community, corporate responsibility, corporate governance, government regulation and international dimensions of public policy will be covered. Selected topics include aspects of sustainability.

CE 190. Senior Project. Culminating degree requirement. Completion of a conceptual design and evaluation of alternatives under realistic constraints for proposed infrastructure projects. Students work in teams with practicing professionals providing mentoring. Draws upon full educational experience to date. Some topics are sustainability related.

CE 194. Career Development in Civil Engineering. Designed for Civil Engineering students making career decisions. Instruction will include effective career planning strategies and techniques including skill assessments, employment search strategy, goal setting, time management, interview techniques and resume writing. Some topics are sustainability related.

CE 195. Fieldwork in Civil Engineering. Supervised work experience in civil engineering with public agencies or firms in the industry. Some topics are sustainability related.

CE 195A. Professional Practice. Supervised employment in a professional engineering or computer science environment. Placement arranged through the College of Engineering and Computer Science. Note: Requires satisfactory completion of the work assignment and a written report. Some topics are sustainability related.

CE 196H. Introduction to GIS in Civil Engineering. Introduction to fundamental geographic information system (GIS) concepts; GIS data acquisition and analysis; GIS analytical methods and software. Computer-based lab exercises used to demonstrate software and applications of GIS in civil engineering.Some topics are sustainability related.

CE 199. Special Problems. Individual projects or directed reading. Note: Open to students judged capable of carrying out individual work. Admission requires departmental approval and sponsorship of a supervising faculty member. Cannot be used as a technical elective in the major. Some topics are sustainability related.

CE 296H. GIS Applications in Civil Engineering. Introduction to fundamental concepts of geographic information systems (GIS), methods, and applications in civil engineering. Design and develop GIS-based analytical methods and solutions for civil engineering problems. Lab exercises are used to design and practice GIS applications in civil engineering. Some topics are sustainability related.

CE 299. Special Problems. Special problems in graduate research. Some topics are sustainability related.

CE 255. Transport of Chemicals in Soil Systems. Study of the mechanics of movement of chemicals in soil, including equilibrium and partition models, development of mass transport equations in porous media, analytical solution for one-dimensional transport, lumped parameter transport model (linear reservoir model), transport of reactive and conservative chemicals numerical solutions of transport models, transport in the unsaturated zone and coupled models for saturated and unsaturated zone. Some topics are sustainability related.

CE 271. Modern Hydrologic Techniques. Analyses of hydrologic and meteorologic phenomena by mathematical, statistical, and system methods, linear and non linear, stochastic and parametric hydrology, computer applications in hydrology. Some topics are sustainability related.

CE 276. Groundwater Hydrology. Occurrence and movement of groundwater; physical characteristics of aquifers; analysis of steady-state groundwater flow problems by mathematical, digital computer, electrical analog and graphical methods; analysis of unsteady-state problems in confined and unconfined, aquifers; multiple well systems. Some topics are sustainability related.

CHEM 31. Quantitative Analysis**.** Chemical measurements including associated statistics, chemical equilibrium in aqueous solutions, volumetric analysis, and an introduction to spectrophotometry and chromatography. Lecture two hours, laboratory six hours. Selected topics include aspects of sustainability.

CHEM 194. Chemistry-Related Work Experience. Supervised employment in a Chemistry related company or agency. Placement is arranged through the Department and the Cooperative Education Program office. Requires completion of a 3-6 month work assignment and a written report. Prerequisite: Open only to upper division students and consent of Department Chair. Units may not be applied toward a major in Chemistry or Biochemistry. Selected topics include aspects of sustainability.

CHEM 189A. Undergraduate Research. Directed undergraduate research involving a project that requires use of chemical literature and experimental design. A comprehensive written report and/or scientific poster must be submitted to receive a final grade. Selected topics include aspects of sustainability.

CHEM 189B. Intermediate Undergraduate Research. Continuing directed undergraduate research involving a project with emphasis on experimentation and data analysis. A comprehensive written report and/or scientific poster must be submitted to receive a final grade. Selected topics include aspects of sustainability.

CHEM 189C. Advanced Undergraduate Research. Culminating directed undergraduate research with emphasis on comprehensive data analysis and formulation of conclusions. A comprehensive written report and/or scientific poster must be submitted to receive a final grade. Selected topics include aspects of sustainability.

CHEM 160A. Structure and Function of Biological Molecules. The chemistry and biochemistry of amino acids, proteins, nucleic acids, lipids and carbohydrates. Also includes enzyme kinetics, the structure and function of biological membranes and discussion of some common laboratory methods. Selected topics include aspects of sustainability.

CHDV 135. Crosscultural Child Development. Examination of the physical, socio-emotional and cognitive development in children from a crosscultural orientation. Will investigate cultural variables that influence child development from both inter- and international perspectives. Discussion of culturally universal and culturally specific behaviors, cognitions and experiences will be covered. Selected topics include social aspects of sustainability.

CHDV 138. Social and Emotional Development. Study of the social and emotional development of children from conception through adolescence with consideration of biological and environmental influences. Lectures, discussions and participation in such classroom activities as presentations, demonstrations and cooperative learning assignments. Selected topics include social aspects of sustainability.

CHDV 138L. Social and Emotional Development Laboratory. Laboratory course to complement CHDV 138. Emphasis placed on the nature of observation, interaction, and using a scientific approach to learn about social and emotional development. Classroom and field experiences related to the study of social and emotional development. Selected topics include social aspects of sustainability.

CHDV 144. Community Service Learning in Developmental and Educational Settings. Designed to provide a range of service learning experiences where students apply their academic knowledge and skills in community-based settings. The community-based experiences will be combined with classroom activities designed to develop student understanding of topics related to their service activities such as tutoring reading and math, mentoring students from disadvantaged backgrounds, working with special populations of children. Selected topics include social aspects of sustainability.

CHDV 150A. Early Literacy Development in First and Second Language. Students will become familiar with language and emergent litercy of young children from birth to eight. An overview of research-based developmental progression will be emphasized as it relates to the learning foundations for language and literacy. Other focal points will be home-school connections and cultural influences on literary development. Assessment topics, including observation and other developmental strategies will be integrated. Selected topics include social aspects of sustainability.

CHDV 150B. Early Literacy Development in First and Second Language Practicum. The practicum experience (20 hours) will provide students with the application of course content material learned in CHDV 150A. Students will observe and validate multiple experiences in which first and second language learners learn language and literacy succesfully. Factors affecting language and literacy development will be addressed. Selected topics include social aspects of sustainability.

CHDV 199. Special Problems. Selected projects include social aspects of sustainability.

CHDV 244. Community Service Learning in Developmental and Educational Settings. Designed to provide a range of service learning experiences where students apply their academic knowledge and skills in community-based settings. The community-based experiences will be combined with classroom activities designed to develop student understanding of topics related to their service activities such as tutoring reading and math, mentoring students from disadvantaged backgrounds, working with special populations of children. Selected topics include social aspects of sustainability.

CHDV 247. Theoretical and Applied Perspectives on Cross-cultural Development. The cultural basis of human development through an in-depth examination of the socio-emotional, cognitive, language and gender development of children from infancy through adolescence within and across different cultures and communities. Theory, methods, and research of cross-cultural investigations will be considered and applications of course material to educational and community settings will be explored and analyzed. Selected topics include social aspects of sustainability.

CHDV 210. Seminar in Social Development. Advanced seminar focusing on theoretical and empirical readings covering topics in social/emotional development. Potential topics may include social and emotional development of children from conception through adolescence with consideration of biological and environmental influences. Selected topics include social aspects of sustainability.

CHIN 150. Survey of Chinese Literature. Introduction to Chinese literature from classical times to the present. The various forms of Chinese prose, poetry, and novel will be surveyed through the selective reading of representative works (in English translation). Selected topics include aspects of sustainability.

CHIN 120. Chinese Civilization. Presentation of formative cultural achievements of China through language and literature with a view to understanding present-day popular Chinese culture. A general survey conducted in English for students who are taking Chinese language courses and others who want a deeper appreciation of this important non-Western culture. Selected topics include aspects of sustainability.

CHIN 199. Special Problems.  Individual projects or directed reading. Open only to students who appear competent to carry on independent study. Selected topics include aspects of sustainability.

COMS 5. The Communication Experience. Basic skills and introductory concepts necessary for effective communication in a variety of settings. Special emphasis on practical experiences within groups, facilitation of interpersonal relationships, and methods of conflict resolution. Selected topics include social aspects of sustainability.

COMS 8. Interpersonal Communication Skills. Basic skills and introductory concepts for examining and altering interpersonal communication. In addition to lectures and discussions, students engage in structured interpersonal exercises and simulations to practice interpersonal communication skills such as listening, paraphrasing, describing feelings and intentions, and giving and receiving criticism. Selected topics include social aspects of sustainability.

COMS 55. Media Communication and Society. Introduction to the basic concepts of mass communication, including the effects, uses, and functions associated with the goods and services of mass media. Examination of the ways mass media combine with other institutions to affect the organization, design, and comprehension of messages, as well as political thought, cultural beliefs, and economic behavior. Selected topics include aspects of sustainability.

COMS 104. Persuasive Public Speaking. Advanced public speaking focusing upon persuasive strategies, principles and techniques. Selected topics include social aspects of sustainability.

COMS 105. Communication in Small Groups. Theory and practice in small group communication. Topics include leadership, meeting management, evolution of group norms, phases of group development, communication networks, good communication techniques, conflict management, and problem solving in a variety of contexts. Selected topics include social aspects of sustainability.

COMS 114. Communication and American Culture. Critical analysis of the ways modern American media interact with the conduct of American life; emphasizes the role of commercialism and other aspects of contemporary American capitalism; examines the problem of personal development and relationships in the context of a commercially dominated media system. Selected topics include social aspects of sustainability.

COMS 116. Intercultural Communication. Analysis of factors which influence communication between individuals of different cultures and cocultures. Selected topics include social aspects of sustainability.

COMS 117. Multimedia Communication. Students create and integrate information and digital media with the purpose of informing or persuading an audience. By identifying communication needs, students learn to prepare multimedia presentational aids and standalone multimedia presentations for distribution in online environments. This course features topics in visual communication, story-boarding, presentation and delivery. Selected topics include social aspects of sustainability.

COMS 118. Survey of Public Relations. Introduces the student to publics, organization-environment relationships, structures, practices, and processes from a communication theory and research perspective. Specifically, the student is introduced to the multi-phased approach to public relations, an approach that highlights the PR sub processes of task identification, task analysis, and task performance. Selected topics include social aspects of sustainability.

COMS 119. Conflict Resolution Through Communication. Ways to identify, clarify, and resolve conflicts in dyads, groups, and organizations. Conflict is contrasted with disagreement, aggression, incompatible values, etc. The costs and benefits of conflict are explored. Selected topics include social aspects of sustainability.

COMS 120. History of the Media. Examination of development of major mass communication media in the U.S. and of how the economics, content, regulation and audience use of the media have been affected by the way the media have evolved. Current issues and trends are discussed, as well as possible future development. Selected topics include social aspects of sustainability.

COMS 123. Writing For Public Information. Organization and operation of communication media; practice in publicity and public relations techniques. Emphasis on clear writing and correct public relations formats such as releases, PSAs, articles, and speeches. Selected topics include social aspects of sustainability.

COMS 143. Theories of Interpersonal Communication. One-to-one communication between individuals in both social and task settings. Theories of communication during the growth and decay of relationships, as well as research on the forces behind relational dynamics. Topics include nonverbal communication, self concept, communication of self, theories of conflict resolution, communication competence and the rhetoric of disconfirmation. Selected topics include social aspects of sustainability.

COMS 150. Mass Communication Theories and Effects. Survey of the major theories dealing with the relationship between the mass media and human communication behavior. Examination of research into the social, political, economic and cultural effects of mass communication. Selected topics include social aspects of sustainability.

COMS 158. Public Relations Planning and Management. Theoretical concepts to the solution of problems for pre-selected non-profit and campus clients by forming small group PR agencies; completing needs assessments; profiling target and secondary audiences; developing and implementing a strategic public relations plan; producing targeted messages for media kits and other uses; developing and evaluating formative and summative evaluation plans; and making formal in-class presentations to peers, clients and invited PR professionals. Students will also learn how to negotiate contracts, maintain client relations, track work on projects and develop timelines and budgets. Selected topics include social aspects of sustainability.

COMS 160. Political Communication. Analyzes the relationship between mass media and political decision-making, including a structural analysis of political and media institutions. Particular attention on the formation of public opinion through messages and strategies, and the impact of public opinion on public policy. Selected topics include social aspects of sustainability.

COMS 161. Health Communication. Communication principles and techniques as they apply to the many facets of health care, health education and promotion, and research in health communication. Emphasis on understanding and improving communication among health professionals, and between health professionals and clients. Explores the rapidly emerging field of health communication. Selected concepts and theories of human communication are directly applied to communication problems and situations in health care settings through the use of case studies. In addition, pertinent research that helps explain human interaction in health care is incorporated through readings and discussions. Selected topics include social aspects of sustainability.

COMS 173. Communication, Language and Culture. Cross-cultural exploration of communication and social interaction; relationship between language and society; cross-cultural implications of values embedded in message production, transmission, and interpretation; studies of how language influences perception and organization of social reality; linguistics, information and message transmission. Selected topics include social aspects of sustainability.

COMS 174. International Communication. Movement of mediated messages across and between national boundaries. Topics include news and entertainment flow, media systems and philosophies, cultural dependency and imperialism, the new world information order and communication development. Selected topics include social aspects of sustainability.

COMS 175. Creative Problem Solving. Creative problem solving techniques for use by individuals and groups. Topics include the nature of creative problem solving, barriers to creativity, clear problem definition, idea generation, decision making, group dynamics in creative situations, implementation of changes, and overcoming resistance to change. Selected topics include social aspects of sustainability.

COMS 180. Senior Seminar in Organizational Communication. Seminar on communication theories, techniques and research methodologies in the field of social and governmental organizational systems. Selected topics include social aspects of sustainability.

COMS 181. Senior Seminar in Small Group Communication. Seminar on the ways theories of group communication are realized in actual social settings. Selected topics include social aspects of sustainability.

COMS 182. Senior Seminar in Interpersonal Communication. Seminar on advanced theories of interpersonal communication. Sample topics include relational development, relational termination, communication and interpersonal attraction, and communication competence. Students present one in-class report and complete a major research paper. Selected topics include social aspects of sustainability.

COMS 188. Senior Seminar in Intercultural Communication. Critically examines and analyzes complex dynamics and concepts in communication and culture in a pluralistic society. Also relates various perspectives on intercultural communication theories and methods to an analysis of social interaction processes among culturally diverse groups. An interactive dimension includes problem-solving strategies. Selected topics include social aspects of sustainability.

COMS 194. Communication Studies - Related Work Experience. Supervised employment in a company or agency working on communication studies-related assignments, arranged through the Department of Communication Studies and the Cooperative Education Program office. Requires preparation of application packet, completion of a 6 month full-time or part-time work assignment, and a written report. Selected topics include social aspects of sustainability.

COMS 195. Internship in Communication Studies.

COMS 199. Special Problems.

COMS 201. Communication Theory. Approaches to the study of human communication. Emphasizes general theories of communication and specific theories of rhetoric, symbolic interaction, information processing, interpersonal communication, small group communication, persuasion, organizational communication, and mass communication. Selected topics include social aspects of sustainability.

COMS 206. Organizational Communication. History, research, and theories in the social, psychological, and structural aspects of organizational communication. Students undertake field studies integrating various analytical approaches. Selected topics include social aspects of sustainability.

COMS 209. Communication and Social Change. Relationship between movement rhetoric, mass media messages and major societal changes and paradigm shifts. Students examine the flow of communication from individual and group "change agents" to the larger population and write a paper which illuminates a contemporary social change in progress. Selected topics include social aspects of sustainability.

COMS 208. Communication and National Development. Role of communication in national development. Examines how communication (government policies, technologies and implementation strategies) can be used in the development of third world nations. Selected topics include social aspects of sustainability.

COMS 209. Communication and Social Change. Relationship between movement rhetoric, mass media messages and major societal changes and paradigm shifts. Students examine the flow of communication from individual and group "change agents" to the larger population and write a paper which illuminates a contemporary social change in progress. Selected topics include social aspects of sustainability.

COMS 210. Seminar in Mass Communication. Concentrated survey of mass media systems and an analysis of theories of media uses and effects. Students are required to conduct library research on a specific media-related topic and to present their findings orally. Selected topics include social aspects of sustainability.

COMS 211. Electronic Media and American Culture. American thought and culture as reflected in and influenced by the content of electronic media. Selected topics include social aspects of sustainability.

COMS 215. Communication and Public Opinion. Examines theoretical foundations of public opinion formation and change and explores current public opinion measurement methodologies. Selected topics include social aspects of sustainability.

COMS 216. Seminar on Contemporary Issues in Intercultural Communication. Various theories, perspectives and approaches to the study of intercultural communication. Selected contemporary issues pertaining to race and culture and their impact on the communication process, especially the multicultural/multiracial consciousness in California in particular, and the U.S. in general. Selected topics include social aspects of sustainability.

COMS 228. Corporate Advocacy and Public Policy. Explores "corporate advocacy" as a kind of rhetorical, persuasive transaction between Corporate America and those in its environment. Seeks to understand corporate America's role in the "policy process" (broadly defined), by analyzing the constituted authority for policy formation, the actual institutions involved in such formation, the interaction between/among these centers of power, the difference between authority and influence between/among these centers of power and influence, and how corporate America uses rhetorical messages to enhance various goals. Selected topics include social aspects of sustainability.

COMS 295. Internship in Communication Studies. Directed work experience in the internship program. Supervision is provided by both the instructional staff and the cooperating agency. Selected topics include social aspects of sustainability.

COMS 299. Special Problems. Individual projects or directed reading open to students wishing to attempt independent work. Some projects include social aspects of sustainability.

COMS 500. Culminating Experience. Completion of a thesis or project approved for the Master's degree. Some projects include social aspects of sustainability.

GPHD 199. Special Problems

ECON 110. Cost Benefit Analysis. Examines the rationale for government provision of goods and services and presents cost-benefit analysis as a method to evaluate public participation in a market economy. Selected topics include economic aspects of sustainability.

ECON 114. The California Economy. Examination of the process of the development of the State's economy as well as analysis of the various public economic issues that are of contemporary concern to Californians. Selected topics include economic aspects of sustainability.

ECON 123. Resource Economics. Analyzes the economic based problem of exhaustion in both renewable and non-renewable resources. Emphasis is given to the optimal use of these resources over time and the effects that various market and non-market factors have on their future availability. Selected topics include economic aspects of sustainability.

ECON 130. Public Finance. Economic analysis of the public sector and its impact on the allocation of resources and the distribution of income. Emphasis given to the economics of government expenditure and taxation. Selected topics include economic aspects of sustainability.

ECON 132. State and Local Government Finance. Analysis of the economics of state and local government finance, with an emphasis on Californias fiscal system. Selected topics include economic aspects of sustainability.

ECON 140. Quantitative Economic Analysis.Examination of the basics of conducting quantitative economic analysis. Included are basic concepts and methods of data analysis and research. Students will examine economic data using spreadsheets, will develop presentation skills, and be introduced to career opportunities. Some data are sustainability related.

ECON 153. Health Economics. Introduction to the field of health economics. Applies the tools of economics to the production of health and health care. Special emphasis on health care institutions, the role of industry, health care reform, and the role of government, in addition to the public provision of care to the disadvantaged. Selected topics include social and economic aspects of sustainability.

ECON 152. Economics of Education. Introduction to the various aspects of the economics of education. Applies the tools of economic analysis to education policy and problem solving. Topics include cost-benefit analysis of education, the signaling vs. human capital debate, race and gender issues in education, education production functions, and financing education at the elementary, secondary, and post-secondary levels. Emphasis placed on individual and social choice in education. Selected topics include social and economic aspects of sustainability.

ECON 170. Public Economics and Regulation. Examination of government regulation of industry in the North American context: transportation, communication, energy, and other industries. Issues include deregulation, public ownership, pricing, and investment. Selected topics include economic aspects of sustainability.

ECON 180. Urban Economics. Economic analysis and appraisal of models of urban development. Includes consideration of the rise of cities, land use, unemployment, poverty, housing, urban renewal, transportation, and the local public sector. Selected topics include economic aspects of sustainability.

ECON 181. Economics of Racism. Economic analysis of the origins and development of racism, focusing mainly on its impact in the U.S. Differing theoretical explanations surrounding racism will be compared and evaluated. Selected topics include social and economic aspects of sustainability.

ECON 190. International Trade.  Analysis of the causes and results of trade among nations. Introduction to modern trade theory is combined with examination of trade instruments and policy analysis. Selected topics include economic aspects of sustainability.

ECON 192. International Finance. Critical examination of the theories and practices of financing trade among nations. International financial and monetary theories focus on how the world and financial system works, given globalization and international economic integration. Selected topics include economic aspects of sustainability.

ECON 195. Economic Internship. Supervised economic-related work experience, research, or teaching assistance to provide an opportunity for the student to apply principles and theories learned in the classroom to the "real world." Selected topics include economic aspects of sustainability.

ECON 199. Special Problems. Individual projects or directed reading. Selected topics include economic aspects of sustainability.

ECON 230. Public Finance. An analysis of the allocation and distribution effects of government expenditures and taxation. Selected topics include economic aspects of sustainability.

ECON 238. Monetary and Fiscal Policy. Analyzes the policies of central bank and fiscal authorities as they relate to full employment and stability of the national economy. Selected topics include economic aspects of sustainability.

ECON 251. Urban Problems, Economics and Public Policy. Historical development, economics and possible policy solutions of the most pressing problems facing central cities and urban areas in the U.S. are presented. Problems discussed include poverty, crime, urban abandonment/suburban sprawl, edge cities, deteriorating infrastructures, and fiscal stress. Selected topics include social and economic aspects of sustainability.

ECON 263. Food Economics. Introduction to advanced economic theory and econometric methods applied to the economics of food with emphasis on food consumption and the complexity of individual food choices. Utilizing cost-benefit analyses and concepts like constrained utility maximization, household production, opportunity costs of time, and information search, implications for a global food system will be derived. We will apply learned concepts to health and environmental concerns by discussing the recent applied economics and policy evaluation literature. Selected topics include environmental and economic aspects of sustainability.

ECON 265. Cost Benefit Analysis . Examination of the theories, foundations, and philosophies of economic welfare. Specifically, the basic techniques of cost-benefit analysis will be presented and applied to various policy issues. Selected topics include economic aspects of sustainability.

ECON 290. International Trade.  Analysis of modern trade theories, their empirical relevance, and the role of multinational firms in the evolution of international trade patterns. Discussion focuses on theoretical and empirical evaluation of trade policy instruments. Various trade agreements are also discussed in the context of economic integration and globalization. Attention is also given to foreign direct investment as a vehicle of globalization and the challenges it poses to both multinational firms and host countries. Selected topics include economic aspects of sustainability.

ECON 299. Special Problems. Individual projects or directed reading. Selected topics include aspects of sustainability.

ECON 500. Master's Thesis. Completion of a thesis approved for the Master's degree. Some projects include aspects of sustainability.

EDBM 117. Foundational Issues for a Multicultural, Pluralistic Society, A. Critical analysis of the purposes and process of public schooling. Examination of the sociopolitical relationship between public schools and society, and between educational theory, culture, community and educational practice. Social, cultural, historical and philosophical foundations of education; learning theories; and ethno-cultural, social, emotional and cognitive development. Candidates examine their attitudes regarding gender, sexuality, race, social class, language, and ability. Candidates develop a philosophy of education for our multicultural and democratic society. Selected topics include social aspects of sustainability.

EDBM 127. Social and Psychological Foundations for Multicultural Secondary Education, A. Critical analysis of the purposes and process of public schooling. Examination of the sociopolitical relationship between public schools and society, and between educational theory, culture, community, and educational practice. Social, cultural, historical and philosophical foundations of education; learning theories; and ethno-cultural, social, emotional and cognitive development. Candidates examine their attitudes regarding gender, sexuality, race, social class, language, and ability. Candidates develop a philosophy of education for our multicultural and democratic society. Selected topics include social aspects of sustainability.

EDBM 128. Foundations for Multicultural Secondary Education, B. Critical examination of the socio-political relationship between California's public schools and its major population subgroups (as defined by culture, gender, social class, language, race/ethnicity, and ability). Candidates critically reflect on the philosophy and practices of schooling in relation to students' culture, family and community; analyze institutional and instructional practices for educational equity; and develop alternative instructional activities based on the principles of multicultural education and English language learning in a democratic society. Selected topics include social aspects of sustainability.

EDBM 220. Multicultural Curriculum, Instruction and Assessment. Explores the common concepts of curriculum development through an examination of alternatives to traditional education models. Educational models representing Afrocentric, Multicultural and Social Reconstructionist, Anti-bias, Anti-racist, Culturally-Relevant and other critical pedagogical approaches will be explored. There will be an emphasis on contemporary programs addressing curriculum, instruction, and assessment issues at the elementary, secondary, and university levels; and an analysis of materials and methods for culturally and linguistically diverse student populations. Selected topics include social aspects of sustainability.

EDBM 245. Advocacy, Change and Community. Focus on learning theories behind and the methods for creating social change. Development of skills needed to differentiate social problems from their symptoms, and to coalesce key community members and agencies toward effecting social change. Additional study of strategies needed to assess the success of change efforts, and how to learn from challenges. Selected topics include social aspects of sustainability.

EDBM 220. Multicultural Curriculum, Instruction and Assessment. Explores the common concepts of curriculum development through an examination of alternatives to traditional education models. Educational models representing Afrocentric, Multicultural and Social Reconstructionist, Anti-bias, Anti-racist, Culturally-Relevant and other critical pedagogical approaches will be explored. There will be an emphasis on contemporary programs addressing curriculum, instruction, and assessment issues at the elementary, secondary, and university levels; and an analysis of materials and methods for culturally and linguistically diverse student populations. Selected topics include social aspects of sustainability.

EDBM 299. Special Problems. Individual projects at graduate level especially for students capable of independent study. Selected projects include social aspects of sustainability.

EDBM 344. Interdisciplinary Curriculum, Instruction, & Assessment for Multilingual/Cultural Secondary. Foundations in developing curriculum, instruction, and assessment strategies in secondary schools (mathematics, history/social science, science, English, and Foreign Language); development of culturally revelant and student centered instruction that counters the systemic challenges in teaching standard-based curriculum. Special emphasis directed toward differentiation that addresses the needs of Multilingual and Multicultural students through the learning cycle-theory, application, and reflection. Modules and activities will emphasize inquiry-based learning, problem-posing education, constructivist teaching principles, and the integration of multiple intelligence across the curriculum. Selected topics include social aspects of sustainability.

EDD 607. Community and Communication in Educational Leadership. Presents theories and frameworks concerning organizational, interpersonal, and cross-cultural communication in educational and community contexts. Includes developing written and verbal skills for specific contexts, including strategic planning, evaluation, presentations, formal and informal texts, technology, crisis management, and public relations. Through research and practical application, enhances communication skills needed for creating inclusive systems and positive results for all stake-holders. Selected topics include social aspects of sustainability.

EDD 608. Diversity and Equity in Complex Organizations. Designed to engage students in self introspection of awareness and advocacy in applying theoretical frameworks and research to promote equitable, excellence in schooling. Students will demonstrate the ability to develop cross-cultural relationships across multiple constituents for the purpose of improving students performance and promoting social justice. Students will develop the capacity to be courageous change agents in assuring academic excellence for all students. Selected topics include social aspects of sustainability.

EDD 614. Issues in Educational Leadership: Synthesis and Application. This problem based seminar integrates the three themes of the program. Includes conducting a review of the literature that will later be integrated into the candidates' proposal. In addition, each student will study and select theoretical frame/s that supports their doctoral topic. Students will also work in teams formed by research interests. They will present findings to classmates in forums that they facilitate and they will critique each other's work. Selected topics include social aspects of sustainability.

EDC 201. Seminar in Community Counseling: Scope, Theory and Process. Explores the practice of community counseling by discussing the most current issues, theories and practices for community work, including its evolution and foundation. Emphasis on practices of diversity, ethics and the role of the counselor as change agent and advocate. Provides understanding of the role of the community counselor, services offered by community agencies and settings offered; examines four facets: direct community counseling, direct client services (outreach), indirect community services (influencing public policy) and indirect client services (client advocacy). Selected topics include social aspects of sustainability.

EDC 203. Seminar in Community Counseling: Advanced Multicultural Counseling . Advanced principles and practices of effective cross-cultural counseling including applicable theories, research, needs assessments, effective implementation and evaluation of models including situational, developmental, and community crisis intervention, and empowerment strategies for practitioners. Additional client characteristics to be explored include the factors of ethnicity, nationality, age, gender, sexual orientation, education, cultural family values, and religious/spiritual values of the individual, family and community. Includes a fieldwork component. Selected topics include social aspects of sustainability.

EDC 210. Multicultural/Ethnic Counseling. Exploration of ethnic and cultural differences to develop or expand awareness, techniques, skills, theories, concepts, and to acquire information necessary to counsel effectively with clients of various ethnic/cultural groups. Students examine their own attitudes, behaviors, perceptions, and biases, and are encouraged to develop their own multicultural approach to counseling. Selected topics include social aspects of sustainability.

EDC 214. Dynamics of Human Development. Overview of theories and research pertaining to the dynamics of human development, including cultural, biological, social, and psychological factors. Particular emphasis will be placed on the relationship of these factors to the field of counseling. Selected topics include social aspects of sustainability.

EDLP 200. Diversity and Equity in Educational Leadership. Designed to synthesize previously obtained knowledge of different cultures/ethnic groups/races and social classes. The primary objective is to provide a learning environment which is conducive to the development of knowledge, understanding, and skills consistent with multicultural education and pluralistic education philosophy. Selected topics include social aspects of sustainability.

EDLP 200B. Diversity and Equity in Educational Leadership. Primary objective is to provide a learning environment conducive to the development of knowledge, understanding and skills consistent with Multicultural Education and pluralistic philosophy. It will examine the advantages and complexities of a strategic approach to school and community relationships. Content will focus on public policy formation; community education role of culturally and linguistically diverse groups; current recommendations and emerging issues as they relate to the role of the school, family, and community in the ongoing debate of school reform. Selected topics include social aspects of sustainability.

EDLP 222. Diversity in Higher Education. Engages participants in a process of inquiry and reflection through self-critique, peer critique, and the dialogical examination of our assumptions, ideas, and understandings that promote intellectual growth. Participants will examine and discuss the literature, research, and discourse concerning theory, policy, and practice about diversity and its relation to higher education. Selected topics include social aspects of sustainability.

EDLP 227. Leading the Way for Student Success: Student and Instructional Services. Participants will explore changing demographics, accountability regarding statewide mandates, reporting regulations, and accreditation, new technology and other factors impacting California's community college student services programs and professionals. Gain an understanding of the philosophy and mission of student services initiatives and programs and student development theory. Examine the role of faculty as leaders in curriculum, instruction and assessment and student success. Understand the purposes and uses of research and technology to address student outcomes, teaching and learning, institutional effectiveness, and decision-making. Selected topics include social aspects of sustainability.

ENGR 1A. Fundamentals of Engineering. Problem solving skills needed in all areas of engineering offered at Sacramento State. Exposure to the different areas of engineering, and understanding of the relationship between them. Students will work in teams and complete hands-on engineering laboratory experiments and projects. Development of effective communication skills by presenting periodic oral and written reports. Selected topics include aspects of sustainability.

ENGR 45. Engineering Materials. Basic principles of mechanical, electrical and chemical behavior of metals, polymers and ceramics in engineering applications; topics include bonding, crystalline structure and imperfections, phase diagrams, corrosion, and electrical properties. Laboratory experiments demonstrate actual behavior of materials; topics include metallography, mechanical properties of metals and heat treatment. Selected topics include aspects of sustainability.

ENGR 70. Engineering Mechanics. Statics of particles. Equivalent systems of forces. Equilibrium of rigid bodies. Centroids, centers of mass and gravity. Analyzes trusses, frames and machines. Friction. Moments of inertia. Fundamental principles of kinematics and kinetics, study of motion and force analysis of particles and rigid bodies. Selected topics include aspects of sustainability.

ENGR 96A. Interdisciplinary Topics in Engineering. Course will enable students to make an informed choice of their engineering majors, engage on interdisciplinary discussions between engineering fields, and equip them with relevant study skills. An introduction to engineering and the fundamentals of problem solving. Distinctions between different disciplines within engineering as well as other similarities. The engineering profession and ethics. Study skills for an engineering education. Selected topics include aspects of sustainability.

ENGR 124. Thermodynamics. Study of thermodynamic principles and their applications to engineering problems. Includes a study of the first and second laws, the properties of pure substances and ideal gas, gas/vapor mixtures, and an introduction to thermodynamic cycles. Selected topics include aspects of sustainability.

ENGR 132. Fluid Mechanics. Lectures and problems in the fundamental principles of incompressible and compressible fluid flow. Selected topics include aspects of sustainability.

ENGR 115. Statistics For Engineers. Application of statistical methods to the analysis of engineering and physical systems. Data collection, characteristics of distributions, probability, uses of normal distribution, regression analysis, and decision-making under uncertainty. Selected topics include aspects of sustainability.

ENGR 112. Mechanics Of Materials. Stresses, strains and deformations in elastic behavior of axial force, torsion and bending members, and design applications. Statically indeterminate problems. Strain energy. Column stability. Selected topics include aspects of sustainability.

ENGR 296A. Quality Management Systems for Engineers. Designed to equip students with understanding of basic terms and definitions related to quality, a brief history and basic quality concepts, understanding measurement systems and tools, understanding differences of quality control (QC), quality assurance (QA) and quality management (QM), getting familiar with the applications of different tools, systems and standards and how to select proper tools for different quality requirements. Understanding basic inspection, auditing, assessment and evaluation techniques. Selected topics include aspects of sustainability.

ENGR 203. Engineering Statistics. Applications of statistics to engineering problems. Collection and analysis of data, sampling methods, design of experiments, probability theory, decision theory, analysis of variance, regression analysis, and mathematical curve fitting. Selected topics include aspects of sustainability.

CM 9. Construction Surveying and Layout. Geomatics and the principles of surveying measurements for distance, direction, and elevation. Special emphasis on the application of surveying skills relevant to the field of construction, including building, bridge, and sitework layout techniques and procedures, establishment of reference line and grade, topographic mapping, and earthwork computations. Selected topics include aspects of sustainability.

CM 199. Special Problems. Individual projects or directed reading. Selected topics include aspects of sustainability.

ME 156. Heating and Air Conditioning Systems.  Theory and design of heating, ventilating and air conditioning for industrial and comfort applications. Topics include refrigeration cycles, heating and cooling load calculations, psychrometrics, solar heating and cooling component, and system design. Selected topics include aspects of sustainability.

ENGL 3M. Introduction to Academic Discourse for Multilingual Students. Offers multilingual students a rigorous introduction to academic discourse at the college level in the areas of critical reading, critical thinking, academic discussion, and the use of academic research. Concentrates on using expository texts as a foundation for analyzing the rhetorical strategies and effectiveness of an argument. Promotes academic discussion and fosters intellectual curiosity and collaboration. Selected topics include aspects of sustainability.

ENGL 120R. Topics in Rhetoric. Offers a rotating series of topics relevant to rhetorical studies, such as digital rhetoric, cultural rhetorics, contemporary rhetorical theories, etc. Introduces students to the theory and practice of the field under consideration. Regardless of the topic, students will explore the major scholarly works of the field and produce writing that analyzes and utilizes the concepts in the area under consideration. Selected topics include aspects of sustainability.

ENGL 180Z. Topics in Multi-Ethnic Literatures. Comparative analysis of two or more ethnic literary and cultural productions with an emphasis on relationships among history, politics, and culture in American, British, or World literatures. Selected topics include aspects of sustainability.

ENGL 199. Special Problems. Individual projects or directed reading. Selected topics include aspects of sustainability.

ENGL 250V. Cultural Studies. Surveys the range of contemporary cultural phenomena and the relevant modes of analysis currently employed in the widespread practice generally referred to as Cultural Studies. Selected topics include aspects of sustainability.

ETHN 11. Introduction to Ethnic Studies. Introduces the diverse institutional, cultural, and historical issues relating to the past and present life circumstances of Asian Americans, Mexican Americans, Black Americans, and Native Americans. Selected topics include social aspects of sustainability.

ETHN 11H. Introduction to Ethnic Studies (Honors). Introduces the diverse institutional, cultural, and historical issues relating to the past and present life circumstances of Asian Americans, Mexican Americans, Black Americans, and Native Americans. Focuses may include leadership, identity development, problem solving skills, community organizing and empowerment. Designed to introduce students to information presented in upper division courses with ethnic studies content. Selected topics include social aspects of sustainability.

ETHN 14. Introduction to Asian American Studies. Introduction to the basic concepts, theoretical perspectives, and research methodologies in comparison to other social science disciplines. The intersection of class, race/ethnicity, and gender of various Asian American and non-Asian American groups will be explored from a socio-historical perspective. Selected topics include social aspects of sustainability.

ETHN 30. Introduction to Chicano/Latino Studies. Introduction to exploring the Chicano/Latino experience in the U.S. An overview of the diverse and multiple experiences of people of Mexico, Cuba, Puerto Rico, Dominican Republic, Central and South America. From a socio-historical perspective, the intersections of class, race/ethnicity, and gender will be explored. Selected topics include social aspects of sustainability.

ETHN 50. Native American Religion and Philosophy. In-depth study into the principles of Native American religion and philosophical thought and the resulting impact of European culture upon the Native American societies. Selected topics include social aspects of sustainability.

ETHN 53. Introduction to Native American Studies. Broad overview to the field of Native American Studies, including history, sovereignty, popular imagery, economic development, literature, philosophy, religion, urbanization, gender, social issues, and cultures of native peoples. Introduction to Native American Studies; recognizes intra-tribal, trans-national, and various historical, cultural, and political relationships, and issues through an interdisciplinary approach. The primary focus will be post 1900. Selected topics include social aspects of sustainability.

ETHN 71. Leadership in the African Diaspora. Provides students with an understanding of the unique contours of leadership throughout the African Diaspora through an interdisciplinary approach to understanding particular problems, necessities and styles of leadership. Examines leaders and leadership roles within the African Diaspora with an emphasis on a variety of positions and contexts in the areas of politics, religion, art, and education, including the international, national, and local community (grassroots) arenas. Selected topics include social aspects of sustainability.

ETHN 96B. Contemporary Issues and Social Change. Generation after generation, university students have been key constituents in movements for social change. From public demonstrations to research studies, colleges and universities afford countless opportunities for students to advocate for a better world. This course explores how students can utilize university resources to explore interests and concerns, hone academic skills and contribute to social change. Selected topics include social aspects of sustainability.

ETHN 100. Ethnic America. Through an interdisciplinary approach, introduces the four major American ethnic groups -Black, American Indian, Chicano, Asian American. Focuses on themes common to all four groups (racism, economic and political oppression) and demonstrates the varied contributions of each culture to American social and economic life. Selected topics include social aspects of sustainability.

ETHN 114. Asian Americans and Globalization. Examination of the Asian American immigration within the context of the larger Asian global migration. Emphasis will be placed on the period from the 16th century to the contemporary Asian global migration. A critical examination of the perspectives on the Pacific region and how the economic, social, political and historical forces affected migration and the formation of Asian global communities. Selected topics include social aspects of sustainability.

ETHN 133. Crosscultural Aging in America. Examines aging crossculturally among ethnic groups in America. Emphasis will be placed on a review of the current literature on aging and ethnicity. Also examines changing roles and values in Black, Hispanic, Asian and Native American families. Selected topics include social aspects of sustainability.

ETHN 141. Politics of the African Diaspora. Examines the social, political, cultural, and economic factors which have been important to the African diaspora. Examines how African people have responded to those factors, both in terms of formal, political thought, and in terms of political movements and political institutions. Examines thought and proactive, comparability to Africa, U.S., Caribbean, Central and South America. Selected topics include social aspects of sustainability.

ETHN 199. Special Problems. Individual projects or directed reading. Selected projects include aspects of sustainability.

ETHN 299. Special Problems/Individual Study. Individual projects or directed reading. Selected projects include aspects of sustainability.

FACS 10. Nutrition And Wellness. Introduction to the basic principles of nutrition and the relationship of the human diet to health. Overview of the nutrition profession, the biological uses of nutrients and tools for dietary planning. Examination of specific issues such as weight loss, sports nutrition, food safety, the diet-disease relationship and global nutrition. Analysis of special nutritional requirements and needs during the life cycle. Evaluation of personal dietary habits using current dietary guidelines and nutritional assessment methods. Selected topics include aspects of sustainability.

FACS 50. The Family and Social Issues. Family structure, systems and functioning in marriage and other partnerships, parenting, work issues, domestic violence, divorce, and remarriage. Focus on social issues including gender, race, ethnicity, and class. Historical and theoretical perspectives on families in America. Introduction to research in family sciences and public policy implications. Selected topics include aspects of sustainability.

FACS 112. Current Topics in Nutritional Sciences. Examination of contemporary and controversial topics in nutrition science and how they relate to nutritional needs of different population groups. Analyzes the research process and evaluation of validity of nutrition research. Lecture, discussion. Selected topics include aspects of sustainability.

FACS 114. Cultural and Social Aspects of Food. Examination of the cultural and social meanings of food, food behaviors and food systems. Emphasis on the regional, ethnic and religious influences on food habits. Study of food production, distribution, and consumption historically and cross-culturally; traditional dishes and nutritional contributions of diets of several cultures. Selected topics include aspects of sustainability.

FACS 117. Community Nutrition. Study of theory, concepts and philosophy affecting nutrition education and services in the community. Introduction to techniques of interviewing and counseling clients. Emphasis on culturally sensitive approaches to dietary assessment, counseling and community nutrition research. Use of a variety of teaching methods to improve nutrition status of the community. Field study involves practical experience in a community nutrition program. Selected topics include aspects of sustainability.

FACS 128. Consumer Technologies and Environments. Study and analysis of technologies, durable goods, and environments in home and workplace and their impact on quality of life. Principles of equipment and product design, selection and safety; space planning; consumer decision making. Examination of issues related to energy management, shelter, housing and access to technology. Selected topics include aspects of sustainability.

FACS 140. Family Resource Management. Management of resources in family systems. Interaction of families with other societal and environmental systems in acquiring and using resources to meet goals and other demands. Selected topics include aspects of sustainability.

FACS 150. Family Stress and Coping: Multicultural Focus. Study of multicultural families and diverse family forms, with a focus on how families function under stress. Family theory and research are applied to the interpretation and analysis of selected literary works. Selected topics include aspects of sustainability.

FACS 199. Special Problems. Individual projects or directed reading. Selected topics include aspects of sustainability.

FACS 222. Advanced Community Nutrition and Nutrition Education. Management of nutrition care for population groups across the lifespan. Perform outcome assessment/evaluation of community based food and nutrition programs. Nutrition policy development and evaluation based on community needs and resources. Selected topics include aspects of sustainability.

FACS 224. Advanced Community Nutrition and Policy. Learn and apply the nutrition care process and to manage nutrition care for population groups. Conduct outcome assessment, planning, implementation, marketing and evaluation of nutrition programs. Apply the research process and critically evaluate nutrition research. Develop an understanding of nutrition policy and resources. Selected topics include aspects of sustainability.

FACS 299. Special Problems. Any properly qualified student may pursue a problem after approval by his/her advisor and the staff member with whom he/she works. Selected topics include aspects of sustainability.

GEOG 1. Physical Geography: The Distribution of Natural Phenomena. Introductory study of the distribution over the face of the earth of selected aspects of climate, plant cover, soils, and landforms and of processes and conditions giving rise to these distributions. The use of maps as communicative devices in comparative analysis and study of distribution and processes.  Selected topics include aspects of sustainability.

GEOG 2. Cultural Geography. Consideration of the diversity of patterns of land use, settlement and movement established and evolved by humans as a result of the interaction of cultural and physical factors; emphasis on student use of maps and other tools of geographic presentation for analyzing the nature, variation and distribution of cultural features of the earth's surface. Selected topics include aspects of sustainability.

GEOG 2H. Cultural Geography - Honors. Consideration of the diversity of patterns of land use, settlement and movement established and evolved by humans as a result of the interaction of cultural and physical factors; emphasis on student use of maps and other tools of geographic presentation for analyzing nature, variation and distribution of cultural features of the earth's surface. Note: This is a special offering designed as part of the G.E. Selected topics include aspects of sustainability.

GEOG 3. Introduction to Maps and Geographic Technologies. Introduction to maps, map concepts, and geographic technologies. Maps are the most effective way to communicate spatial data, and introduces students to the quickly changing world of maps (both hard-copy and digital) and geographic technologies including map and aerial photograph interpretation, spreadsheet operations, introductory statistics, global positioning systems (GPS), Internet mapping, satellite and aerial images, and geographic information systems (GIS) that aid in data collection, analysis, and presentation. Selected topics include aspects of sustainability.

GEOG 11. Laboratory in Physical Geography. Makes the ideas and relationships of introductory physical geography more clear by observation and experiment. Use is made of maps, globes, models, meteorological instruments and records, satellite photos and observations of the local scene. Selected topics include aspects of sustainability.

GEOG 100. Themes In World Geography. Study of the content of geography with a consideration of basic concepts and methods. Emphasis is on patterns and relationships of the elements and manifestations of physical and cultural geography, including both topical and regional discussions. Selected topics include aspects of sustainability.

GEOG 102. Ideas and Skills in Geography. Study and discussion of geographic ideas, including the history of the discipline. Introduction to library resources appropriate to geographic inquiry. Practice in geographic descriptive and analytical writing and research. Extensive use of maps. Required of Geography majors in the junior year. Selected topics include aspects of sustainability.

GEOG 105. Computer Cartography. Preparation of maps and diagrams, emphasizing thematic map design using various mapping and design programs. Detailed study of important map projections. Selected topics include aspects of sustainability.

GEOG 107. Remote Sensing. Aerial photographs and scanned satellite images, emphasis on the former. Topics include the electromagnetic spectrum, cameras, films, image geometry as related to planimetric and topographic mapping, multispectral techniques, and interpretation of imagery, emphasizing land use and landforms. Selected topics include aspects of sustainability.

GEOG 109. Geographic Information Systems. Introduction to GIS, including history and overview of current applications; the nature of spatial data; geographic data structures, acquisition, analysis, and display of geographic data. Lab exercises use various computers and include both raster- and vector-based GIS systems. Selected topics include aspects of sustainability.

GEOG 110. Advanced Geographic Information Systems. Builds on the introduction to the hardware, software and operations of GIS offered with the previous courses, providing the essentials required by a beginning GIS analyst or applications support specialist. Emphasis will be placed on problem solving strategies in the context of GIS projects. Selected topics include aspects of sustainability.

GEOG 111. Elements Of Meteorology. Basic concepts of weather and weather elements: structure and general circulation of the atmosphere, earth's heat and water balance, precipitation, air masses and fronts, air pollution meteorology. Some micrometeorological concepts with application to air pollution, agriculture, and similar problems. Selected topics include aspects of sustainability.

GEOG 117. Landforms. Study of the surface forms of the land with particular attention to their distribution and to the accompanying distribution of natural forces and processes which have brought the landforms into being. Study of landforms in the context of Quaternary environmental change. Identification and analysis of landforms using maps and other spatial data. Selected topics include aspects of sustainability.

GEOG 163. Applied GIS. Introduction to developing a GIS project, including planning, database research, proposal writing, analysis and evaluation. Some data are sustainability related.

GEOG 181. Quantitative Methods in Geography. Introduction to techniques useful in the analysis of spatial distributions and other geographic phenomena: basic aspatial descriptive and inferential techniques, correlation, regression, and spatial inferential techniques. Selected topics include aspects of sustainability.

GEOG 190. Senior Research Seminar in Geography. Writing-intensive capstone course requiring students to complete independent research projects displaying their mastery of geography's content and methods. Projects undertaken in a given semester share a common thematic and/or regional focus. Students use bibliographic, field, spatial analytic, graphic, and verbal skills. Context for projects is provided by a review of the recent history of the discipline. Selected topics include aspects of sustainability.

GEOG 193A. Field Geography: Urban-Metropolitan. Examines the internal structure and external relations of Sacramento as a metropolitan center and of nearby urban communities through field observation and exercises. Emphasis is placed on mapping and interviewing as ways of gaining useful information on urban patterns. Selected topics include aspects of sustainability.

GEOG 193B. Field Geography: Suburban-Rural. Examines competition for land use in suburban Sacramento as urban sprawl overruns less intensive uses. Small towns in the lower Sacramento Valley also examined. Group field trips, interviews, field mapping and discussions. Selected topics include aspects of sustainability.

GEOG 193C. Field Geography: Physical. Survey of selected areas with systematic examination of elements of the natural landscape. Group field trips and individual preparation of reports and consultation with instructor. Selected topics include aspects of sustainability.

GEOG 195. Internship. Supervised work experience in an approved professional environment, working with professionals in public or private organizations. Supervision supplied by a geography faculty member and on-site supervisor. Placements require 4-12 hours per week, depending on units. Note: Open to all Geography majors and minors with permission of supervising faculty member and Department Chair. Selected topics include aspects of sustainability.

GEOG 198. Co-Curricular Activities. Co-curricular activities related to subject matter and concerns of the Geography Department, e.g. students may qualify for credit by providing special tutorial assistance to EOP students or others in introductory courses. Note: May be repeated for up to 6 units of credit. Selected topics include aspects of sustainability.

GEOG 199. Special Problems. Individual projects or directed reading. Note: Open only to students competent to carry on individual work. Selected topics include aspects of sustainability.

GEOG 199A. Geography Special Problems A. Individual projects or directed reading at a beginning level.Selected topics include aspects of sustainability.

GEOG 199B. Geography Special Problems B. Individual projects or directed reading at an intermediate level, ordinarily taken following completion of GEOG 199A. Graded (CR/NC Available) Units: 1.0 - 3.0 Note: Open only to students competent to carry on individual work. Selected topics include aspects of sustainability.

GEOG 199C. Geography Special Problems C. Individual projects or directed reading at an advanced level. Selected topics include aspects of sustainability.

GEOL 5. Geology Of Mexico. Introduction to Geology through examination of aspects of the geology of Mexico. Emphasizes problem-based approach to learning Geology and the process of scientific investigation. Topics include a wide range of geological concepts including plate tectonic setting of Mexico, living with volcanoes: the Mexican volcanic belt, the Mexico City earthquake, issues of water supply, flooding and atmospheric pollution in Mexico City, the Chicxulub crater and geologic time, ore deposits of Mexico. Selected topics include aspects of sustainability.

GEOL 5A. Geology of Mexico Field Trip. Focuses on fundamental geologic concepts as seen from real world examples in Mexico that will be visited during several strategic field stops. Field stops will emphasize a problem-based approach to learning geology and the process of scientific investigation. Topics include a wide range of geological concepts including plate tectonic setting of Mexico, living with volcanoes, the Mexico City earthquake, issues of water supply, flooding, climate change and atmospheric pollution in Mexico City, the Chicxulub meteor impact crater, geologic time, ore deposits of Mexico, and natural hazards. Selected topics include aspects of sustainability.

GEOL 7. Natural Disasters. Examination of earth materials and earth processes through the study of natural disasters. Topics include earthquakes, volcanoes, landslides, floods, tsunamis, hurricanes, tornadoes and meteorite impacts. Selected topics include aspects of sustainability.

GEOL 8. Earth Science. Earth and its neighbors in space. Scientific method and discovery in the study of stars, planets, weather, rivers, glaciers, oceans, rocks, volcanoes, earthquakes, landslides, mountains, drifting continents, the earth in time. Selected topics include aspects of sustainability.

GEOL 8L. Earth Science Lab. Emphasizes scientific methods and systematic laboratory procedures. Includes weather analysis, rock and mineral identification, study of geologic concepts by means of topographic maps, and exercises in astronomy and oceanography. Selected topics include aspects of sustainability.

GEOL 8T. Earth Science Lab for Teachers. Exploration of the solid Earth, its atmosphere and oceans, and the Earth's place in the solar system. Emphasizes learning Earth science through investigation, and uses Earth science to understand the processes of science. Laboratory three hours. Selected topics include aspects of sustainability.

GEOL 10. Physical Geology. Rocks and their mineral constituents, geological processes such as weathering, erosion, glaciation, mountain building, etc., volcanoes, earthquakes, folds, faults, the earth's interior, plate tectonics and earth resources. Selected topics include aspects of sustainability.

GEOL 10L. Physical Geology Lab. Laboratory supplement to GEOL 10. Emphasizes scientific method and systematic laboratory procedures. Identification of common minerals and rocks. Introduction to and analysis of topographic and geologic maps. Selected topics include aspects of sustainability.

GEOL 12. Historical Geology. Origin and geological history of the earth and the evolution of its animal and plant inhabitants. Selected topics include aspects of sustainability.

GEOL 12L. Historical Geology Lab. Supplements GEOL 12. Use of sedimentary rocks, fossils, geologic maps, and structural sections in interpreting ancient environments, tectonic settings, and geologic history. Age relations and correlation of rock and time-rock units. Introduction to fossil identification and biostratigraphy. Selected topics include aspects of sustainability.

GEOL 17. Earth Materials. Properties and identification of minerals and rocks; rock formation and the rock cycle. Field trip. Selected topics include aspects of sustainability.

GEOL 77. Age Of Dinosaurs. Applies the fundamental principles of geology, biology, and ecology to the exploration of the Mesozoic world. Emphasis is placed on the nature and evolution of dinosaurs in the context of the global and regional changes in the Mesozoic ecosystem. Included are considerations of the data, methods, and uncertainties in paleontology and other historical sciences. Selected topics include aspects of sustainability.

GEOL 100. Mineralogy. Introduction to mineral identification by physical and optical properties. Techniques and theory of optical mineral analysis, crystallography and mineral formation. Selected topics include aspects of sustainability.

GEOL 102. Igneous and Metamorphic Petrology. Study of the origin, evolution, occurrence, geochemistry, dynamics and physical characteristics of igneous and metamorphic systems. The laboratory will focus on both hand-specimen and petrographic-microscope studies. Selected topics include aspects of sustainability.

GEOL 103. Sedimentology/Stratigraphy. Compositions, textures, classification, origins and structures of sediments and sedimentary rocks. Hand specimen observation and interpretation. Facies models, classification and correlation of stratigraphic units, subsurface techniques. Lab emphasizes hand specimen and microscope identification and subsurface techniques. Selected topics include aspects of sustainability.

GEOL 105. Paleontology. Biology, evolution, classification and paleoecology of important groups of fossil organisms. Uses of fossils in solving geologic problems.  Selected topics include aspects of sustainability.

GEOL 110A. Structural Geology and Tectonics. Description, analysis and interpretation of geologic structures and tectonic settings. Theory of stress and strain as it pertains to the origin of folds, faults, joints, cleavage, and other structural elements. Laboratory includes techniques of structural analysis such as orthographic projections, stereonets, structure contours, Mohr diagrams, interpretation of maps and cross sections. Selected topics include aspects of sustainability.

GEOL 110B. Structural Geology Field. Field description, mapping and interpretation of geologic structures. Includes techniques of taking detailed field notes, field photography measurement of structures using a pocket transit, geologic map and cross section construction, stereonet analysis, and report writing. Consists of off-campus fieldwork.Note: Fee course. Selected topics include aspects of sustainability.

GEOL 111A. Field Geology. Science and art of recognizing, describing and interpreting geologic features in the field. Lecture and laboratory course on the preparation and use of topographic and geologic maps, stratigraphic and cross sections, compass and GPS instrument. Selected topics include aspects of sustainability.

GEOL 111B. Field Techniques. Introduction to geologic field methods including descriptions of rocks, geologic mapping, observation, interpretation and geologic report writing. Detailed mapping techniques will also be covered; these may include the use of plane table, total station theodolite and global position systems. Consists of off-campus fieldwork. Selected topics include aspects of sustainability.

GEOL 112. Geophysics For Geologists. Introduction to the principal geophysical concepts and techniques useful to geologists in the study of tectonics, the Earth's interior and rresource exploration. Includes the study of seismology, heat flow, gravity, borehole geophysics, electromagnetism and geodynamics. Selected topics include aspects of sustainability.

GEOL 114. Volcanology. Seminar and lecture in physical volcanic processes, interpretation of volcanic deposits, historic eruptions and hazard assessment. Selected topics include aspects of sustainability.

GEOL 120. Surficial Processes. Focused study on the basic forces that drive surficial processes such as wind water and gravity and the role of weathering, sediment transport and deposition on landform and landscape development. A laboratory component will enhance student understanding by solving applied problems as well as develop proficiencies with various geologic tools. Selected topics include aspects of sustainability.

GEOL 121. Geology of California. Regional study of California and certain surrounding areas with regard to geologic development, plate tectonics, economic resources and geologic hazards. Lecture and field trip(s). Fee course. Selected topics include aspects of sustainability.

GEOL 123. Geochemistry. Fundamentals of the geochemistry of Earth materials. Thermodynamics and kinetics of geological environments, silicates and carbonates, major element geochemistry, trace and rare earth element geochemistry, stable and radiogenic isotopes. Applications to studies of aqueous, pedogenic, igneous, sedimentary, and metamorphic environments. Analysis of geochemical aspects of contemporary resource, environmental, and paleoenvironmental problems. Selected topics include aspects of sustainability.

GEOL 125. Metallic Ore Deposits. Origin, geology, and distribution of metallic ore deposits. Introduction to ore minerals. Exploration methods. Field trip. Fee course. Selected topics include aspects of sustainability.

GEOL 150. Computer Mapping in Geology. This course is designed to enhance the mapping skills of geology majors by providing them an opportunity to learn modern computer aided mapping techniques - methods and tools widely used across industry, government, and academe. The course is designed to teach students how to effectively use various tools and mapping software by applying their developing skills in solving a variety of geological problems. This course strategy will help develop both student technical map making and innovative problem solving skills. Selected topics include aspects of sustainability.

GEOL 177. Hawaii Volcanic Field Trip. An investigation and visit to the many interesting volcanic features and eruption activities of Hawaiian volcanism. Topics include tectonics, physical volcanology, and volcanic monitoring techniques. Selected topics include aspects of sustainability.

GEOL 184. Geological Field Trip. 10-day field trip to a region of outstanding geology. Attendance at preliminary meetings is required. Analyzes and interpretation of geologic features is emphasized. Fee course. Selected topics include aspects of sustainability.

GEOL 188. Advanced Geologic Mapping. Advanced principles/methods of geologic mapping, interpretation and geologic report writing for selected field areas in the western United States. Mapping techniques include the use of aerial photographs and global position systems. Consists of on-campus field preparation and off-campus fieldwork. Selected topics include aspects of sustainability.

GEOL 190A. Geology and Tectonic Development of California Seminar. Seminar in the geologic and tectonic development of California. Selected topics include aspects of sustainability.

GEOL 193C. Engineering Geology. Investigates the engineering properties of earth materials, the engineering considerations required to build safe and durable structures on and within the Earth, and problems associated with structures designed and built neglecting physical environmental conditions. Designed to introduce engineering concepts to students who have a competent grasp of general geologic principles and processes. Selected topics include aspects of sustainability.

GEOL 195. Geology Internship. Supervised unpaid work experience in government or industry. Supervision is provided by the faculty instructor and responsible officials in the work situations.Selected topics include aspects of sustainability.

GEOL 197. Advanced Laboratory Techniques for Geology. Supervised individual instruction on techniques applied in geology laboratories for advanced research in mineralogy, petrology, geochemistry, geophysics, and paleontology. Selected topics include aspects of sustainability.

GEOL 198A. Senior Research Preparation. Selection and design of an independent research project. A final written report is required and includes: research proposal, bibliography, and results of preliminary review of the literature. Student must choose a supervising instructor. Prerequisite: Senior status and appropriate courses as determined by a Departmental faculty committee. Selected topics include aspects of sustainability.

GEOL 198B. Senior Research Project. Completion of an independent research project. A final written report is required. Progress reports may be required by the supervision instructor. Presentation of an oral report on the research project during the same semester is required. Prerequisite: Senior status and appropriate courses as determined by a Departmental faculty committee. The proposed project must be approved by the Department committee; instructor permission.  Selected topics include aspects of sustainability.

GEOL 200. Graduate Research Methods Seminar. Developing a research proposal, library and internet searches, seeking external funding, presentation graphics, and publication formats. Students will develop a research project in preparation for thesis requirement. Selected topics include aspects of sustainability.

GEOL 202. Aqueous Geochemistry. Low temperature geochemical reactions in aqueous environments. Chemical kinetics, thermodynamics, mixing and dilution, mineral stability, chemical composition of surface water, stable isotopes. Selected topics include aspects of sustainability.

GEOL 204. Contaminant Hydrogeology. Contaminants and contaminant transport in near-surface environments. Fluid-sediment interaction, fluid partitioning, common geochemical reactions, stability and mobility of groundwater contaminants, multi-phase systems, sampling considerations and overview of analytical techniques. Selected topics include aspects of sustainability.

GEOL 208. Groundwater Modeling. Computer modeling of groundwater systems using 2 and 3 dimensional numerical solutions and common software packages. Topics will include data acquisition, constructing a numerical model, model calibration, flow paths, particle tracking and model output. Selected topics include aspects of sustainability.

GEOL 210. Field Characterization of Aquifer Systems. Advanced field analysis of aquifer systems including aquifer testing (pumping tests, slug tests, step tests), well construction, aquifer characterization and field geochemistry. Selected topics include aspects of sustainability.

GEOL 212. Geologic Remote Imaging. Use of remote imaging in geologic applications. Types of imagery, acquisition, production, processing, and interpretation are covered. Selected topics include aspects of sustainability.

GEOL 218. Applied Geophysics. Advanced field techniques used for geophysical exploration. Data collection and problem solving using resistvity, conductivity, seismic reflection, seismic refraction, gravity, magnetics and borehole geophysical techniques. Selected topics include aspects of sustainability.

GEOL 220. Surficial Processes. Dynamics of geological processes and the landscapes they carve. System thresholds, linked processes, data generation and evaluation that characterize landscape development. Selected topics include aspects of sustainability.

GEOL 223. Geochemistry. Fundamentals of the geochemistry of Earth materials. Thermodynamics and kinetics of geological environments, silicates and carbonates, major element geochemistry, trace and rare earth element geochemistry, stable and radiogenic isotopes. Applications to studies of aqueous, pedogenic, igneous, sedimentary, and metamorphic environments. Analysis of geochemical aspects of contemporary resource, environmental, and paleoenvironmental problems. Selected topics include aspects of sustainability.

GEOL 227. Advanced Hydrogeology. Water budgets, theories of groundwater flow to wells, hydrogeologic regimes, fracture flow, dewatering, salt water intrusion, dating and chemical identification of water. Selected topics include aspects of sustainability.

GEOL 230. Seminar In Geology. Reading, analysis and discussion of the geologic literature on selected topics in geology. Student presentations and reports are required. Selected topics include aspects of sustainability.

GEOL 240. Special Topics. Advanced special topics in Geology that may include structural geology, volcanology, hydrogeology, engineering geology or other specialized topics selected to meet student demand or respond to industry trends in geology. Selected topics include aspects of sustainability.

GEOL 240C. Advanced Volcanology. Analyzes volcanic eruption processes. Interpretation of volcanic deposits in the evaluation of volcanic hazards, risk, eruption processes, and geologic history. Selected topics include aspects of sustainability.

GEOL 275. Quantitative and Numerical Research Methods. Introduction to quantitative and numerical methods of solving geologic problems using high level programming. Selected topics include aspects of sustainability.

GEOL 290. Regional Geology of the Western US. Application of advanced geological concepts in tectonics, stratigraphy, sedimentology, petrology, and volconism to the geologic evolution of the Western United States from Precambrian to present. Field trip. Selected topics include aspects of sustainability.

GEOL 293. Engineering Geology. Takes a geological approach to evaluating engineering issues associated with building with or on natural earthen materials. Rock and soil mechanics, slope stability, geophysical investigation of rock and soil properties. Selected topics include aspects of sustainability.

GEOL 299. Special Problems in Geology. Graduate research. Independent research in geology that may include library research, short-term original research, technique development, fieldwork, or laboratory research. May include research toward thesis proposal. Culminating experience will be in the form of a written report, oral presentation, or scientific paper. Selected topics include aspects of sustainability.

GEOL 500. Master's Thesis. Completion of a thesis approved for the Master's degree. Should be taken in the final semester prior to the completion of all requirements for the degree. Selected topics include aspects of sustainability.

GEOL 199. Special Problems. Individual projects or special studies. The advisor and the faculty member concerned must approve the course. Note: Open only to students judged competent to carry on individual work. Selected topics include aspects of sustainability.

GOVT 35. World Politics. Basic introduction to global politics focusing on a broad range of issues and problems relating to conflict and cooperation among nations, and on similarities and differences among nations' governmental institutions, structures and processes. Selected topics include aspects of sustainability.

GOVT 112. Current Political Thought. Current issues in political thought, with emphasis upon developments in the political philosophies of democracy, fascism, communism, conservatism, liberalism. Ideas are analyzed with reference to assumptions on which they are based and their relevance for political institutions and problems. Selected topics include aspects of sustainability.

GOVT 127. Elements of International Law. While tracing the evolution of historical antecedents, centers upon modern literature in the field. The scope is broad and the problems vary, but among the areas to be studied are: 1) Is international law really law?; 2) historical foundations; 3) international legal institutions and structures; 4) supra-legal international orders, structures, and institutions and their meaning to international law; 5) world order and world law; and 6) an international "Bill of Rights." Selected topics include aspects of sustainability.

GOVT 130. International Politics. Basic junior-level course in International Relations. Current international tensions; the motivating forces influencing world politics; and the role of diplomacy and international organizations in resolving conflicts. Selected topics include aspects of sustainability.

GOVT 131. International Organization. Examines human efforts to create supranational organizations to promote world peace and prosperity. The focus will be on social, political, and economic activities and problems which have developed and proliferated since the end of the second World War. Selected topics include aspects of sustainability.

GOVT 139A. Globalization. Explores the nature of, and issues in, globalization. It does so in five parts. Part I examines alternative conceptions of globalization. Part II identifies and examines the primary forms of economic globalization. Part III considers globalization's effects on the territorial state, the welfare state, organized violence, culture, immigration, gender, and the environment. Part IV investigates the politics of the anti-globalization backlash. Part V concludes with an assessment of the shape and future of contemporary globalization. Selected topics include aspects of sustainability.

GOVT 142. Government and Politics in Africa. Deals with the politics and governments of Africa. The most important themes concern precolonial African systems, colonialism, nationalism and nation-building. Previous exposure to African Studies is desired but not required. Selected topics include aspects of sustainability.

GOVT 143. Causes of War, Causes of Peace. Explores the entire conflict process associated with war from a variety of theoretical and methodological angles, including rationalist and behavioral models. Examines the concept of war and why wars begin. Looks at how violent international conflict is resolved. Investigates the role of the international community in the management of violent conflict, how peace processes are implemented, what leads to successful negotiations, and how war crimes and post-conflict reconciliation issues are resolved. Selected topics include aspects of sustainability.

GOVT 144. Government and Politics in Europe. Study of national and regional politics, governmental institutions and public problems in Europe since 1945. In different semesters there may be investigation of several, but varying, national systems, of cross-national political behavior, or of regional integration processes. May be taken more than once if there are different topics and instructor permission. Selected topics include aspects of sustainability.

GOVT 145. Government and Politics in Asia. Survey of governmental institutions and political processes in East and Southeast Asia. Focuses on the region's politics, dynamic economic growth, complex security context, resurgence of nationalism, and attempts to build multilateral institutions. Selected topics include aspects of sustainability.

GOVT 147. Latin American Government and Politics. Two-part examination of government, politics, political change and political groups in Latin America. Part one examines the development of government, politics, political change and political groups. Part two presents national case studies. Selected topics include aspects of sustainability.

GOVT 148. Governments and Politics in the Middle East. Survey of the governmental institutions and the political processes in the region, with emphasis on the problems of social change. Focuses on the colonial situation, the growth of nationalism, the revolution of rising expectations, Islamic political theory and its contemporary manifestations, the role of the military, and the current regional conflicts. Selected topics include aspects of sustainability.

GOVT 156. Pressure Groups and Lobbying. Examination and analysis of pressure groups and lobbying in the U.S. and California. The nature, role, organization and operation of pressure groups; their techniques and influences in public policy-making and the political process, with emphasis on California lobbying and the legislative process. Representative pressure groups will be studied. Prerequisite: GOVT 1 or equivalent. Selected topics include aspects of sustainability.

GOVT 157. Politics, Opinion, and Participation. How we learn and change our political beliefs, including the influence of media, religion and social standing. The various forms of political participation; who participates and who doesn't and why. The meaning and conduct of elections in the modern era. Selected topics include aspects of sustainability.

GOVT 158. Mass Media and American Politics. Focuses on the role the mass media plays in the political life of our democracy. Five primary topics are covered: the proper media role in a democracy; the relationship between the media, public opinion and agenda setting; the effects of media coverage on campaigns, elections, and voting; how elected officials influence and "spin" coverage; and the impact of media on policy-making. Students will develop critical analysis skills and emerge as more savvy media consumers and citizens. Selected topics include aspects of sustainability.

GOVT 159B. American Politics Seminar: Problems in Democratic Institutions. Examines the concept of representation and how it functions in the U.S. Congress and in state legislatures. In the first section different meanings of representation are discussed. In the second section interactions between legislators and their constituents are explored. Finally, the tradeoffs to different designs of representative institutions are studied. Selected topics include aspects of sustainability.

GOVT 167. American Political Development. Focuses on key transformative sequences in American political history and their consequences. Topics include the nature of American political culture and its role in shaping U.S. political institutions and public policy; the process of government growth or "state building"; the role of political institutions in channeling societal demands and influencing public policy; the nature of American party systems or "regimes" and the electoral "realignments" that link them; and connections between long-term economic and political cycles. Selected topics include aspects of sustainability.

GOVT 170. Public Policy Development. Examines the policy development process in the U.S. by exploring the ideological predispositions of the American public, the analytical approaches applied to policy development and assessment, and the institutional and political environment in which policy is made. Typically, the understanding derived from this examination is applied to several policy issues of current interest. Selected topics include aspects of sustainability.

GOVT 199. Independent Studies. Permits a student to pursue study and research in an area not otherwise available through the regular curriculum. Selected topics include aspects of sustainability.

GOVT 218. Special Topics in International Political Thought. A class examining the philosophical underpinnings and the theatrical problems of central concepts and problems in international relations, including human rights, intercultural dialogue, problems of just war and international justice through a study of historical and contemporary texts open to both advanced undergraduates and graduate students. Selected topics include aspects of sustainability.

GOVT 236. Seminar in International Political Economy. This seminar is a graduate-level introduction to the theory and substance of international political economy (IPE). It examines the various theoretical approaches to IPE; considers the role of trade, money, and finance in the international political economy; analyzes the pattern and structure of global production, with an emphasis on multinational corporations; surveys international development issues, including Third World economic development strategies, the debt crises, structural adjustment, and economies in transition; and investigates the politics of globalization. Prerequisite: An upper division course in the field and/or instructor permission. Cross Listed: IA 221; only one may be counted for credit. Selected topics include aspects of sustainability.

GOVT 239. Globalization and International Relations. Introduction to the theories and substance of globalization. It examines alternative theories of globalization; considers globalization's political impact on the territorial state, regionalism, the welfare state, the military, immigration, and the environment; investigates the politics of the anti-globalization backlash; and concludes with an assessment of the future political trends of globalization.Prerequisite: An upper division course in international relations or instructor permission. Cross Listed: IA 230; only one may be counted for credit. Selected topics include aspects of sustainability.

GOVT 270. Political Behavior and Political Processes: California and Beyond. Course will explore public opinion, voting behavior, representation and political psychology with special focus on California. Selected topics include aspects of sustainability.

GOVT 280. California Politics. Advanced study of California's state and local governments, with emphasis on political history, political institutions, and the role of direct democracy on the state's government, budget and politics. Demographic and geographic elements will be scrutinized through a political focus. California's policy and political process will also be examined, as well as discussion of various political reforms. Selected topics include aspects of sustainability.

GOVT 284. Urban Politics. In-depth exploration of the socio-economic problems of urban and metropolitan areas and an evaluation of proposed political and governmental solutions. Selected topics include aspects of sustainability.

GOVT 294B. Assembly Fellows Policy and Research Seminar. Seminar focuses on current California policy issues through group reading assignments and interaction with practitioners. Students will also prepare a major policy paper for inclusion in the program's annual policy journal. Selected topics include aspects of sustainability.

GOVT 295. Government Internship. Supervised work experience in an approved legislative or administrative office at some level of local or state government, or in a politically-related organization that is concerned with government. Supervision is provided by the faculty instructor and responsible officials in the work situation. Selected topics include aspects of sustainability.

GOVT 299. Independent Study. For advanced graduate students who have demonstrated their ability to carry on advanced, independent research. Permits a student to pursue study and research in an area not otherwise available through the regular curriculum. Selected topics include aspects of sustainability.

GPHD 195. Fieldwork in Graphic Design. Directed observation and supervised work experience in an approved business, government, or service agency. Internships are offered to increase student understanding of the nature and scope of agency operations and giving students orientation in occupational specialties. Supervision is provided by authorized persons in the cooperating agencies and collaborative supervision is provided by the Graphic Design faculty. Minimum of three hours per week per unit of credit is required. Each student maintains a record of activities and assignments and prepares periodic reports. Selected topics include aspects of sustainability.

GPHD 199. Special Problems. Individual projects or directed projects open to students who wish to attempt independent work. Selected topics include aspects of sustainability.

HLSC 112. Disease Prevention. Surveys the current methods of promoting high level wellness through a preventive medicine approach for the promotion of more enjoyable and productive living. Attention directed toward the specific methods of promoting personal health through various current methodologies including the "holistic health" movement. Meets the needs of major students as well as those in allied fields such as nursing, social work and other interested students. Selected topics include aspects of sustainability.

HLSC 114. Human Ecology and Health. Emphasizes the social and natural environmental influences that have a direct impact upon the health of the individual. Primary consideration is directed to an analysis of health as influenced by a person's interaction with his/her environment. Selected topics include aspects of sustainability.

HLSC 117. Global Health. Introduction to the globalization of public health and the critical health issues facing all citizens of the world, with special emphasis on health concerns of developing countries. Topics include global malnutrition, primary health care, maternal and child health, international environmental health, comparative health care systems, epidemiology and international health threats, and sustainable health and development programs undertaken by nongovernmental organizations. Selected topics include aspects of sustainability.

HLSC 118. Community Health. Insights into comprehensive planning for health by community health agencies and organizations in implementing their programs. Selected topics include aspects of sustainability.

HLSC 119. Community Health Education. In addition to the current practice in community health education, examines the philosophical, conceptual and theoretical constructs that serve as a basis for understanding, predicting and facilitating change in health-related behavior. Explores the use of health communication processes, selected instructional media, health planning, community organization techniques, and mass communications in community health education. Selected topics include aspects of sustainability.

HIST 165. American Environmental History. Traces the changing relationship between human society and the natural environment from pre-colonial era to the present. Focuses on the interplay between industrialization and nature, and examines past and present environmental movements.

HIST 166. Popular Culture. Focuses on entertainment and everyday life in America from the beginnings to the present. Enhances the students' understanding of how popular culture reflects and shapes the larger issues and institutions of American life. Selected topics include aspects of sustainability.

HIST 168. Images Of America. Interdisciplinary survey of major events, trends and figures in American history viewed through American literature, visual arts, music and architecture. The arts in America are studied in relation to major ideas, significant personalities and important historical events from the period of the early republic to the present. Selected topics include aspects of sustainability.

HIST 184. California Architecture and Urban History. A survey of the history of California architecture and its impact on the urban environment from Native Americans to the 20th Century. Particular attention will be given to architecture as a statement of social, economic, and political empowerment. Selected topics include aspects of sustainability.

HRS 154. Food, Farming, and the Sacred. Examination of primary sources dealing with the sacred dimensions of food and farming in pre-modern and modern world cultures. Attention paid to sustainable, small-scale farming, and spiritual perspectives that promote and reinforce sustainable food practices. Interested students may receive one additional unit of credit for 20 hours of work with a local organization involved in farming and/or local food distribution through the Community Engagement Center and reflection assignments relating this work to course materials. Selected topics include aspects of sustainability.

HRS 155. Spirit and Nature. Comparative inquiry into the critical connection between religion and nature. Traditional views of selfhood, the sacred, morality and specific ecological issues, such as energy consumption will be examined through representative sources in world religions. Selected topics include aspects of sustainability.

HRS 161. Multicultural America. Topically structured, interdisciplinary introduction to the cultural experiences of historically under-represented groups. Historical and contemporary events, as well as values and beliefs in American culture, are examined through various artistic expressions, such as music, painting and literature. Selected topics include aspects of sustainability.

HRS 162. American Space and Identity. Examination of the ways in which physical spaces within America contribute to the formation of American identities and vice versa. Interdisciplinary and topically organized, analyzes both exterior and interior spaces: city, suburb, regions, body, mind, and the borderlands, to name a few. Also studies the interaction of race, class, gender, and sexuality with space and identity. Selected topics include aspects of sustainability.

HRS 199. Special Problems. Tutorial-reading course involving independent research. Selected topics include aspects of sustainability.

HRS 299. Special Problems. Graduate level tutorial-reading course involving independent research. Topic and research method to be decided upon jointly by student and instructor. Selected topics include aspects of sustainability.

ID 99. Special Problems. Individualized directed projects or reading. Open to lower division students who present an adequately supervised plan of study. The course study should be interdisciplinary in nature and requires the approval of the faculty member under whom the individual work is to be conducted and of the Dean of the College of Social Sciences and Interdisciplinary Studies. Selected topics include aspects of sustainability.

ID 296A. Grant Writing and Management. Designed to provide an understanding of the grant seeking and management process. Seeks to acquaint students with the processes for designing, submitting and managing successful grant funding projects. Prerequisite: Instructor permission. Selected topics include aspects of sustainability.

ID 299. Special Problems. Individual projects or directed reading. Generally involves two or more of the major academic units of the university. Selected topics include aspects of sustainability.

INTD 15. Introduction to Interior Design. Introduction to the field of interior design. Consideration of human factors, aesthetics, design process, furnishings, surface treatments, and current issues. Selected topics include aspects of sustainability.

INTD 124D. Principles of House Design. Introduction to some of the major architectural movements of the 20th Century; discussion of environmental concerns as they relate to house design; study of basic principles in planning a house. Lecture, discussion, field trip. Selected topics include aspects of sustainability.

INTD 155. Professional Practice I. Study of the concepts and the analysis of technical and aesthetic applications of lighting design in both residential and commercial interiors. Lecture, discussion, field trips. Selected topics include aspects of sustainability.

INTD 165. Professional Practice II. Development of selection criteria for interior finishes based on material properties, cost and availability. An introduction to non-structural interior construction including wood and light gauge steel systems will be studied. Additional topics will include MEP systems, ceiling systems, and casework. Selected topics include aspects of sustainability.

INTD 175. Professional Practice III. Study of the professional role of the interior designer in relation to that of the client, contractor and consultants. Legal and ethical issues are explored. Building codes, life-safety codes and ADA requirements are studied with emphasis on permit and plan-check requirements. Preparation for the NCIDQ exam and certification procedures are covered. Selected topics include aspects of sustainability.

INTD 195. Professional Practice IV-Internship. Direct work experience in approved architecture, design, corporate, private or government office. Supervision is provided by both the instructional staff and the cooperating agency. Selected topics include aspects of sustainability.

MATH 26A. Calculus I for the Social and Life Sciences. Limits, differentiation with applications, integration and applications in the Social Sciences and Life Sciences. Selected topics include aspects of sustainability.

MATH 26B. Calculus II for the Social and Life Sciences. Continuation of MATH 26A, integration and applications to the Social Sciences and Life Sciences. Multi-variate analysis including partial differentiation and maximization subject to constraints; elementary differential equations; sequences and series. Calculus of the trigonometric functions as time allows. Selected topics include aspects of sustainability.

MSCI 104. Quantitative Marine Science. Mathematical methods for the analysis of biological, chemical and physical data from the marine environment; experimental design, parametric and nonparametric statistics. Selected topics include aspects of sustainability.

MSCI 105. Marine Science Diving. Skin SCUBA diving course, pool-training culminates in ten ocean dives. Topics covered included diving physics, physiology, diving environments, night diving and research diving. Successful completion gives NAUI and MLML certification. Lecture one hour; laboratory six hours. Note: Not for major credit. Prerequisite: Upper division science major status, thorough physical examination, ability to pass swimming test. Selected topics include aspects of sustainability.

MSCI 175B. Intro To Marine Science. Selected topics include aspects of sustainability.

MSCI 180. Independent Study. Faculty-directed study of selected research problems; open to undergraduate students with adequate preparation. Three hours work per unit. Prerequisite: Instructor permission. Selected topics include aspects of sustainability.

MSCI 285. Seminar in Marine Biology. Seminar will be held on topics changing each semester. Each student will be required to give at least one seminar. Lecture two hours. Note: May be repeated once for credit. Selected topics include aspects of sustainability.

MSCI 285A. Social Biology. Selected topics include aspects of sustainability.

MSCI 285B. Repro+Dev Marine Organism. Selected topics include aspects of sustainability.

MSCI 285C. Recent Adv Deep-Sea Bio. Selected topics include aspects of sustainability.

MSCI 285D. Controversies Modern Biol. Selected topics include aspects of sustainability.

MSCI 285E. Paradigms In Commun Ecol. Selected topics include aspects of sustainability.

MSCI 285F. Appl Moleclr Tech Mar Bio. Selected topics include aspects of sustainability.

MSCI 285G. Aspects Of Deep-Sea Biol. Selected topics include aspects of sustainability.

 MSCI 286. Seminar in Marine Geology. Seminar will be held on topics changing each semester. Each student will be required to give at least one seminar. Selected topics include aspects of sustainability.

MSCI 287. Seminar In Oceanography. Seminar will be held on topics changing each semester. Each student will be required to give at least one seminar. Selected topics include aspects of sustainability.

MSCI 298. Research in the Marine Sciences. Independent investigations of an advanced character for the graduate student with adequate preparation. Note: CSUH students must file a petition with their home campus department before admission to this class. CSU Stanislaus students must file Individual Study forms. CSUF students must file Research Approval forms. Selected topics include aspects of sustainability.

MSCI 299. Master's Thesis. Graded: Thesis in Progress. Selected topics include aspects of sustainability.

MSCI 280. Scientific Writing. Techniques and strategies of scientific writing used for proposals, journal submissions, and abstracts for meetings. Students will develop their writing skills by preparing, editing, and rewriting manuscripts. Selected topics include aspects of sustainability.

MSCI 274A. Electron Micros+Microanl. Selected topics include aspects of sustainability.

MSCI 274B. Geol Central Ca Margin. Selected topics include aspects of sustainability.

MSCI 233D. Immune Respn Marine Orgns. Selected topics include aspects of sustainability.

MSCI 234. Advanced Biological Oceanography. Experimental techniques in biological oceanography with emphasis on problems important to plankton ecology. Includes lectures, labs, and discussions of current research problems. An individual research project involving analytical tools will be required. Selected topics include aspects of sustainability.

MSCI 242. Plate Tectonics. Historical background, modern theory, and geo-physical evidence of continental drift sea floor spreading and plate tectonics. Examinations of the impact of the recent revolution in historical geology. Selected topics include aspects of sustainability.

MSCI 248. Marine Benthic Habitat Techniques. Collection and interpretation of geophysical data used to characterize marine benthic habitats. Basic geophysical principles will be reviewed. Application of techniques to identify and characterize marine benthic habitats, including echosounders, multibeam bathymetry and backscatter, sidescan sonar, seismic profiling, and GIS. Lecture two hours; laboratory six hours. Prerequisite: Graduate standing and instructor permission. Selected topics include aspects of sustainability.

MSCI 251. Marine Geochemistry. Geochemical processes in the oceans: thermodynamics of low temperature aqueous reactions, processes occurring at the sea floor and air-sea interface. Selected topics include aspects of sustainability.

MSCI 261. Ocean Circulation and Mixing. Mathematical description of the distribution of properties (salinity density, etc.) in the oceans relating to physical and biochemical processes. Equations of motion, geotropic method, and theory of distribution of variables. Selected topics include aspects of sustainability.

MSCI 262. Satellite Oceanography. Physical principles of remote sensing with application to the oceans including satellite image processing methods. Labs involve use of PC and Unix workstation. Selected topics include aspects of sustainability.

MSCI 263. Application of Computers in Oceanography. Lecture, discussion and technical programming with MATLAB for computation and visualization with applications in marine sciences. Use of existing program libraries for data I/O and analysis. Semester project required. Selected topics include aspects of sustainability.

MSCI 233B. Sampling+Expermntl Design. Selected topics include aspects of sustainability.

MSCI 175A. Coastal Geol Processes. Selected topics include aspects of sustainability.

MSCI 201. Library Research Methods. Students will gain advanced understanding of the nature of scientific information. Provides the framework for using and evaluating a variety of information sources in marine and ocean sciences. Strong emphasis will be placed on developing critical skills to interweave knowledge of the history of science into the context of bibliographic tools including the digital realm. Selected topics include aspects of sustainability.

MSCI 202. Oceanographic Instrumentation. Principles of instruments used in oceanographic research, introduction to electronics, and applications of instrument measurements. Emphasis will vary from CTD profilers, current meters, radiometry and chemical measurement. Selected topics include aspects of sustainability.

MSCI 204. Sampling and Experimental Design. Discussion of random sampling, systematic sampling, subsampling, survey techniques, and design of single and multifactorial experiments using randomized and block experimental designs: basic design of experiments and field sampling will be covered. Biases and problems of sampling marine biota will be presented and discussed by critiquing relevant literature. Selected topics include aspects of sustainability.

MSCI 141. Geological Oceanography. Study of the structures, physiography and sediments of the sea bottom and shoreline. Selected topics include aspects of sustainability.

MSCI 142. Physical Oceanography. Introduction to the nature and causes of various oceanic motions including currents, waves, tides, and mixing and the Physical properties of seawater. Limited use of calculus. Selected topics include aspects of sustainability.

MSCI 143. Chemical Oceanography. Introduction to the theoretical and practical aspects of the chemistry of the oceans, including major salts, dissolved gases, nutrient ions, carbonate system, transient tracers, and shipboard sampling techniques. Selected topics include aspects of sustainability.

PPA 299. Special Problems. Supervised independent study in public policy and administration. Selected topics include aspects of sustainability.

PPA 500. Culminating Experience. Completion of a thesis or project approved for the Master's degree. Selected topics include aspects of sustainability.

STAT 1. Introduction to Statistics. Descriptive statistics, basic concepts of probability and sampling with the aim of introducing fundamental notions and techniques of statistical inference. Selected topics include aspects of sustainability.

NURS 124. Community Health Nursing - Theory. The contemporary role of the community health nurse is presented within a public health framework, emphasizing the concept of community as client. Didactic content and nursing interventions are related to groups and aggregates that are identified as being at high risk for the development of health problems, as well as assessment of and interventions with communities at risk. Selected topics include aspects of sustainability.

PHIL 2. Ethics. Examination of the concepts of morality, obligation, human rights and the good life. Competing theories about the foundations of morality will be investigated. Selected topics include aspects of sustainability.

PHIL 100. Ethics and Personal Values. Moral concerns of everyday life stressing such features of moral character as right and wrong conduct, virtue and vice, the emotions, attitudes, and personal relationships. Emphasis is on analytical and critical discussion of philosophical theories and competing viewpoints. Selected topics include aspects of sustainability.

PHIL 101. Ethics and Social Issues. Moral controversies that divide society today, such as abortion, the death penalty, affirmative action, sexism, war and peace. Emphasis is on identifying the relevant values and moral principles underlying competing views and subjecting them to rational assessment. Selected topics include aspects of sustainability.

PHIL 104. Bioethics. Ethical dilemmas faced by professionals and patients in the field of medicine, e.g., patient self-determination and informed consent, discrimination in health care, euthanasia, abortion, surrogate motherhood, genetic modification, and rights to health care. Emphasis is on the well-reasoned application of general moral principles to practical medical decisions. Selected topics include aspects of sustainability.

PHIL 105. Science and Human Values. Examination of the values implicit in a scientific culture and the problems that arise as a commitment to the development of scientific knowledge and technology. These problems include: distinguishing good scientific practice from bad; the intrinsic value of scientific knowledge independent of its benefits in application; the proper and improper applications of scientific knowledge. Selected topics include aspects of sustainability.

PHIL 125. Philosophy Of Science. Study of the philosophical problems that arise in the sciences: the nature of scientific reasoning, the limits and styles of explanation, identifying pseudoscience, values in science, unity and diversity of the sciences, and science's impact on our world view. Selected topics include aspects of sustainability.

PHIL 192E. Environmental Philosophy. Will address the following topics: Does the natural world (ecosystems, species, etc.) have only instrumental value for humans, or intrinsic value? How should natural resources be valued, by the market? Cost/benefit analysis? The "takings" issues: What in nature should be private, what public? Institutional problems: Can a sustainable society/planet also be just? Selected topics include aspects of sustainability.

PHIL 192N. Seminar: Naturalism. Examines the significance of naturalism for the history of philosophy and at least four of the following subject areas: ethics, epistemology, philosophy of religion, philosophy of mind, philosophy of science, philosophy of law, philosophy of history, social and political philosophy, metaphysics, and logic. Selected topics include aspects of sustainability.

PHOT 40. Basic Techniques of Photography. Introduction to basic camera and darkroom techniques. Concepts of visual organization, design and using light effectively are emphasized. Selected topics include aspects of sustainability.

PHOT 102. Photography, a Social History. Examines photographic vision and the impact of the medium on society through readings by both photographers and photographic critics. Establishes the importance of photography as a contemporary medium, explores the development of photographic vision and the relationship between photographs and cultural events. Selected topics include aspects of sustainability.

PPA 200. Introduction to Public Policy and Administration. Examines public policy and administration by exploring major policy processes, particularly in California state and local government. Topics include the emergence and specification of issues, developing and selecting policy options, implementing and administering policies and evaluating and terminating public policies. The course approach is comprehensive, transdisciplinary and human centered -- concerned with the interplay of values in shaping policy outcomes. The intent is to provide conceptual frameworks and operational principles required in identifying and resolving issues emerging in public settings. Selected topics include aspects of sustainability.

PPA 251. Urban Problems, Economics and Public Policy. Historical development, economics and possible policy solutions of the most pressing problems facing central cities and urban areas in the U.S. are presented. Problems discussed include poverty, crime, urban abandonment/suburban sprawl, edge cities, deteriorating infrastructures, and fiscal stress. Selected topics include aspects of sustainability.

PSYC 100. Cross-Cultural Psychology. Examination of similarities and differences in human behavior, cognition, and emotion across cultures. Empirical evidence from cross-cultural research in the various areas of psychology, including biological, clinical, cognitive, developmental, social, personality, and industrial/organizational psychology, is evaluated with the purpose of developing a global perspective on the psychological processes underlying human behavior, cognition, and emotion. Selected topics include aspects of sustainability.

PSYC 116. Animal Behavior. Basic principles of animal behavior including the genetic, evolutionary and ecological mechanisms underlying courtship, reproduction, aggression, territoriality, communication and parental behavior; applied aspects of animal behavior; innate or naturally occurring behavior patterns necessary for survival in the natural environment; physiological, social and acquired aspects of animal and, secondarily, human behavior. Selected topics include aspects of sustainability.

PSYC 135. Psychology of Multicultural Groups. Examines the role of culture, race, ethnicity, gender, and social class in human development and behavior within diverse cultural groups. Presents sociocultural and ecological perspectives on human development, i.e., that individuals must be understood in the context of his or her culturally patterned social relations, practices, institutions, and ideas. Selected topics include aspects of sustainability.

PSYC 145. Social Psychology. Empirical examination of the emotion, behavior, and cognition of individuals in social situations. Topics can include: social psychology methods, social perception, social cognition, attitudes, persuasion, social identity, gender identity, prejudice and discrimination, interpersonal attraction, close relationships, conformity, compliance, obedience to authority, helping behavior, aggression, group processes, and social psychology applications. Multiple perspectives discussed. Selected topics include aspects of sustainability.

PPA 100. Introduction to Public Policy and Administration. Explores context and process for policy making by national and California state governments, including ethical dimensions. Applications are developed from students' and instructor's areas of interest including K-12 and higher education, land-use policy, and aging issues such as elder advocacy, Social Security, and Medicaid. Provides background and skills for entry level positions in public or non-profit organizations. Selected topics include aspects of sustainability.

RPTA 30. Recreation, Parks and Tourism in Contemporary Society. Orientation to the nature, scope and significance of the recreation, park and tourism in today's world. Analyzes philosophical and related elements essential to the effective delivery of leisure services, including the role of affective, cognitive and social motivations and outcomes. Selected topics include aspects of sustainability.

RPTA 105. Management in Recreation, Parks and Tourism. Analyzes the functions of managers including planning, organizing, staffing, leading and controlling. Also examines basic principles, techniques and tools associated with these functions. Consideration of internal and external environments which influence the managerial process and the manager's role in various areas of enterprise activity. Selected topics include aspects of sustainability.

RPTA 107. Grant Writing for Leisure Organizations. A detailed examination of grant writing as a means of augmenting agency revenues for specific recreation projects, programs and research. An in-depth assessment of techniques used to source funding opportunities relevant to recreation and leisure agencies. A review of budget preparation and grant management. Selected topics include aspects of sustainability.

RPTA 128. Recreation, Parks and Tourism for At-Risk Populations. Examines how recreation service providers work with diverse segments of the community. Class will examine a variety of populations that have been underserved and that may be at risk. Examines the impact of factors such as racism, sexism, classism, ageism, ableism and heterosexism that affect access to programs and services for diverse populations. Selected topics include aspects of sustainability.

RPTA 136. Program and Event Planning in Recreation, Parks and Tourism. The program/event planning process will be described and explained. Relevant principles and methods will be identified. Students will develop a program/event plan for a local organization. Field trips may be required. Selected topics include aspects of sustainability.

RPTA 137. Community Organization. Study of institutions and leisure service systems within the community, and the dynamics of community organization practices and actions. The role of the recreation and leisure service practitioner in bringing about community changes. Defining and promoting citizen participation through advisory council membership, survey applications, and public hearing attendance. Selected topics include aspects of sustainability.

RPTA 139. Conference and Meeting Planning. Analyzes this varied, growth industry. Considers the range of conferences and meetings, from small corporate retreats to international conventions. Topics include: the scope of the industry, the role of convention centers, hotel and resort based meeting facilities, organizations that hold meetings and the nature of those meetings, meeting planning and the role of the professional planner and industry related careers. Field trips may be required. Selected topics include aspects of sustainability.

RPTA 152. Law Enforcement for Forest and Park Rangers. State, county and federal park rangers and wardens differ from other peace officers in that they are trained to protect visitors and cultural and natural resources on our public lands. This course offers a survey of topics related to the Peace Officer level of rangers across America's diverse public land systems, with an emphasis on career opportunities in park, forest, and wildlife management. Selected topics include aspects of sustainability.

RPTA 186. California Wine Tourism. Introduction to the wine tourism industry in California, with emphasis on wine regions, wineries as event stages, related agri-tourism products, wine destination "pull" factors, and winery retail. The course will also examine wine mythology, the role of the sommelier, wine region geography, wine science, and wine tourism impacts. Selected topics include aspects of sustainability.

RPTA 189. California Wine and Agri-Tourism. Introduction to the wine tourism and agri-tourism industries, specifically in the region surrounding Sacramento. Emphasis on wine regions, wineries as event stages, wine mythology and wine in popular culture. Additionally, the course will cover the role of agricultural festivals, related agri-tourism products, slow-food, specialty crop tourism, winery and farm retail, culinary destinations, wine list creation, ag natural tourism products and the role of agri-tourism as part of Sacramento's cultural identity. Selected topics include aspects of sustainability.

RPTA 299. Individual Study. Individual project, problem, practical study, survey, and/or directed reading on the graduate level. Note: Can be repeated six times for a maximum total of 6 units. Students can enroll for a class that counts as 1, 2, 3, 4, 5 or 6 units. No more than six units of RPTA 295 and RPTA 299 in combination may be used to meet major requirements. Selected topics include aspects of sustainability.

RPTA 500A. Culminating Experience: Thesis. Successful completion of a thesis approved for the Master's degree. Student must have approval from first reader. Selected topics include aspects of sustainability.

RPTA 500B. Culminating Experience: Project. Successful completion of a project approved for Master's degree. Student must have approval from the first reader. Selected topics include aspects of sustainability.

RPTA 195C. Partial Internship: Recreation and Park Management. Supervised part-time or short-term internship in a recreation, park or tourism organization or business. Supervision is provided by faculty and also by personnel at the host site. Note: Refer to the RPTA Internship Manual for procedures and requirements. Selected topics include aspects of sustainability.

RPTA 195E. Internship: Recreation and Park Management. Supervised, full-time internship in a recreation, park or tourism organization or business. Supervision is provided by faculty and also by personnel at the host site. Selected topics include aspects of sustainability.

RPTA 199. Special Problems. Individual projects or directed reading. Note: Open only to students who appear competent to carry on individual work. Selected topics include aspects of sustainability.

RPTA 203. Advanced Administration in Recreation, Parks and Tourism. Examination of contemporary resources, techniques, and tools available to administrators in various types of recreation, parks and tourism delivery systems. Selected topics include aspects of sustainability.

SWRK 95. Introduction to Social Work. Provides an overview of the social work profession and of social welfare systems especially in relation to marginalized populations. Also introduces a generalist perspective to social work practice with emphasis on professional development. Students are exposed to the values and ethics of social work, as well as the important ideologies that have shaped social welfare and social work. Note: Includes a 30 hour volunteer experience to aid in assessing student's appropriateness for the profession. Selected topics include aspects of sustainability.

SWRK 102. Crosscultural Theory and Practice: Issues of Race, Gender and Class. Increase student awareness of social, political, economic, and cultural diversity. Addresses patterns and consequences of discrimination and oppression as well as theoretical and practice content and strategies for social chang

SWRK 125A. Human Behavior/Social Environment: Infancy through Adolescence. Individual development, infancy through adolescence, in the context of the family, community and society. Implications for service and service systems.e. Selected topics include aspects of sustainability.

SWRK 125B. Human Behavior/Social Environment: Adulthood through Aging. Individual development, adulthood through old age, in the context of the family, community and society. Implications for service and service systems. Selected topics include aspects of sustainability.

SWRK 204A. Social Work Practice I. Building on the liberal arts framework and using the ecological model, this course introduces students to generalist social work practice with individuals, families, small groups, organizations, disadvantaged populations, communities, and society. Selected topics include aspects of sustainability.

SWRK 213. Public Child Welfare Practice. Integrates the concepts and skills learned in Advanced Practice, Advanced Policy, and Research courses of the MSW program and applies to the specific client population of public child welfare agencies. Required for Title IV-E stipend students; open to others on basis of space availability. Selected topics include aspects of sustainability.

SWRK 204B. Social Work Practice II. Broadens the ecological perspective to address economic and political issues, social stratification, and racism as they impact practice with at-risk populations; promoting change at multiple levels of intervention. Selected topics include aspects of sustainability.

SOC 3. Social Problems. Introduction to major social problems in the U.S., with an emphasis on systemic problems, such as economic, racism and sexism. Problems in major social institutions such as the family, social services, criminal justice and the environment are also addressed. Selected topics include social and economic aspects of sustainability.

SOC 110. Urban Life and Problems. Takes a political economic approach to urban development, with special emphasis on the roles played by various social groups and institutions. Particular attention is given to the effects of urban growth, oppositional movements to growth and the global developments that affect urban conditions. Selected topics include social and economic aspects of sustainability.

SOC 118. Chicano Community. Analyzes the institutions, norms, values, and traditions of the Chicano community. Included is an examination of the Chicano community's progress in mainstream American life with attention to the effect of ethnocentrism, racism and class. Selected topics include social aspects of sustainability.

SOC 120. Ethnic and Race Relations. Analyzes relations among various racial, religious, nationality, and gender groups as they interact with racism, ethnocentrism and class in the U.S. and the world. Selected topics include social aspects of sustainability.

SOC 122. Immigration Studies. Examines the social phenomena of labor migration, immigration, and transnationalism, and places their origins and development in the context of political-economic national inequalities. Advances an understanding of why societies experience migration, immigration, and transnationalism, and evaluates competing and complementary theoretical frameworks explaining these migratory processes, particularly as they relate to the U.S. Special attention will be given to race, gender, and class relations as impacted by labor migration processes. Selected topics include social aspects of sustainability.

SOC 123. Black Studies in Sociology. Introduces students to the sociological analysis of Black American life in the U.S. -- the complex phenomena of Black issues, emerging theories of race, and the cumulative scholarship on black identity, experience, socio-economic status, and social organization.. Focus is on the original contributions of social scientists to Black Studies in Sociology. Selected topics include social aspects of sustainability.

SOC 125. Social Inequalities. Examination of the ways race, class and gender, as well as the intersection of all three, affect the distribution of valued resources in a society. Other social inequalities such as age, sexual orientation, or nationality, etc. may also be examined. Attention is given to struggles to change or preserve economic and political inequalities.  Selected topics include social aspects of sustainability.

SOC 130. Political Sociology. Analyzes political order and change from the viewpoint of cultural values and the institutional structure of societies. Examines group behavior patterns related to ideology, elites, masses, classes, movements, parties, and other power groups. Surveys differing theories and methodologies for the study of political processes across cultures and societies. Selected topics include social aspects of sustainability.

SOC 137. Sociology of Science. Examines paradigm changes of science in society and how views of science and technology are socially constructed. Analyzes the representations of scientists, scientific inquiry, and technological innovation. Explores the ways in which science has driven social change, and vice-versa. Selected topics include social aspects of sustainability.

SOC 138. Environmental Sociology. Studies human society, the natural environment, and their mutual interactions. Examines environmental sociology at several levels, from the micro level of individual communities to the meso level of government policies to macro theoretical considerations. Analysis of environmental issues in a global context also included. Selected topics include social and environmental aspects of sustainability.

SOC 139. Animals in Society. Examines social relationships between humans and animals as pets, companions, workers, entertainers, and food. Analyzes the representations of animals. Studies our relationships with animals both on the level of social groups and as individuals. Applies sociological approaches to the study of human-animal relationships, including the social movements around animal rights. Selected topics include social aspects of sustainability.

SOC 140. Sociology of Education. Examines the organization and functions of educational institutions; the rise of mass education and changes in educational systems to the present; the role of teachers, parents, and schools in education; the impact of gender, race, and class on educational outcomes and processes. Selected topics include social aspects of sustainability.

SOC 144. Sociology of Health and Illness. Examines the social contexts of health, illness, and medical care. Emphasizes the debates and contrasting perspectives that characterize the sociological study of health and illness. Topics include the social, global, environmental, and occupational factors influencing health and illness; the politics surrounding physical and mental illness; the patient's perspective on illness; ethical issues in medicine as they relate to medical technology; and health care reform. The influence of health status on identity and interaction will also be addressed. Selected topics include social aspects of sustainability.

SOC 146. Sociology of Aging. Analyzes the process of aging in the context of social structure and processes. Specifically, it deals with such issues as the age structure of society, social values and norms that define the aged, social stratification and aging, social institutions and the aged, theoretical and methodological issues in social gerontology. Selected topics include social aspects of sustainability.

SOC 162. Middle Eastern Societies and Culture. Discusses the fundamental aspects of Middle East Societies covering such topics as population, family, women, patterns of living, social stratification, education, economic development, politics and armies in the Middle East. Selected topics include social aspects of sustainability.

SOC 163. Conflict, Oil and Development in the Middle East. Examines in detail the major sources of conflict in the Middle East with special reference to the Arab-Israeli conflict, the arms buildup in the Arabian-Persian Gulf, energy crisis and the multi-national aspect of Middle East oil. Attempts to discuss the impact of these conflicts on the processes of social and economic development. Selected topics include social aspects of sustainability.

SOC 164. Sociology of Globalization. Examines globalization and its effect on local societies, including the impact of globalization on local labor and work practices, the social organization of local firms and business enterprises, local social structures such as gender, class, race/ethnicity, and local social patterns such as consumption and leisure activities. Selected topics include social aspects of sustainability.

SOC 260. Contemporary Issues of the Middle East and North Africa. Discusses in-depth several contemporary issues such as the political dimension of Islam, population growth and food security, oil and development, regional conflict, national integration and forces of modernization, etc. The selection of the topics will depend on current events. Selected topics include social aspects of sustainability.

SOC 238. Environmental Sociology. Examines the complex relationship between human society and its surrounding environment. Theoretical perspectives are complemented by empirical research on environmental issues. Special attention is given to issues relating to the local and regional California environment. Analyzes environmental issues in a global context. Selected topics include social aspects of sustainability.

SOC 220. Seminar: Social Change. Course deals with main theoretical orientations in sociology representing radical, liberal and conservative viewpoints on social change. Examines the historical context of events that affected Western countries such as the Industrial Revolution, French Revolution, and the emergence of nationalism and human rights. Course approach is theoretical, historical and global. Selected topics include social aspects of sustainability.

SOC 265. Race and Ethnic Relations. Examines the social constructs of race and ethnicity as "central organizing principles" in the making and development of our modern world, particularly in the U.S., and how they have interacted with class and gender to create and maintain cultural and material social inequalities. Evaluates competing and complementary theoretical frameworks explaining how race and ethnicity affect individual and group social-structural location (e.g., class position, educational attainment, and political power). Selected topics include social aspects of sustainability.

THEA 199. Special Problems in Theatre. Individual project or directed reading. Note: Departmental petition required. Some projects include aspects of sustainability.

THEA 170. African American Theatre and Culture. Survey of African American theatre and drama as a reflection of African American history and culture from slavery to today. Selected topics include social aspects of sustainability.

THEA 173. Contemporary Chicano/Latino Theatre: Themes and Performance 1965-Present. Study of contemporary Chicano/Latino, Chicana/Latina theatre and drama from 1965 to the present, and its approaches toward performance. The course focuses on new trends, influences and new developments in playwriting, directing, performance styles, and its impact on the movie industry. Selected topics include social aspects of sustainability.

THEA 174. Multicultural Perspectives in American Theatre. Study of the historical and artistic contributions of Native Americans, Chicano/Latinos, African-Americans and Asian-Americans to American Theatre. Focuses on a range of plays from various ethnic and racial groups, forming a multicultural classroom experience; specifically study groups, from 1965 to the present, and examine the cultural, sociological and political climate in which these plays were created. Selected topics include social aspects of sustainability.

THEA 175. Multicultural Perspectives in American Film. Study of the historical and artistic contributions of Native American, Chicano/Latino, African-Americans and Asian American to the American cinema. The course will concentrate on a range of films with an emphasis on multicultural theoretical and critical writings and will examine the cultural and socio-political climate in which these films were crafted. Selected topics include social aspects of sustainability.

THEA 500. Culminating Experience. Completion of a thesis, directing project, or playwriting project. Prerequisite: Advanced to candidacy and permission of the graduate coordinator. Graded: Thesis in Progress. Selected topics include social aspects of sustainability.

WOMS 147. Women's Global Issues. Provides a historical overview, as well as in-depth studies of the similarities and differences in feminist developments from an international perspective. Examples will be drawn from industrialized democracies, centrally planned socialist states, and third world countries. Pluralistic trends in feminist development within countries will also be examined with a view to understanding the differential impact of gender based discrimination on different categories of women. Selected topics include social aspects of sustainability.

**List of Sustainability Courses:**

Note: Course numbers greater than 199 are graduate level courses.

BIO 1. Biodiversity, Evolution and Ecology. Introduction to properties of life and cells leading to genetic and biological diversity. Survey of biological diversity emphasizing variation leading to natural selection; introduction to ecological concepts within an evolutionary framework; a survey of ecosystems and global climate change. Development of scientific skills will be emphasized.

BIO 9. Our Living World: Evolution, Ecology and Behavior. Designed for non-majors, this course is an introduction to the biological science behind important issues that face us today, such as those surrounding evolution, endangered species, conservation of ecosystems, and the behavior of organisms. By gaining an understanding of the scientific approach and the principles of evolution, ecology and behavior, students will be equipped to evaluate scientific developments and arguments in these and other issues as informed citizens.

BIO 102. The Natural History of Plants. Major plant communities of California provide a framework for understanding the interrelationships of natural environments and the dominant trees and shrubs of these areas. Identification of these species and the wildflowers of the communities are emphasized in the lab and field trips.

BIO 103. Plants and Civilization. Study of the significance of plants in the development of human civilization. Emphasis will be placed on the botanical, sociological and economic aspects of plants useful to humans.

BIO 112. Plant Taxonomy. Spring flora of central California is used as the focus of study in the classification and identification of native vascular plants.

BIO 113. Evolution and Speciation in Flowering Plants. A survey of the important tools and mechanisms used to study speciation in plants. Topics include the molecular basis of evolutionary change, intraspecific genetic variation at both the local and landscape levels, theory regarding mechanisms of speciation, and the importance of polyploidy. Readings will be from both a text and from the primary literature, and will include in-depth discussions of historical and modern studies in plant evolution.

BIO 118. Natural Resource Conservation. Introduction to the principles and practices of biological conservation. Historical development of conservation philosophy; current issues in conservation of renewable natural resources; conservation administration.

BIO 157. General Entomology. Biology of insects and a brief consideration of other terrestrial arthropods. Includes structure, physiology, ecology, classification, economic importance, collection and preservation of insects.

BIO 160. General Ecology. Examination of the interrelationships among organisms and their environments. Designed for the major in Biological Sciences or related fields. Topics include the structure and function of terrestrial and aquatic ecosystems, population and community dynamics and human effects on ecosystems.

BIO 162. Ichthyology: The Study of Fishes. Biology of fishes: structure, physiology, ecology, economic importance, propagation and classification. Methods of identification, life history study, propagation, collection and preservation.

BIO 164. Amphibians and Reptiles: An Introduction to Herpetology. Taxonomy, natural history, ecology and distribution of amphibians and reptiles with emphasis on local forms.

BIO 166. Ornithology. Biology of birds: structure, physiology, ecology, behavior, and classification. Methods of life history study, ecological studies, laboratory and field identification.

BIO 168. Mammalogy. Biology of mammals: structure, physiology, ecology, behavior, classification. Methods of life history, laboratory and field identification, collection and preservation.

BIO 169. Animal Behavior. Introduction to the fascinating world of why animals do the things that they do. Focus is on the evolution and function of animal behavior through understanding the costs and benefits of different behavior including foraging, fighting and reproduction.

BIO 178. Molecular Ecology. A survey of the use of molecular tools to understand ecological questions. Lecture will focus on the background and history of the use of molecular tools in ecological settings, including application of molecular tools to conservation of natural resources. Laboratory will include techniques for both wet lab and analysis of molecular data, including interpretation of results. Students will complete a capstone-style project that will culminate in the production of a research proposal.

BIO 179. Principles of Wildlife Management. Principles for analyzing, controlling and manipulating wildlife populations and/or the ecological factors of their habitat.

BIO 188. Evolution. General survey of evolutionary processes: mechanisms of evolutionary change, adaptation and history of life.

BIO 194. Biology-Related Work Experience. Supervised employment in a biology or biology-related company or agency arranged through the Department of Biological Sciences and the Cooperative Education Program office. Requires preparation of application packet, completion of a three to six month, full-time or part-time work assignment, and a written report. Note: Open only to upper division or graduate students with appropriate preparation.

BIO 195. Biological Internship. Supervised work-learn experience in biology with a public or private organization.

BIO 214. Advanced Plant Ecology. Fundamental properties of plant populations; population regulation; community productivity and structure; a study of ecotypic and ecoclinal variation in plant populations.

BIO 221B. Methods in Ecology, Evolution and Conservation. Introduction to research methods in ecology, evolution and conservation biology. Students learn field and laboratory techniques with a variety to taxa in a range of local ecosystems. Students will work with several faculty conducting research projects. Topics will include developing hypotheses, experimental design, study implementation, and statistical analyses. Students will be expected to present findings in oral and written form.

BIO 260. Advanced Ecology. Principles and applications of theoretical and field ecology as they apply to populations, communities and ecosystems.

BIO 269. Behavioral Ecology. Advanced study of animal behavior focusing on the life history consequences of social organization, spacing systems, sexual behavior, reproductive ecology, feeding ecology, competitive interactions and predator-prey interactions.

BIO 273. Advanced Fishery Biology and Management. Critical review and evaluation of current techniques and concepts relating to the management, protection, and improvement of fishery resources. Lecture three hours. Prerequisite: BIO 173 or instructor permission.

BIO 279. Conservation Biology and Wildlife Management. Critical review of applications of ecological and wildlife-orientated theory in conservation biology research. Exploration of key topics and issues in conservation of organisms, with emphasis on vertebrate animals and plants.

BIO 283. Biogeography. Study of the past and present plant and animal distributions, and the geologic, climatic and ecologic factors involved in their migration, establishment and extinction.

BIO 294B. Seminar in Ecology, Evolution and Conservation. Review and discussion of scientific literature in ecology, evolution, and conservation biology.

ENGR 105. Sustainable Design and Construction. Strategies, analysis methods, and processes of environmentally conscious planning, design, construction, operation, deconstruction, and assessment of engineered facilities. Presents a systematic framework for problem solving, decision making, design, and construction using the principles of sustainability as guiding objectives. Tools, and techniques for gathering information, generating, analyzing, and evaluation alternatives, and developing implementation strategies are presented and demonstrated.

CE 1A. Civil Engineering Seminar. Introduces students to civil engineering as a profession. Topics include the technical disciplines (environmental, geotechnical, structural, transportation, and water resources), the role of civil engineers in planning, constructing and operating infrastructure, and professional responsibilities such as licensure and ethics. Case studies are used to explore both technical and nontechnical aspects of civil engineering projects such as design and environmental constraints, constructability, and social and political issues.

CE 137. Water Resources Engineering. Hydrologic and hydraulic fundamentals which are common to water resources projects; introduction to reservoirs, dams, pipelines, channels, hydraulic machinery, ground water, water rights, statistical analysis, engineering economy applications, and water resources planning.

CE 138. Hydrology. Introduction to hydrologic engineering design. Precipitation analysis, hydrograph and flood routing applications for civil engineering. Groundwater hydrology including quality problems in development of subsurface water resources. Statistical applications in hydrology.

CE 139. Open Channel Hydraulics. Civil engineering design problems in open channel flow. Model design, pressure problems, design application of hydraulic analysis in structures, transitions, culverts, weirs and spillways. Channel design including roughness for subcritical and supercritical flow. Analyzes and design problems in steady, uniform, gradually and rapidly varied flow.

CE 146. Civil Engineering Professional Practice. Introduction to the legal and business environment of professional engineering practice, including legal responsibilities of professionals, ethics, risk and liability, types and use of contracts, specifications, the construction bid process, and environmental responsibilities. Elements of engineering organizations such as business economics, human resources, and project management.

CE 148. Transportation Systems. Transportation systems evaluation and management. Focus on transportation planning methods, including data analysis, estimation of future demand, evaluation of travel demand impacts on existing systems, and transportation system decision-making.

CE 170. Principles of Environmental Engineering. Introduction to the principles and practices of environmental quality management. Physical and chemical principles affecting environmental quality. Water and air quality parameters, their importance, and natural processes that affect them. Introduction to treatment processes and waste management. Environmental ethics.

CE 171A. Soil Mechanics. Composition and properties of soils; soil classification; soil compaction; soil-water interaction, including permeability and seepage analyses; soil stresses; soil compressibility, consolidation, and settlement analysis; soil shear strength.

CE 172. Design of Urban Water and Sewer Systems. . Hydraulic design of water distribution and sewerage systems. Computer-assisted pipe network analysis. Analysis of pump systems. Pump station design. Other selected topics.

CE 173. Design of Water Quality Control Processes. Analysis and design of selected physical, chemical, and biological facilities for water purification and wastewater treatment. Emphasis is on design based on loading factors and integration of unit processes into treatment systems.

CE 181. Geoenvironmental Engineering Equilibrium distribution of contaminants among air, water and solid phases of soil systems; analysis and modeling of soil vapor extraction (SVE), pump and treat, and soil washing systems; movement of gasses in landfills; infiltration through landfill cover; geosynthetic liner systems; hazardous waste containment systems.

CE 250. Systems Analysis of Resources Development. Investigation of resource planning using the "systems approach". Objectives of resource development; basic economic and technologic concepts, and economic factors affecting system design. Consideration of evaluation, institutional constraints, and uncertainty in water resources systems. Familiarization with modern computer techniques. Applications of concepts to air and land resources.

CE 251. Water Resources Planning. Application of single and multi-objective planning to the design and operation of water resources projects. Objectives and constraints for water projects, criteria and procedures for evaluation, planning under uncertainty. Application in water development and water quality planning, with case studies.

CE 252A. Environmental Quality Processes I. Theory and practice of chemical processes affecting water quality. Chemical equilibrium, stoichiometry and kinetics of aqueous chemistry. Acid-base, precipitation-dissolution, oxidation-reduction, and coordination chemistry. Adsorption.

CE 252B. Environmental Quality Processes II. Theory and practice of biological processes for controlling water. Stoichiometry and kinetics of microbial growth. Aerobic and anaerobic metabolism. Engineered suspended and attached growth systems. Introduction to sludge treatment.

CE 252C. Environmental Quality Processes III. Theory and practice of physical and chemical processes used in engineered water and wastewater systems. Adsorption, ion exchange, gas transfer, membrane processes, coagulation, flocculation, sedimentation, filtration, precipitation, disinfection, and stripping. Physical/chemical reactors.

CE 254. Water Quality Management. Examination of pollution sources and effects on water bodies, and the management issues and tools used to protect environmental quality. Topics include point and nonpoint pollution sources, interactions in the environment, Federal and State laws, water quality objectives, beneficial uses, and regulatory mechanisms such as basin plans and total maximum daily loads (TMDLs). Emphasis is on surface water.

CE 296D. Stormwater Management. Principles and practices of stormwater management. Physical and chemical principles affecting stormwater quality, environmental effects, and treatment. Regulatory purposes and requirements for managing construction and post-construction runoff. Choosing and designing Best Management Practices. Erosion control. Hydrologic and hydraulic design of small drainage systems. Emphasis on California climatic and regulatory conditions.

ME 121. Solar Thermal and Energy Storage Systems. Study of solar thermal heat and power and energy storage including the characterization, theory, operation, analysis and modeling of solar thermal and energy storage systems.

ME 122. Geothermal and Bioenergy Systems. Study of geothermal and bioenergy systems including the characterization, theory, operation, analysis and modeling.

ME 123. Wind, Hydro and Ocean Energy. Study of wind, hydro and ocean energy systems including the characterization, theory, operation, analysis, modeling, planning impacts and design process.

ME 154. Alternative Energy System. Study of alternative energy technologies, such as renewable fuels, wind, solar, oceanic and geothermal power. Concentration on fundamental thermodynamic principles, modern design features and non-technical aspects of each technology.

ME 157. Solar Energy Engineering. In-depth study of the basics of solar engineering, including the nature and availability of solar radiation; operation, theory and performance of solar collectors; energy storage and model of solar systems.

ECON 120. Economics and Environmental Degradation.

ECON 162. Energy Economics. Analyzes the structure, conduct, and consequences of domestic and international energy markets. Particular emphasis on regulated industries including petroleum, electrical, and other power sources. The economic impact on energy markets of emerging technology is examined. Selected topics include social, environmental, and economic aspects of sustainability.

ENVS 10. Environmental Science. Course looks at the earth as an ecosystem composed of biological, chemical, and physical systems. Focus is on the interaction of these systems with each other and with human population, technology, and production. Students should acquire the fundamentals of a scientific understanding of the ecological implications of human activities. Specific topics treated within the context of ecosystem analysis include energy flows, nutrient cycles, pollution, resource use, climate changes, species diversity, and population dynamics. Graded: Graded Student.

ENVS 10H. Honors Environmental Science. The earth as an ecosystem composed of biological, chemical, and physical systems. Focus is on the interaction of these systems with each other and with human population, technology, and production. Students should acquire the fundamentals of a scientific understanding of the ecological implications of human activities. Specific topics treated within the context of the ecosystem analysis include energy flows, nutrient cycles, pollution, resource use, climate change, species diversity, and population dynamics. Students read important original research on topics. All students participate in a semester long project that applies the principles of the course to a real environmental issue.

ENVS 11. Environmental Issues and Critical Thinking. Examines Western cultural values and personal beliefs toward the environment. Teaches critical thinking skills to analyze issues to make informed choices that may impact the earth, its resources and their management as consumers, leaders, professionals and moral agents.

ENVS 21. First Year Seminar: Becoming an Educated Person. Introduction to the nature and possible meanings of higher education, and the functions and resources of the University. Designed to help students develop and exercise fundamental academic success strategies and to improve their basic learning skills. Provides students with the opportunity to interact with fellow classmates and the seminar leader to build a community of academic and personal support.

ENVS 110. Contemporary Environmental Issues. Examination of a variety of environmental issues with emphasis on the social aspects of the problems and solutions. The class is conducted primarily through discussion, with an unusually high degree of student responsibility. Group and individual projects are designed to involve students in community affairs as well as to give them an opportunity to develop a personal perspective on environmental issues.

ENVS 111. Environmental Ethics. Consideration of how human beings should act with regard to the non-human natural world in the context of complex societal needs. Students will use critical thinking skills to integrate insights from the sciences, social sciences, and humanities to make ethical decisions.

ENVS 112. International Environmental Problems. Global perspective on current problems of environmental protection and resource use. Population growth, food production, industrialization, technology and cultural change are considered, with heavy emphasis on the social dynamics of environmental problems. A variety of political views is studied, and an attempt is made to develop a perspective useful to students in personal and political decisions.

ENVS 120. Quantitative Methods for Environmental Science. Research tools and methods used by environmental professionals including selected statistical procedures, data sources and presentation and interpretation of results. Students will become familiar with the wide range of equipment available to fit their special needs including the computer time-sharing system.

ENVS 121. Field Methods in Environmental Science. This field course includes the direct observation of human impact on specific environments and examples of mitigation strategies. Students will learn information gathering and data presentation methodologies useful in environmental impact assessment. Lecture three hours per week; one-day and weekend field trips will be arranged.

ENVS 122. Environmental Impact Analysis: CEQA and NEPA. Review of legislative and judicial requirements for environmental impact analysis. Students will be asked to review actual project environmental impact reports, analyze the methods employed, understand the relationship of the report to the planning process, and prepare such a document.

ENVS 124. Social Justice in Interdisciplinary Perspective. Examines the nature and forms of social justice and injustice. Addresses key philosophical and theoretical models and debates over the meaning of social justice, using historical and contemporary examples to highlight important concepts and controversies. Faculty from different departments within SSIS, and occasionally from other colleges, will address how their discipline understands and analyzes issues of social justice. Students will be encouraged to critically assess the assumptions of various perspectives on social justice, and to address the relationship of academe and social activism in achieving social justice. Prerequisite: Sophomore standing or instructor permission.

ENVS 128. Environment and the Law. Introduction to environmental law, including: the evolution of environmental legislation, environmental issues in the court system, environmental regulation and administrative law, and environmental torts. Emphasis is on understanding legal process and the special challenges environmental problems present to the legal system.

ENVS 130. Environmental Toxicology. Focuses on the aspects of toxicology which enable us to study and explore environmental issues concerning human and ecosystem health. It will explore the impact of human activity since World War II in contributing to human disease and ecosystem disruption. Risk perception and communication as it concerns environmental toxicology will also be discussed.

ENVS 138. Introduction to Environmental Sociology. The study of human society, the natural environment, and their mutual interactions. Examines environmental sociology at several levels, from the micro level of individual communities to the meso level of government policies to macro theoretical considerations. Analyzes environmental issues in a global context also included.

ENVS 144. Sustainability in the Tropics. Examines environmental issues specific to the tropics, where 40% of the global population now lives and the bulk of future population growth will occur. Emphasis is placed on the uniqueness of tropical ecosystems in terms of climatic, geologic, pedological, and biological diversity; traditional, colonial, and modern industrial agricultural and forest management systems; and sociocultural and political aspects of environmental issues.

ENVS 149. Agroecology. Ecological aspects of the production of food and fiber, with emphasis on the sustainability and adequacy of the global food supply to meet the needs of a growing, urbanized population. Covers topics basic to all agricultural systems - soil development, fertility, irrigation, nutrient cycles, crop selection - while contrasting methods developed for large-scale industrial food production with traditional and/or organic farming methods.

ENVS 151. Restoration Ecology. Overview of concepts and practices in restoration ecology, emphasizing the application of ecological principles to restoration design, implementation, and monitoring. Major course topics will include historical ecology, soils and hydrology, plant and animal ecology, exotic species, endangered species concerns, mitigation, monitoring, planning, and assessment as they apply in a restoration context. Students will work in local restoration projects; field trips required.

ENVS 158. Wetlands Ecology. Introduces and discusses characteristics of wetland systems; principles of wetland ecology; functions of wetlands; and regulations and permitting process regarding development near and within wetlands. Appropriate for students planning careers in natural resource management. Though not a substitute for professional training in wetlands delineation and functional assessment, students will gain a basis for such assessments. Familiarity with basic principles of chemistry, physics, and biology recommended. Note: Field trips required.

ENVS 163. Ethnoecology. Evaluates sustainable management of ecosystems by local indigenous people, using traditional resource management, traditional ecological knowledge and Western science. Familiarizes students with the fields of ethnobiology, ethnoecology, and historical ecology. Students learn about the relationship between people and plants, with a focus on how traditional plant knowledge reflects and is reflected by environmental perceptions.

ENVS 165. American Environmental History. Traces the development of the changing relationship between human society and the natural environment. Focuses on changing attitudes and behaviors toward the environment from the pre-colonial era through the present. Also examines the relationship between industrialization and the technological revolution and nature and examine past and present conservation and environmental movements.

ENVS 171. Environmental Politics and Policy. Politics of human interaction with land, air and water. Political analysis of agenda setting, policy formation and administration (national, state and local) of environmental programs. Focus on contemporary issues such as energy alternatives, management of toxics, land development, and pollution control. Course also substitutes for ENVS 128. Prerequisite: instructor permission.

ENVS 175. Aquatic Pollution Assessment. Examines both the negative and positive impacts that anthropogenic effects have on groundwater, streams, and lakes by utilizing the application of field sampling techniques and laboratory analysis currently used to assess pollution impacts. Introduces the interrelationships among plants, animals and environmental factors within polluted aquatic ecosystems. Emphasizes laboratory and field procedures used in strategies taken to assess and manage these impacts.  enrollment; or instructor permission.

ENVS 186B. Ecological and Environmental Issues Seminar. Series of at least 10 seminars in ecological and environmental issues. Topics with each seminar will vary each semester. Note: May be repeated for credit. No more than one unit of ENVS 186B may be counted toward the upper division major requirement.

ENVS 187. Environmental Studies Seminar. Students will participate in the semester-long University seminar and will be exposed to a variety of environmental issues and topics presented by speakers from CSUS, the USGS, government and professional organizations, among many others. Topics include issues such as climate change, water use and conversation, environmental sustainability, environmental policy and decision-making, and many important regional issues.

ENVS 190A. Environmental Policy Thesis. Seminar on the political process involved in dealing with environmental problems. Includes consideration of the interaction of citizen organizations, government agencies, corporations, and interest groups.

ENVS 190B. Environmental Quality and Social Justice Thesis. Explores social conflict involved in the pursuit of environmental protection, with special emphasis on the way environmental problems are related to questions of race, ethnicity, gender, class and neighborhood or locality.

ENVS 195. Environmental Studies Internship. Supervised work experience in an approved legislative or administrative office at some level of local, state or federal government, or in a public or private organization that is concerned with the environment.

ENVS 195M. Mini Internship. This introductory work experience is designed for sophomores and juniors. The student must complete 45 hours of environmentally related work in a volunteer position with an environmental organization or participation in an environmentally focused event.

ENVS 199. Special Problems. Individual projects or directed reading. Note: Open only to students who are competent to carry on individual work. Admission requires permission of the Director and the faculty member who will direct the work.

ENVS 295. Practicum. Graduate internship experiences in practical setting. Note: Open only to graduate students specializing in environmental studies.

ENVS 296. Experimental Offerings in Environmental Studies. Courses offered on an experimental basis.

ENVS 299. Special Problems: Individual Study.

FACS 110. Food Production and Sustainability. Study and laboratory experience in planning, procuring, production, serving and evaluation of food for individuals, families, commercial, and institutional foodservice operations. Application of menu development techniques such as recipe modification and standardization to various target populations. Examination and application of marketing analysis and promotion. Understanding of current issues and sustainability topics related to food production.

GEOG 5. Violent Weather/Changing Atmosphere. Introduction to meteorological and climatological principles and concepts. These principles will be used to examine severe atmospheric phenomena, including hurricanes, tornadoes, thunderstorms, lightning, destructive winds, severe storms, heat waves, droughts and floods, particularly in relation to human-caused climate change and the effects of these phenomena on humanity.

GEOG 113. Climate. Study of the distribution of heat and moisture over the earth's surface. Basic processes by which heat and moisture acquire unequal distributions in space and time. Classification of climate. Climatic change. Climate models.

GEOG 115. Biogeography. Introduction to the geographic distribution of life. Communities and biomes, changing continents and climates, dispersal, colonization, extinction, life on islands, and past and present human impacts are examined. Note: Field trip required.

GEOG 116. Global Climate Change. Study of past climate change and the techniques with which they are reconstructed. Focus on the various temporal scales at which climate change operates. Spatial variability of past, present and future climate changes. Anthropogenic climate change in the context of natural climate variability.

GEOG 129. Special Topics in Regional Geography. Geographic survey of a selected region with emphasis on its physical environment and selected economic, demographic, political, and cultural patterns. Consideration may also be given to the region's connection with other world regions and its role in current political events. The specific regional focus will be identified by the Geography Department at the time the course is scheduled.

GEOG 131. California. Study of landforms, climate, vegetation, population distribution and change, industry, transportation, water, energy, and agriculture in California.

GEOG 141. Geography of Economic Activity. Spatial organization of man's activities related to production, exchange and consumption. Attention is given to resource development and the areal variations of factors affecting it, to concepts of spatial interaction and to spatial aspects of agricultural, industrial and urban land use. An examination of problems related to regional economic development. Changing perceptions of spatial organization of economic activities is also considered. Emphasis is on both theoretical framework and case study applications.

GEOG 143. Environmental Hazards and Society. Focuses on how a place's social systems and physical systems intersect to create hazards. Considers the development of various theoretical approaches to hazards; risk perception and societal responses to hazard events; the history of U.S. disaster response; and approaches to risk/vulnerability assessment.

GEOG 145. Population Geography. Spatial patterns of population numbers and characteristics; migration and spread of ideas; potential for economic and cultural developments.

GEOG 147. Urban Geography. Consideration of cities as centers of human activity from the rise of urban life in the Old and New Worlds to the present day patterns of metropolis and megalopolis. The functions and interactions of cities in Earth's limited space and on Earth's limited resources are studied historically and crossculturally. Also examined are changing perceptions of the urban phenomenon and attempts to enhance the quality of urban life.

GEOG 148. Urban and Regional Planning. Introduction to the theory and practice of urban and regional planning. Topics include the history of planning, the development of comprehensive and land use plans, growth management, and transportation and environmental planning. Includes guest speakers from the planning community as well as the opportunity to work on a project with a community organization or government agency to put into practice what is discussed in class.

GEOG 149. Transportation Geography. Explores the geography of transportation using both theory and applications, quantitative and qualitative methods. Topics include the history and economic importance of transportation systems for all major modes; their political, social, and environmental aspects; and basic analytical methods, including accessibility dynamics, network analysis, and spatial interaction models. Focus will be on the U.S., with frequent reference to local issues, though material will be drawn on from around the world.

GEOG 161. California's Water Resources. Study of the location and nature of the state's surface and underground water, including development by government agencies, water needs of cities, farms, recreation and wildlife, implications of water rights, water marketing and conservation, and management of floods, droughts and pollution.

GEOG 194. Geography - Related Work Experience. Supervised employment in a company or agency doing geography-related work, arranged through the Department of Geography and the Cooperative Education Program office. Requires preparation of application packet, completion of a 3-6 month full- or part-time work assignment, and a written report. Units not applicable to the Geography major.

GEOG 118. Earth Transformed. Explores the evolving human role in transforming Earth's physical environments. Topics range from prehistoric extinction's to modern environmental problems in select regions. Emphasis is placed on wide-ranging effects of resource use and disposal, with particular reference to atmosphere and biological problems and sustainable solutions.

GEOG 121. United States and Canada. Present distribution and historical development of population, land use and industry in the U.S. and Canada in relation to regional variations in the physical environment and cultural heritage.

GEOG 125. Geography Of East Asia. Geographic setting and nature of Far Eastern civilization; origins, development and present outlines of settlement; cultures, resource use, economic structures, population, levels of technological achievement, and land use in China, Japan and Korea.

GEOG 127. Geography Of Africa. Emphasis is on sub-Saharan Africa with consideration given to selected topics such as population problems, industrialization, regional groupings, transportation, and internal and external relationships.

GEOG 128. Geography Of Europe. Survey of Europe with emphasis on its physical environment, contemporary demographic, economic, and ethnic patterns, and the changing political landscape. Consideration will also be given to Europe's historic and present-day links with other world regions, and to the geographic basis for many of the social, political, economic, and environmental challenges facing contemporary Europe.

GEOL 127. Hydrogeology. Presents fundamentals of groundwater flow, as influenced by topography and geology; geological aspects of groundwater supply, contamination, remediation, and protection of hydrogeological regions of the U.S. and their critical groundwater issues. Laboratory, homework and field exercises will be included.

GEOL 130. Oceanography. Survey of geological, physical, chemical and biological oceanography including the sea floor; waves, tides, currents; the physical and chemical properties of seawater and their distribution in the sea; planktonic life and its relation to nutrients.

GEOL 140. Geology and the Environment. Applies geologic data and principles to situations affecting our environment. The geologic study of earthquakes, volcanoes, floods, landslides, groundwater and similar topics supplies the background data for lectures on land use and other social choices. Topics such as geopolitics and mineral supply provide a basis for understanding international politics, social costs, and world economics.

GEOL 171. Petroleum Geology. Introduction to the origin, migration, and accumulation of hydrocarbons in the context of stratigraphic and structural systems. Exploration and production of both conventional and unconventional resources. Lecture three hours. Field trip.

GOVT 128. Environment and the Law. Introduction to environmental law, including: the evolution of environmental legislation, environmental issues in the court system, environmental regulation and administrative law and environmental torts. Emphasis is on understanding legal process and the special challenges environmental problems present to the legal system. Cross Listed: ENVS 128; only one may be counted for credit.

GOVT 169A. Science, Technology, and Politics. Social and political dimensions of science and technology. Examines how science and technology both shape politics and are shaped by politics. Considers the role of scientific advisors in government and society; dilemmas of expert authority and bias; relations between experts and non-experts; science and technology in popular culture; science and technology policy; implications of emerging technologies such as genetic engineering and the Internet for civil rights, moral values, and democracy.

GOVT 171. Environmental Politics and Policy. Politics of human interaction with land, air and water. Political analysis of agenda setting, policy formation and administration (national, state, and local) of environmental programs. Focus on contemporary issues such as energy alternatives, management of toxics, land development, and pollution control.

MSCI 103. Marine Ecology. Field-oriented introduction to the interrelationships between marine and estuarine organisms and their environment with emphasis on quantitative data collection and analysis.

MSCI 112. Marine Birds and Mammals. Systematic, morphology, ecology and biology of marine birds and mammals.

MSCI 113. Marine Ichthyology. Description of the taxonomy, morphology, and ecology of marine fishes. Both field and laboratory work concentrate on the structure, function and habits of marine fishes and the ecological interactions of these fishes with their biotic and abiotic surroundings.

MSCI 124. Marine Invertebrate Zoology I. Field oriented introduction to the structure, systematics, evolution, and life histories of the major and minor marine phyla.

MSCI 125. Marine Invertebrate Zoology II. Field oriented introduction to the structure, systematics, evolution and life histories of the minor marine invertebrate phyla.

MSCI 131. Marine Botany. Introduction to the plants of the sea, marshes, and dunes, with emphasis on the morphology, taxonomy and natural history of seaweeds and vascular plants.

MSCI 135. Physiology of Marine Algae. Physiological basis for understanding the adaptation of marine algae to their environment. Topics include respiration, enzyme activity, and biochemical composition. Hands-on experience in basic electronic instrumentation, chemical separations, optical measurements, culturing methods, and radioisotope techniques.

MSCI 144. Biological Oceanography. Ocean as an ecological system. Emphasis will be on the complexity of organismal-environmental interaction of the plankton, the transfer of organic matter between trophic levels and nutrient cycles. Laboratory sessions will include methods in sampling, shipboard techniques, identification of the plankton, and current analytical techniques.

MSCI 208. Molecular Ecology: Concepts and Methods. Use of genetic information affecting interactions of organisms with environment. Lectures on molecular markers used to assess diversity in communities, characterize spatial/temporal variation in species composition, assess genetic variability in populations, discriminate/reveal kinship among individuals, and detect/quantify gene expression important in organismal responses to environmental fluctuation. Basic molecular methods (DNA and RNA isolation/amplification/cloning/sequencing) taught. Students projects as budget permits. Enrollment limited.

MSCI 211. Ecology of Marine Birds and Mammals. Community approach to the ecology of marine birds and mammals using experimental and sampling methodology; examine the distribution, abundance, trophic ecology, and behaviors of birds and mammals in Elkhorn Slough and Monterey Bay.

MSCI 212. Advanced Topics in Marine Vertebrates. Advanced consideration of the ecology, physiology and phylogeny of fishes, birds, reptiles or mammals, emphasizing current literature and research. Topics and emphasis will vary with term and instructor. Lecture two hours; laboratory six hours. Note: May be repeated once for credit. 0

MSCI 212A. Adv Ichthyology.

MSCI 212B. Ichthyoplankton.

MSCI 212C. Marine Bird+Mammal Ecolgy.

MSCI 212D. Sampling+Expermntl Design.

MSCI 221. Advanced Topics in Marine Invertebrates. Advanced considerations of the ecology, physiology and phylogeny of the various invertebrate phyla emphasizing current literature and research. Topics will vary from term to term.

MSCI 221A. Marine Symbioses. Graded: Graded Student.

MSCI 231. Biology Of Seaweeds. Lecture-discussions in algal development, reproduction, and ecology. Extensive reading of original literature. Ecologically oriented individual research projects involving laboratory culture and field experimentation. Lecture two hours; laboratory six hours. Prerequisite: MSCI 131 or instructor permission.

MSCI 233A. Adv Marine Ecology. Graded: Graded Student.

MSCI 233C. Coastal Ecology-Gulf of California. Field-oriented examination of the interrelationships between intertidal and shallow subtidal organisms and their environment in the Gulf of California, Mexico. Information from lectures and review of primary literature on the ecology of the region will be used to write a research proposal.

MSCI 271. Population Biology. Principles of the interaction among marine organisms that result in the alteration of population structures. Techniques for assessment and management of populations. Lecture two hours; laboratory three hours.

MSCI 272. Subtidal Ecology. Ecology of nearshore rocky subtidal populations and communities with emphasis on kelp forests. Lectures and discussions of original literature. Field work with SCUBA including group projects on underwater research techniques and community analysis, and individual research on ecological questions chosen by the student. Lecture two hours; laboratory six hours. Prerequisite: MLML diver certification and marine ecology (knowledge of marine algae, invertebrates, and statistics recommended).

MSCI 274C. Chem Of Marine Pollution.

MSCI 274D. Global Change.

MSCI 281. Coastal Dynamics. Addresses the oceanographic dynamics of coastal environments, within an emphasis on eastern boundary current systems influenced by coastal upwelling. Focuses on how physical and geological oceanography interact with each other and how both affect coastal ecosystem dynamics.

PPA 250. California Land Use Policy. Examines public policies that influence land use. Reviews tools of land use planning and development and applies them to issues that dominate California policy choices including urban design, fiscalization of land use, sustained growth, and the challenges of social equity.

PPA 252. Sustainable Development and Building Practices. Students receive a practitioner's perspective on sustainable development and green building practices from leaders in private commercial real estate and state/local government sectors who share their expertise in a round table format with student participants. Invited speakers may include private urban developers, brown field redevelopment experts, local planning practitioners, national experts on urban sprawl, affordable housing experts, elected officials, finance professionals, leaders in the green building arena, transportation planners, and market consultants.

RPTA 42. Recreational Use of Natural Resources. Examines strategies for the use of natural resources for recreation and leisure purposes in a variety of settings and under the auspices of various agencies and enterprises. Includes study of various outdoor settings, conflicting use demands, agency responsibilities, environmental considerations and fiscal implications; and the integration of these elements into a functional program and/or recreation resource management plan.

RPTA 150. Ecology Of Resource Areas. Study of the fundamentals of ecology, silvics, soil science and manipulations of an ecosystem with emphasis on the whole biota as it relates to outdoor recreation areas. Designed to provide an understanding of the scientific basis for and the operational rationale of manipulation of natural resources for a variety of recreation uses.

RPTA 202. Policies, Issues, and Problems in Recreation, Parks and Tourism. Major environmental and recreational issues and problems affecting the recreation, parks and tourism field are discussed, analyzed, and evaluated. Ramifications involving policy making and planning processes of major federal, state, and local agencies involved with recreation, parks and tourism delivery services are also covered.

RPTA 204. Advanced Research Methods in Recreation, Parks and Tourism. Provides an analysis of major research methods used in recreation, parks and tourism administration. Addresses basic and applied research orientations, research designs, research proposals, data collection tools and methods, data analysis, and reporting of research findings.

RPTA 207. Grant Writing for Recreation, Parks and Tourism Organizations. A detailed examination of grant writing as a means of augmenting agency revenues for specific recreation projects, programs and research. An in-depth assessment of techniques used to source funding opportunities relevant to recreation and leisure agencies. A review of budget preparation and grant management.

RPTA 202. Policies, Issues, and Problems in Recreation, Parks and Tourism. Major environmental and recreational issues and problems affecting the recreation, parks and tourism field are discussed, analyzed, and evaluated. Ramifications involving policy making and planning processes of major federal, state, and local agencies involved with recreation, parks and tourism delivery services are also covered.