

**LMU Sustainability Focused & Related Courses 2017-2018**

Code	Department	Course Name	Course Description	Focused	Related
BIOL	Biology	102 General Biology II	An introduction to the mechanism of evolution; major patterns of biotic evolution; and the principles of ecology.		Y
BIOL	Biology	112 General Biology II Lab	An experimental approach to biology with emphasis on design, execution, and analysis to answer biological questions.		Y
BIOL	Biology	114 Biology For Engineers	This course addresses fundamental concepts and language of biology. Topics include cell biology, genetics, organ systems, ecosystems, organisms, and engineering applications.		Y
BIOL	Biology	311 Plant Interactions	Study of various ways in which plants interact with other organisms, such as herbivores, pathogens, symbiotic bacteria and fungi, and the outcomes of that interplay. Examination of the physiological, biochemical, and genetic bases of these interactions and how understanding the chemical and molecular communication that takes place has implications for improvement of agriculture and human health.		Y
BIOL	Biology	318 Principles Of Ecology	An exploration of the interactions between organisms and their biotic and abiotic environment across population, community, and ecosystem levels.		Y
BIOL	Biology	321 Urban Ecology	An analysis of the dynamic and integrated nature of urbanized landscapes. Using active inquiry and the original literature, the course will engage the current theories and practice of the research being conducted on the patterns and process of urban ecosystems-ranging from biodiversity and trophic dynamics, to public health and environmental justice.	Y	
BIOL	Biology	322 Urban Ecology Lab	An inquiry-based investigation into the biophysical and human social dimensions of a local urban ecosystem, with a focus on group project development. At least one Saturday trip.	Y	
BIOL	Biology	333 Biology of Mammals	Examination of physical, physiological, and ecological characteristics of mammals, including taxonomic relationships, feeding and reproductive strategies, and local and world distribution of mammalian orders and families.		Y
BIOL	Biology	370 Plant Biotechnology	Biotechnology is a broad discipline in which biological processes, organisms, cells or cellular components are exploited to develop new technologies. Plant biotechnology employs a wide range of tools, including traditional breeding techniques and genetic engineering, to create plants with improved traits--more productive crops, more nutritious foods, and the production of biomaterials, medicines, and bioenergy. Principles of genetics, molecular biology, genomics, biochemistry, plant cell and tissue culture, and agronomy are employed to develop these novel technologies. We will discuss methodologies used to produce these plants, the genes that have been introduced to crop plants, and commercial product development. The course will also address concerns associated with plant biotechnology, including food safety, ecological risks, and resistance.		Y
BIOL	Biology	380 Tropical Marine Ecol Lab	Field studies of the tropical marine habitats in Isla Roatán, Honduras. This includes the examination of the ecology and biology of coral reefs, mangroves, seagrass beds, and intertidal communities.	Y	
BIOL	Biology	398 Special Studies	Applied Plant Ecology		Y
BIOL	Biology	422 Marine Biology	Examination of the physical, chemical, and biological patterns and processes that shape life in the oceans.		Y
BIOL	Biology	437 Plant Development	Biochemical, molecular, and genetic approaches to the study of pattern and tissue formation, embryogenesis, germination, flowering, photosynthesis, and plant-microbe interaction.		Y
BIOL	Biology	438 Plant Development Lab	Laboratory experiments in plant developmental biology.		Y
BIOL	Biology	460 Environmental Microbiology	Introduction to the diversity of microorganisms and their role in ecological and environmental processes in soil, water, and air; environmental services provided by microorganisms; and how microbial functions are utilized in managed and artificial systems.		Y
BIOL	Biology	490 Biological Teaching	Guided teaching of undergraduate laboratories.		Y
BIOL	Biology	528 Invertebrate Conservation Research	Participation in research on topics in invertebrate conservation biology. Research may include ecological and/or genetic approaches and methodologies.		Y
BIOL	Biology	566 Plant Research	Participation in laboratory and/or field research on the ecophysiological response of plants to environmental extremes.		Y

BIOL	Biology	567 Plant-Microbe Interactions Research	Participation in research investigating the association between microbes and plants.		Y
BIOL	Biology	571 Conservation Biology Seminar	A survey of topics relating to the conservation of animals and plants, including extinction, genetic aspects, demography, insularization, threats to biodiversity, economics and politics, religious and ethical perspectives, and practical applications.	Y	
BIOL	Biology	585 Issues In Biotechnology Seminar	An interdisciplinary seminar series bringing together faculty from different disciplines to present and discuss topics in biotechnology. Examples include sustainable agriculture, advances in medicine and biotechnology, legal and ethical considerations and biotechnology, the environment and biotechnology, the manipulation of biological machinery (proteins), the fusion of engineering and biotechnology (nanotechnology), the business of biotechnology.		Y
BADM	Business Administration	3020 Economic Environment, Marketing, And Business Law Concepts	This is a basic course in economics, marketing, and business law which will give the Business Administration minor student an introduction to the three subjects. After taking this course, the student will be prepared to take more advanced courses in the various subjects covered.		Y
BADM	Business Administration	3040 Management And Society: Issues In Strategic And Ethical Management	Management and Society is an introductory course which covers the role of business in our society and the principles of management and organizational behavior. Basic concepts such as the role of management (focused on planning, organizing, leading, and controlling) and theories of organizations will be explored while considering the impact on and involvement of stakeholders, the importance of ethics, influence of business-government relations, issues in corporate governance, and the significance of long-term sustainability.		Y
BADM	Business Administration	4950 Business And Social Responsibility In The Global Economy	This is an applied course that focuses on the interactions of business, government, and societal institutions. Particular attention is directed to such topics as economic systems, stakeholder management, political and legislative process, sustainability, and corporate governance. Themes of ethics, social responsibility, and leadership will be emphasized. There are two specific goals: 1) The student grasps the broad issues of corporate social responsibility and 2) The student develops decision making skills needed to lead a corporation to productive solutions.		Y
CHEM	Chemistry	250 Earth Systems	An introductory exploration of how the Earth works. Focus is placed on connecting the Earth systems - the solid Earth, atmosphere, oceans, and biosphere - through the cycling of chemical elements and energy. The course will also discuss significant anthropogenic impacts to the natural Earth system.		Y
CHEM	Chemistry	270 Frontiers of Science	Study of the methods of inquiry used across the disciplines in science. Development of scientific literacy through discussion of important public issues such as energy, medicine, the environment, and climate change.	Y	
CIVL	Civil Engineering	320 Introduction to Environmental Engineering	Introduction to elements of water treatment, water pollution control, solid and hazardous waste disposal, and air pollution control. The interrelationships of the movement of pollutants between the land, air, and water media are discussed.		
CIVL	Civil Engineering	400 Fundamentals Of Water And Wastewater Treatment	Fundamentals of water and wastewater treatment systems; water and wastewater characteristics, analysis and design and conventional water treatment systems and physical, chemical, and biological processes for wastewater treatment.		
CIVL	Civil Engineering	406 Water Resources Planning And Design	Flood control hydrology including rainfall, unit hydrographs, flood frequency analysis and flood routing. Development of surface and groundwater supplies, reservoir yield and operation, determination of water requirements, analysis of water supply.	Y	
CIVL	Civil Engineering	410 Soil Mechanics	Physical and mechanical properties of soil, consolidation, settlement of structures, shear strength, analysis of earth pressures, bearing capacity, slope stability, flow through porous media, and open-ended design problems.		Y
CIVL	Civil Engineering	460 Civil Engineering Design	An integrated senior design experience which utilizes knowledge from the civil engineering curriculum. In addition to the technical aspects, the designs consider costs, sustainability economics, and environmental factors. Class lectures include discussion of the design process, environmental impact, engineering and professional ethics, the engineering profession, professional practice issues, the role of the engineer in the construction process, and procurement of engineering work. Student project reports and presentations are required.		Y

CIVL	Civil Engineering	511 Hydraulic Analysis and Design	Design and analysis of hydraulic structures and pump stations; rainfall-runoff models; determination of reservoir storage; unsteady flow and water hammer; flood routing techniques; sediment transport.		Y
CIVL	Civil Engineering	531 Principles Of Water Quality Management	Review of the basic parameters used to describe water quality. Fundamentals of aquatic interaction in natural systems and fate of pollutants in the natural environments. Basic water and wastewater treatment systems.	Y	
CIVL	Civil Engineering	554 Surface Water Hydrology	N/A		Y
CIVL	Civil Engineering	598 Special Studies	Construction Mngmnt & LEED		Y
CIVL	Civil Engineering	603 Engineering Sustainability And LEED	Introduction to the role of engineers in sustainability with focus on the modern engineer's role on design. Topics include environmental impacts, sustainable construction, recycled water and desalination, renewable energy, and management and conservation techniques. Additionally, the course prepares students in Leadership in Energy and Environmental Design (LEED) with the overall goal for them to receive LEED Green Associate credentials.		Y
CIVL	Civil Engineering	607 Hydraulic Analysis and Design	Design and analysis of hydraulic structures and pump stations; rainfall-runoff models; determination of reservoir storage; unsteady flow and water hammer; flood routing techniques; sediment transport.		Y
CIVL	Civil Engineering	640 Physical & Chemistry Treatment Processes	Theory and practice of the physical and chemical treatment processes to treat water and wastewater including flow equalization, preliminary treatment, grit removal, primary sedimentation, filtration, floatation, adsorption, ion exchange and membrane separation, air stripping, precipitation, chemical oxidation and disinfection.	Y	
CIVL	Civil Engineering	641 Biological Treatment Processes	Theory and practice of biological treatment of wastewater and wastewater residuals including activated sludge, biotower and fixed film systems, oxygen transfer, secondary clarification, nutrient removal, aerobic and anaerobic digestion, composting, oxidation ponds, and wetlands.		Y
CIVL	Civil Engineering	654 Surface Water Hydrology	Study of the elements of the hydrologic cycle, rainfall, streamflow, infiltration, evapotranspiration, snowmelt, hydrographs, probability, river and reservoir routing, runoff determination using the rational method and hydrograph methods.		Y
CIVL	Civil Engineering	698 Special Studies	Sustainable Engineering and Infrastructure		Y
ECON	Economics	4740 Economic Development	This course is about global poverty, with a focus on the market failures that often characterize countries in the developing world and the solutions that countries have adopted to deal with these failures. We will explore how missing or incomplete markets for land, insurance, and credit give rise to the institutions that we see in developing countries, particularly in rural areas. Evidence about important policy debates, such as the role of industrialized countries in the development process, will be discussed in detail.		Y
ENVS	Environmental Science	101 Introduction To Environmental Science	Introduction to the study of environmental science. Examination of issues and problems associated with the environment including examples from air, water, and soil pollution and some remediation strategies.	Y	
ENVS	Environmental Science	250 Earth Science	An introductory exploration of how the Earth works. Focus is placed on connecting the Earth systems-the solid Earth, atmosphere, oceans, and biosphere-through the cycling of chemical elements and energy. The course will also discuss significant anthropogenic impacts to the natural Earth system.		Y
ENVS	Environmental Science	279 Principles Of Environmental Sustainability	This course explores the reality that the most difficult and enduring challenges are not merely technical but also social and institutional. An introduction to the basic science behind key environmental issues is provided along with tools for analyzing the social and institutional underpinnings of environmental conflict, and strategies to move towards sustainability.	Y	
ENVS	Environmental Science	300 Engineering Geology	Atmospheric, aqueous, and igneous agencies; river and marine deposits, glaciers, earth movements, volcanoes, earthquakes. Emphasis placed on factors affecting engineering projects; field trips.		Y
ENVS	Environmental Science	357 Environmental Chemistry I	A study of chemical processes in the environment. Topics include stratospheric ozone depletion, the greenhouse effect, climate change, air pollution, and non-renewable sources of energy.		Y
ENVS	Environmental Science	358 Environmental Chemistry II	A study of chemical processes in the environment. Topics include renewable sources of energy, water chemistry, water purification, sewage treatment, pesticides, solid waste, soils and sediments.		Y

ENVS	Environmental Science	359 Environmental Chemistry Lab	Analysis to determine pollutants found in air, water, soil systems; emphasis on the use of instrumental methods and techniques.		Y
ENVS	Environmental Science	398 Special Studies	Climate Change, Health, Food	Y	
ENVS	Environmental Science	490 Environmental Science Teaching	Guided teaching of undergraduate laboratories.	Y	
ENVS	Environmental Science	491 Environmental Science Capstone I	Work on a research project within the field of environmental science. Focus will be on conducting a literature review, developing an experimental procedure, and collection of data for the project.		Y
ENVS	Environmental Science	492 Environmental Science Capstone II	Work on a research project within the field of environmental science. Focus will be on determining results and discussion of results, preparation for presentation, and write up of paper for submission for the project.		Y
ENVS	Environmental Science	493 Environmental Science Intern	Work experience in the field of environmental science in a research, industry, or municipal setting.		Y
ENVS	Environmental Science	500 Geology	Atmospheric, aqueous, and igneous agencies; river and marine deposits, glacier, earth movement, volcanoes, earthquakes. Emphasis placed on factors affecting engineering projects; field trips.		Y
ENVS	Environmental Science	533 Aquatic Chemistry	Equilibrium chemistry concepts including gas- and solid-liquid equilibria applied to aquatic systems. Emphasis on calculation methods for solving for chemical speciation in natural and treated aquatic systems.		Y
ENVS	Environmental Science	550 Watershed Function And Protection	Discussion of watershed structure, function, pollution, management and protection. Topics include ecosystem services provided by various types of watersheds, impacts from various pollutants and poor land uses, and mitigation measures through various regulatory measures and best management practices (BMPs). Several weekend field trips are required, and a class project will be assigned involving some aspect of watershed protection strategy.		Y
ENVS	Environmental Science	598 Special Studies	Chem Fate & Transport		Y
ENVS	Environmental Science	631 Principles Of Water Quality Management	Review of the basic parameters used to describe water quality. Fundamentals of aquatic interaction in natural systems and fate of pollutants in the natural environments. Basic water and wastewater treatment systems.		Y
ENVS	Environmental Science	633 Aquatic Chemistry	Review of the basic parameters used to describe water quality. Fundamentals of aquatic interaction in natural systems and fate of pollutants in the natural environments. Basic water and wastewater treatment systems.		Y
ENVS	Environmental Science	635 Chemical Fate and Transport	Introduction to physical, chemical, and biological processes governing the movement and fate of chemicals in surface water and the subsurface. Practical quantitative problems solved based on chemical transport and reactions in the environment.		Y
ENVS	Environmental Science	650 Watershed Function and Protection	Discussion of watershed structure, function, pollution, management and protection. Topics include ecosystem services provided by various types of watersheds, impacts from various pollutants and poor land uses, and mitigation measures through various regulatory measures and best management practices (BMPs). Several weekend field trips are required, and a class project will be assigned involving some aspect of watershed protection strategy.		Y
ENVS	Environmental Science	698 Independent Studies	Spatial Data Analysis & GIS		Y
EVST	Environmental Studies	1000 Introduction to Environmental Studies	The course is an overview of issues in environmental studies from the perspective of the humanities and social sciences. Topics may include philosophical, theological, historical, economic, and/or political analyses of environmental issues.	Y	
EVST	Environmental Studies	1998 Special Studies	Modern Global Environmental History	Y	
EVST	Environmental Studies	3998 Special Studies	Natural Resource Economics		Y
EVST	Environmental Studies	4998 Special Studies	Environmental Scholars: Computer Based Research		Y
FFYS	First Year Seminar	1000 Your Future Career In The Global Workforce	This course addresses personal, professional, and societal imperatives surrounding global career competence and related ongoing developments associated with the dynamic and pervasive process of globalization. The dark side of globalization also is examined, and students discuss their important responsibilities and opportunities for asserting moral leadership in influencing how their future organizations contribute to sustainability and exert a positive impact upon global society		Y

FFYS	First Year Seminar	1000 Imagining The Resilient City	The study of human-dominated landscapes, such as cities, is being transformed by a new theory called Ecological Resilience. Working with the original literature, we will engage the research being conducted on the patterns and processes of urban ecosystems—ranging from biodiversity, trophic dynamics and urban forests, to public health, environmental justice and governance.	Y	
FFYS	First Year Seminar	1000 LEAPIN	In this course, the focus will be on integrating material from the disciplines of biology, chemistry and mathematics as well as from other disciplines outside of the sciences. This will be done by looking at the science of climate change and efforts to address global warming.	Y	
FFYS	First Year Seminar	1000 Effective Personal Ethics	A highly interactive, creative and exciting course dealing with issues of ethics, conflict resolution, core values, decision models, personal and environmental sustainability.		Y
FFYS	First Year Seminar	1000 Empathy: An Antidote	This course will engage students in connecting concepts about Empathy found in a variety of texts, rituals, and art works to the themes of the LMU Mission in order to learn and explore how humankind maps paths negotiating social issues that affect the body, mind, and spirit of humankind and the planet.		Y
FFYS	First Year Seminar	1000 People And The Environment	This FYS will introduce students to the field of environmental history by presenting essential concepts, concerns, and methods in the context of United States history. Our topics will include American Indian societies, European colonization and settlement, urbanization and industrialization, conservation and environmentalism, environmental racism and social justice, and contemporary environmental issues in historical perspective.	Y	
FFYS	First Year Seminar	1000 Making Sense Of Global Politics	This course serves as an introduction to the main analytical approaches to making sense of global politics. This is guided by paradigms—particular ways of looking at world affairs—and most debates over substantive and empirical issues—whether scholarly or in media outlets—are seen and constructed through these lenses. Includes unit on how climate change has been addressed in the political sphere and how it can be addressed in the future.		Y
GEOG	Geography	2000 World Geography			Y
HHSC	Health & Human Sciences	170 Personal Health	This course will introduce students to the basics of human health, including physical and psychological well-being, spiritual health, environmental health, nutrition, and exercise.		Y
HHSC	Health & Human Sciences	335 Global Nutrition	Nutritional science will be covered in relation to global perspectives, culture, religion, and environmental issues. Study will include topics of world hunger, food safety, genetically modified foods, and organic/sustainable farming practices. The agricultural approach to farming and its influence on the environment, our food supply, and ultimately our health will be studied.		Y
HHSC	Health & Human Sciences	398 Special Studies	Climate Change, Health, Food	Y	
HIST	History	1060 Modern Global Environmental History	A course in global history with a particular focus on environmental history, exploring how humans, animals, natural forces, and science and technology have shaped the environment; the ways in which historical developments such as migration, empire, trade, industrialization, and urbanization have affected humans' relationships with nature; and how the environment has affected historical developments.		Y
HIST	History	1900 Science, Nature, & Society In The West	This course examines the history of the West, defined as European and North American societies and cultures, through the lens of science and nature from the sixteenth century to the present, tracing the history of ideas about science and nature in relation to broader social, economic, and political changes and demonstrating the inseparability of science and social context.		Y
HIST	History	3452 US Environmental History	This course presents essential concepts, concerns, and methods of environmental history—the study of the relationships between humans and their physical environments—in the context of United States history. Topics include American Indians and the environment, European colonization and settlement, urbanization and industrialization, conservation and environmentalism, environmental racism and social justice, and contemporary environmental issues in historical perspective.	Y	
HIST	History	4451 The History Of Food In America	Using interdisciplinary methodologies, this upper-division course will explore the ways in which food has the power to both shape and reflect cultural, socioeconomic, religious, and political realities within a transnational context.		Y

MBAB	Mgmt/Orgznal Behavior	650 Environmental Strategy	This course sensitizes students to the broad range of environmental issues affecting business and society today. It examines how society's increasing concern for the natural environment is having a major impact on business firms as well as how business is affecting the environment.		Y
PHIL	Philosophy	3110 Environmental Ethics	The study of moral and ethical issues as they relate to the environment and nonhuman nature.		Y
PHIL	Philosophy	3998 Special Studies	Environmental Virtue Ethics		Y
POLS	Political Science	3340 Urban Politics	Analysis of political institutions and processes in urban areas of the U.S., including policy-making processes, power structures, urban problems, and intergovernmental relations.		Y
POLS	Political Science	3620 International Security	A survey of challenges to security and peace in modern international relations, such as war, the nuclear peril, terrorism, revolution, ecological dangers, economic pressures, and sociodemographic crises.		Y
POLS	Political Science	3650 United States Foreign Policy	Analysis of recent United States foreign policy with a focus on the policy making and implementation process.		Y
POLS	Political Science	3998 Special Studies	Climate Change & Public Health	Y	
SOCL	Sociology	3300 Urban Sociology	An examination of the basic historical processes which have shaped cities, including spatial differentiation. Topics may include the formation of community, metropolitan deconcentration, urban poverty, housing segregation, and third world urbanization.		Y
THST	Theological Studies	3780 World Religions And Ecology	In this course, we will discuss how the world's religious traditions approach the topic of the relationship between ecological and religious values.		Y
URBN	Urban Studies	1000 The Urban World	An introduction to historic and contemporary cities, processes or urbanization, and urban society. Course topics include urban origins, urban economics, the internal structure of cities, urban infrastructure, urban social and cultural processes, urban physical and social environments, and city systems in the regional and global context.		Y
URBN	Urban Studies	3010 Metropolitan Los Angeles	An introduction of the social, economic, political, environmental, and spatial characteristics and dynamics of metropolitan Los Angeles in the context of postmodern urbanization in the United States.		Y
URBN	Urban Studies	3046 Sustainable Cities	An examination of the challenges of and potential solutions to the sustainability of socioeconomic, environmental, and ecological systems associated with historic, contemporary, and future urbanization. Course topics include an analysis of the sustainability of historic and contemporary cities, the consideration of sustainable alternatives associated with such trends as New Urbanism, and the potential for alternative urban policies and practices designed to foster sustainability.	Y	
URBN	Urban Studies	3998 Special Studies	Environmental Planning/Policy	Y	
WGST	Women's and Gender Studies	3200 Women & Environmental Justice	This course explores the relationships between peoples and environments, focusing on the roles and resources, identity, power relations, and geography. The course explores the theoretical and material implications of the different ways in which environmental injustice leads to the degradation of gendered environments and bodies. The course will provide multiple interdisciplinary perspectives on the state of gender, sexuality, race, ethnicity, and the environment.		Y