Sustainability Related Courses Offered at OSU
Based on survey conducted Spring 2014

Sustainability related courses (N=148)

Course #	Course Title	Course Description
AGEC 3503	Natural Resource Economics	Framework for analyzing natural resource management decisions. Applications of microeconomic theory to the management of soil, water, and other resources, with special emphasis on the institutions having an impact on management opportunities. Supply of and demand for natural resources, resource allocation over time, rights of ownership, public issues of taxation, police power and eminent domain.
AGEC 4503	Environmental Economics and Resource Development	Economic, social, and political factors relating to conservation, natural resource development, and environmental quality. Valuation of priced and non-priced natural and environmental resources. Analysis of environmental and natural resource policy and the role of public and private agencies in conservation and development.
AGEC 5503	Economics of Natural and Environmental Resource Policy	Economics of long term resource use with particular emphasis on agricultural and forestry problems. Methods for estimation of nonmarket prices. Cost benefits analysis of long term natural resource use and environmental policy. Elementary computer simulation of long term resource use and environmental policy.
AGED 4713	International Programs in Agricultural Education and Extension	World hunger and its root causes. The function of international agencies, organizations, foundation and churches in improving the quality of life for people of the developing nations. Roles of agricultural education and extension at all levels for enhancing the effectiveness of indigenous programs of rural development and adult education.
AG 3733/AMST 3733	Food and Culture	Interdisciplinary examination of the history and culture of food production and consumption in the U.S. with an emphasis on how U.S. food ways relate to those of other countries. Examines topics such as: food and the formation of social bonds, food and identity, the cultural meaning of foodways, issues of justice and equality in food production and consumption, and how food cultures have developed over time and in relation to other societies.
AGIN 5312	Applied Issues in International Agriculture and Natural Resources	Applied global issues in international agriculture and natural resource development, including sustainability, food security, trade, project evaluation, and international agricultural institutions. Written and oral reports and discussion of selected topics.
ANSI 4913/SOIL 4913/ENVR 4913	Animal Waste Management	Aspects of animal waste management related to animal nutrition, system design, land application, socioeconomic issues and environmental impacts.

ANSI 4973/NREM 4613	Rangeland Resources Planning	Inventory or ranch resources, survey and evaluation of ranch practices, and economic analysis. Development of a comprehensive ranch management plan. Managing rangeland and ranch resources in a social context. Written and oral reports. Field trips required.
ARCH 2263	Building Systems	Architectural, structural, and environmental control systems
ARCH 3134	Architectural Science I: Thermal Systems and Life Safety	Fundamentals of thermal comfort, energy concerns and mechanical systems for buildings as well as the basic principles of life safety.
ARCH 3263	Materials in Architecture	Introduction to the basic materials used in the construction of architecture and how such materials affect both the design and implementation of the systems that incorporate these materials.
ARCH 3433	Architectural Science II: Acoustics and Lighting	A survey of architectural acoustics, electrical, and lighting systems for buildings.
ARCH 4134	Architectural Science I: Thermal Systems and Life Safety for Architectural Engineers	Engineering based fundamentals of thermal comfort, energy concerns, and mechanical systems for buildings, as well as the basic principles of life safety.
ARCH 4433	Architectural Science II: Acoustics and Lighting for Architectural Engineers	Engineering based fundamentals of architectural acoustics and electrical/lighting systems for buildings.
BIOL 1114	Introductory Biology	Introduction to the integration between structure and function among all levels of biological organization. Application of principles of evolution, genetics, physiology and ecology to understanding the integrated and interdependent nature of living systems through discussions emphasizing the process of science. Current issues and local research and observation and investigation in both lecture and lab. Recommended for non-science and science majors.
BAE 3313	Natural Resources Engineering	Principles and practices of engineering analysis and design applied to hydrology, water quality, erosion and sedimentation, air quality, irrigation and animal waste management.
BAE 4001	Professional Practice in Biosystems Engineering	Preparation for professional practice through case studies about ethics, legal liability, safety, and societal issues. Practical professional communications experience. The course deals with societal issues tied to engineering practice, including sustainability.
BAE 4213/SOIL 4213	Precision Agriculture	Introduction to the concepts of precision agriculture including analysis of spatial variability, relationships of fertility and crop response, geographical information systems, variable rate technology, optical sensing, global positioning systems, and yield monitoring. Case studies included for detailed analyses.

BAE 5213	Renewable Energy Engineering	Renewable technologies such as solar, wind, geothermal, hydroelectric, and biomass to generate energy for electricity, heating, transportation, and other uses.
BAE 5324	Modeling and Design in Storm Water and Sediment Control	Analysis and design of storm water, sediment and water quality systems with a focus on application to urban areas and developments in the urban-rural fringe. Advanced concepts in hydrologic modeling with kinematics, diffusion and dynamic modeling of flow; soil erosion, sediment transport and sediment control; storm water quality modeling and the impact of best management practices. In laboratories, use of hydrologic, sediment, and water quality models in analysis and design for real-world problems.
BAE 5353	Environmental and Ecological Risk Assessment	Process and methodologies associated with human, environmental and ecological risks. Will quantify uncertainty in human perturbation, management, and restoration of environmental and ecological processes.
BAE 5363	Life Cycle Assessment	Design of high level life cycle impact assessment for products, international standards for LCA, implications of functional unit and system boundary choices on comparative LCA. Course available online only through AG*IDEA consortium.
BOT 3005	Field Botany	Botanical field techniques, the vegetation of North America, and the flora of Oklahoma. Effects of fire and grazing on grassland communities.
BOT 3253	Environment and Society	The impact of human activities and population growth on the natural world. Analysis of the potential of technological and societal changes to have an impact on the environment. For the non-biology major.
BOT 4023/5023	Community Ecology	Plant and animal communities, community theory, the role of competition, predation, and demography in structuring plant and animal communities, succession, current controversies in ecology, with emphasis on the primary literature. Topics related to sustainability include biodiversity, habitat loss, conservation biology, cultural landscapes, and restoration ecology.
BOT 4214/5214	Ecology of Algae and Aquatic Plants	Ecology, physiology, evolution, and ecological roles of algae and vascular aquatic plants; problem algal blooms; ecological principles applied to algal biofuels. Laboratory includes basic ID of algae and aquatic plants. Field trips required with fee.
BADM 5713	Analysis of the Multinational Firm	Identification and analysis of the managerial, financial, and market problems facing the multinational firm. Focus is empirical and stressing application of ecological and quantitative tools to the study of the multidimensional nature of the international business environment.
CHE 2033	Introduction to Chemical Process Engineering	Application of mathematics and scientific principles to solving chemical engineering problems. Simple material and energy balances applied to process design. The nature and application of unit operations and unit processes to the development of chemical processes

CHE 4343	Environmental Engineering	Application of science and engineering principles to minimize the adverse effects of human activities on the environment. National and state environmental regulations. Predictive movement and fate of chemicals in the geospheres. Multi-media pollution assessment, analysis and control. Consideration of safety, health and environmental issues from a process standpoint.
CHE 4581	Chemical Engineering Seminar 3	Through guest lectures and home assignments, preparation and planning for a ChE career and success in the ChE curriculum. Professional growth topics oriented to students in the senior-level ChE courses. Several topics related to sustainability discussed throughout course.
CHE 5343	Advanced Environmental Engineering	Science and engineering principles to minimize the adverse effects of human activities on the environment. National and state regulations. Predictive movement and fate of chemicals in the geospheres. Multi-media pollution assessment, analysis, and control. Consideration of safety, health, and environment issues from a process standpoint. Special project required.
CHE 5373	Process Simulations	Computer-aided process synthesis, simulation, analysis and optimization. Systematic tools for developing and screening potential chemical process flow sheets. Use of commercial process simulators to aid in evaluating process designs. Practical problems will be used as examples and case studies. Sustainability incorporated via Life Cycle Assessment.
CHE 6010	Graduate Seminar	Annual speaker on topics related to sustainability.
CIVE 2041	Civil and Environmental Engineering Seminar.	An introduction to the importance of communication, professional ethics, knowledge of contemporary issues, and the role these play in developing a broad education. Emphasis will be placed on understanding the impact of engineering solutions in a global and societal context. The various sub-disciplines within the fields of Civil and Environmental Engineering will also be presented.
CIVE 3633	Transportation Engineering. (Possibly related)	Planning, design and operations of transportation facilities. Vehicle characteristics and human factors in design. Traffic stream variables and their measurement techniques. Basic traffic flow models. Highway and street intersection capacity and level of service. Traffic control concepts. Transportation systems management. Application of statistical analysis and operations research to analyze transportation problems.
CIVE 3813	Environmental Engineering Science	Engineering aspects of the life support system; the carbon-oxygen cycle; cycling of nitrogen, sulfur and phosphorus; and the hydrologic cycle. Concepts of environmental pollution and degradation. Techniques for mitigation; water and wastewater treatment, solid and hazardous waste management, and air pollution abatement. Calculation of pollution potential and treatment system parameters.

CIVE 3833	Applied Hydraulics	Basic hydraulic principles and their application in civil engineering problems. Analyses of water distribution networks, open channels, storm-water management and wastewater collection systems, water pumps, hydraulic models, hydraulic measurements, treatment plant hydraulics and hydraulic structures.
CIVE 3843	Hydrology I	Basic principles of surface groundwater hydrology and their application in engineering problems. The hydrologic cycle, weather and hydrology, precipitation, evaporation, transpiration, subsurface waters, stream flow hydrographs, hydrologic and hydraulic stream routing, probability of hydrologic events, application of hydrologic models.
CIVE 4823	Human Impact on the Environment	The activities of humans and how they affect the aqueous, terrestrial, and atmospheric environment.
CIVE 5123	The Legal and Regulatory Environment of Engineering	The U.S. and Oklahoma court systems. Tort law and labor law having an impact on engineering and construction. Union organization and activities. Government contracting and the laws governing it. Discussions of the Occupation Safety and Health Act and Americans with Disabilities Act. In-Depth look at environmental policy, laws, and regulations affecting engineering, including NEPA, CWA, SDWA, RCRA, CERCLA and CAA Water law.
CIVE 5303	Systems Analysis for Civil Engineers	Synthesis of systems modeling and simulation techniques, mathematical optimization procedures, and evaluation tools of multi-attributed systems including utility theory and decision analysis. Mathematical optimization techniques in the areas of resource allocation, transportation and water resources systems planning, structural design, construction management, and environmental and ecological problems.
CIVE 5343	Urban Transportation Planning	Determinants of demand for transportation and models for demand forecasting. Performance characteristics of transportation systems and models for performance. Quantitative analysis of multimodal transportation networks including prediction of flow patterns and service quality. Evaluation of social, environmental, and political impacts of transportation decisions. Application of systems analysis techniques to the generation, evaluation, and selection of alternative transportation systems.
CIVE 5803	Essentials of Environmental Engineering	Engineering aspects of the life support system; the carbon-oxygen cycle; cycling of nitrogen, sulfur and phosphorus; and the hydrologic cycle. Concepts of environmental pollution and degradation. Techniques for mitigation; water and wastewater treatment, solid and hazardous waste management, and air pollution abatement. Calculation of pollution potential and treatment system parameters.

CIVE 5823	Environmental Risk Assessment and Management	Environmental risk assessment and management. Applies elements of statistics, probability and environmental simulation to determine the public health and ecological risks from activities of humans.
CIVE 5853	Bioremediation	Process selection and design of bioremediation systems for renovation of contaminated hazardous and industrial waste sites, soils, sludge. Site analysis emphasizing contaminant and environmental characteristics. Engineering factors to promote successful bioremediation. Design project required.
CIVE 5873	Air Pollution Control Engineering	Causes, effects, and control of atmospheric pollution.
CIVE 5913	Groundwater Hydrology	Theory of groundwater movement, storage, exploration and pumping tests. Design of groundwater recovery and recharge systems.
CIVE 5923	Water Resources Planning and Management	Application of engineering economics and microeconomic theory to the planning and management of water resources projects, including flood control, hydroelectric, water supply, and urban storm water. Systems analysis approaches, primarily linear and dynamic programming, and their application in water resources.
CIVE 5983	Groundwater Pollution Control	Theory, design and operation of groundwater pollution control systems. Includes examples from site specific applications as well as regional or national focus.
CIED 4560/5730	Environmental Education	Development of (teacher/leader) competencies in the content, methods, philosophy, and historical perspective of contemporary environmental education curricula using both indoor and outdoor settings as a multidisciplinary learning laboratory.
CIED 5243	Environmental Education in the Curriculum	Integration of environmental concepts in the total school curriculum. Review of K-12 environmental education curricula and methods of teaching environmental education in formal and non-formal settings.
DHM 2573	Textiles	Science principles as the basis for understanding fibers, the basic structure of yarns and fabrics. Relationships between the chemical composition of fibers and properties such as tensile strength, flammability, elasticity, moisture absorption, and dye affinity. Understanding science principles in relation to textile properties for evaluation of textile products. Recommended for education majors seeking knowledge to be used for innovative teaching of science principles in grades K-12.
DHM 3533	Textile Surface Design	Traditional and contemporary dyeing, printing, stitching, and other textile surface manipulation techniques are practiced in a portfolio of individual projects. Exercises in color theory and production inform textile design work. Aesthetic, methodological, and environmental tradeoffs are considered in relation to designing textile surfaces.

DHM 4403	Advanced Apparel Design	Application of design & pattern-making principles and apparel assembly processes in the development of original designs.
ECON 1113	The Economics of Social Issues	Issues-oriented approach. Basic economic principles introduced and developed through study of important social issues: for example, inflation, unemployment, poverty, discrimination, crime, population growth and env. quality. Develops the economist's approach to social problems, and evaluates the contribution of economics to their solution.
ECON 3903	Economics of the Environment	Economic and political factors that influence the formation and implementation of environmental policy. Environmental policy instruments such as pollution taxes, standards and marketable pollution permits are discussed. Measurement of environmental damages and risk are also considered.
ECON 4113	Energy Economics: Traditional and Renewable Energy Markets	This course examines economic theory, empirical perspectives, and the political economy of energy supply and demand. It discusses aspects of local, national and global markets for oil, natural gas, coal, electricity, nuclear power, and renewable energy. In the course, we will examine public policies affecting energy markets including taxes, price regulation, energy efficiency, and control of emissions.
ECON 5173	Energy Economics	Develop tools necessary to examine energy markets from an economics perspective and discuss aspects of local, national and global markets for oil, natural gas, coal, electricity, and renewable energy. The course examines public policies affecting energy markets including taxes, regulation, energy efficiency and control of emissions.
ECON 5733	Energy Economics: Traditional and Renewable Energy Markets	This course is an applied course in energy economics. The focus is on empirical studies of energy markets, environmental regulation, and the political economy of energy supply and demand. It discusses aspects of local, national, and global markets for oil, natural gas, coal, electricity, nuclear power, and renewable energy. The goal of this course is to provide students interested in energy topics the tools necessary to begin conducting their own research.
ECEN 5153	Direct Energy Conversion	Energy conversion techniques and applications; thermo-electrics, thermionics, fuel cells, MHD and other processes involving electrical, mechanical and thermal energies. State-of-the-art developments in direct energy conversion using selected papers from journals and other publications. Gives the student a proper perspective of the possibilities and problems associated with satisfying future energy requirements.
ECEN 5193	Power Economics and Regulation	Natural monopoly, regulated mono-polities. Power pricing. Deregulation and the Energy Policy Act of 1992. Bulk power markets, transmission access and wheeling. Economic dispatch and system operations. Security and reliability. Environmental externalities and Clean Air Act compliance. Procurement of new capacity and integrated resource planning. Co-generators and independent power producers.

ENGR 4103	Impact of Law on Engineering Practice	Principles and impact of U.S. and international laws and regulations on technical professionals, including the impact of environmental regulations, intellectual property laws, tort claims, and product liability on the design, research and oversight of technologies.
ENGR 4133	Environmental Regulation for Technical Professionals	Environmental laws and regulations are omnipresent in the practice of engineering, science and architecture. Survey of the environmental laws and regulations affecting the practice of these professions.
ENGR 5133	Advanced Environmental Law for Technical Professionals	Environmental laws and regulations are omnipresent in the practice of engineering, science, and architecture. This course will survey the environmental laws and regulations affecting the practice of these professions.
ENTO 2143/PLP 2143	Global Issues in Agricultural Biosecurity and Forensics	Biosecurity, biosafety, bioterrorism, microbial forensics, emerging organisms, invasive species, quarantine, response, surveillance, detection, diagnostics, and how all system components integrate to science, and to agricultural specialties, economics and defense.
ENTO 3461	Insects in Forest Ecosystems	Identification and seasonal life history of insect pests and beneficial insects on shade trees in urban settings, in commercial forests, and in forest products.
ENTO 4223	Ecological Methodology	Use of insects and other invertebrates for describing and evaluating interactions of individuals and populations with their environments. Coverage of behavioral and physiological ecology on consequences to individuals; population and community ecology considered in dynamics of groups of organisms in ecosystems.
ENTO 4464	Insect Biology and Classification	Insect phylogeny, taxonomy, behavior, morphology and physiology in the context of ecosystem function. Major roles of insects in shaping ecosystem diversity, as indicators of environmental integrity, and as vectors of plant and animal pathogens and parasites.
ENVR 4010	Internships in Environmental Science	Supervised internships with business, industry, or gov. agencies in environmental assessment and remediation.
ENVR 4512	Environmental Impact Analysis	Outline of the National Environmental Policy Act (NEPA) documentation of potential environmental impacts for decision makers. Development of environmental assessment, environmental impact statements, and categorical exclusion documents that result from the NEPA processes.
ENVR 4813	Environmental Science Applications and Problem Solving	Team work on environmental problems, to develop solutions and communicate recommendations to professionals as part of a senior capstone project. Results are presented by oral and written reports directly to professionals.
ENVR 5123	Environmental Problem Analysis	This course reviews the process of environmental problem analysis using current practical examples, draws on theories from various disciplines, and applies appropriate techniques of analysis. Students devise with a plan to solve an env. problem.

ENVR 5200	Special Topics in Environmental Science	Topics and issues in the broad field of environmental science. Group discussions and projects not covered by existing courses such as ecological risk assessment, water chemistry and environmental law.
ENVR 5313	Clean Air Act: Regulation, Compliance and Reporting	This course will present an overview of the Federal Clean Air Act including regulatory history and framework, key concepts such as technology forcing, enforceability and adequate margin of safety. This course addresses the preparation of emissions calculations for reporting and permitting, discussion of emissions monitoring and control technologies, and review of reporting requirements and legal standards for compliance. Course will focus on U.S. Federal and State application.
ENVR 5443	Hazardous Waste Regulations for Environmental Managers	Covers air, water and waste permitting and plans as well as DOT transportation of hazardous materials and several OSHA standards.
ENVR 5453	Bioremediation for Environmental Managers	Teaches the fundamental biological mechanisms that allow microorganisms and plants to degrade and/or remove contaminants from the environment.
ENVR 5510	Environmental Management Internship	The student must identify and solve an environmental problem under the supervision of a competent professional environmental manager, and submit and defend a formal report presenting the problem, solution analysis methodologies, and recommended solution. The internship must involve at least 240 contact hours with the manager. The course is required of all masters' students pursuing a plan of study in environmental management.
ENVR 5523	Industrial Ecology for Environmental Scientists	Provides students with an overview and broad understanding of ecology principles as applied to an industrial setting. The course begins with an overview of general ecological principles such as ecosystem components and structures, biogeochemical cycles, energy flows, and properties of populations. The course concludes with a consideration of industrial ecology principles such as sustainability, pollution prevention, life cycle assessment and waste minimization.
ENVR 5543	Environmental Management Systems	This course introduces strategies for the design and operation of environmental management systems that reduce environmental impacts in conformance with ISO 14000 standards. Topics include aspect identification, impact assessment, impact reduction strategies, and management oversight. Other topics such as training, internal and external auditing, and integration with other management programs will also be addressed.
ENVR 5633	Physical Geology for Environmental Managers	Overview of the physical and chemical nature of the solid and fluid earth. Focuses on how these physical attributes and processes influence interactions between humans and the earth's environment.

ENVR 5733	Environmental Site Assessment	This course introduces concepts associated with conducting environmental site assessments (ESAs) and contaminant remediation. Topics include review of federal regulations regarding site assessments, an overview of Phase I and Phase II ESA methodologies, proper soil/water sampling techniques, soil/geology/hydrogeology principles relating to environmental assessments, and various remediation strategies. The course includes field exercises simulating Phase I and Phase II ESA investigations, interpretation of historical aerial photos, and wetland identification.
ENVR 5743	Environmental Impact Assessment	The course teaches students how to understand and apply the National Environmental Policy Act to evaluate and document potential environmental impacts for decision makers. The course reviews the development of environmental assessment, environmental impact statement and categorical exclusion documents that result from the NEPA process. Emphasis is placed on the development of an environmental assessment program.
ENVR 5753	Environmental Site Remediation	Introduction to concepts associated with environmental site remediation. Emphasis will be placed on the application and assessment of site clean-up.
ENVR 5823	Watershed Management	This course provides an overview of watershed management that integrates law, politics, economics, watershed science, engineering, education, social marketing, and conflict resolution. Students will also learn how to critically evaluate watershed management programs. Field trips to watersheds are included.
ENVR 5853	Field Stream Assessment	Techniques for evaluating the health of streams. Laboratory techniques for fish and aquatic insect collection, habitat assessments, chemical water quality analysis, and stream discharge measurement.
ENVR 6310	Advanced Topics in Environmental Science	This course covers current topics and issues in environmental science. Though the topics will vary, each course will typically include environmental assessment, environmental sustainability and environmental policy. Group discussions and team projects may be required.
ENVR 6516	Advanced Environmental Management Internship	The student must identify and solve an environmental problem in collaboration with a competent professional environmental manager, and submit and defend a formal report presenting the problem, problem and solution analysis methodologies, and recommended solution. The internship must involve at least 480 contact hours with the manager. The course is an experience for all ES doctoral students pursuing a plan of study in environmental management.

ENVR 6623	Social Aspects of Environmental Planning	This course develops students' theoretical and practical understanding of social aspects of environmental planning. The course addresses topics such as social impact assessment, the role of public involvement, environmental justice, and other social considerations in the implementation of environmental programs. It will also demonstrate the application of social science techniques in environmental planning and prepare students for the application of social perspectives in environmental decision-making - in both the public and private sectors.
FPST 4403	Hazardous Materials Incident Management	An interdisciplinary approach to hazardous materials incident management. Legislative requirements. Emphasis on comprehensive safety and health program compliance relating to hazardous materials incidents or waste sites. Regulatory code activities, transport-related inspections, incident modeling, and use of environmental safety software for problem solving and documentation.
GEOG 1113	Introduction to Cultural Geography.	Introduction to Cultural Geography. A thematic approach to the study of human groups and activities around the world, including agricultural practices, demographic trends, political behavior, religious beliefs, language patterns, folk and popular cultures, ethnicity and ethnic landscapes, urbanization and industrialization.
GEOG 1114	Physical Geography	Distribution and analysis of natural features of the earth. Landforms, soils, minerals, water, climates, flora and fauna. Emphasis on human-environment relations where appropriate.
GEOG 3153	Conservation of Natural Resources	Problems and corrective methods of conservation of land, water, forests, wildlife, minerals and people.
GEOG 4003	Natural Hazards and Society	Explores natural hazards and how humans respond and contribute to these hazards and disasters such as earthquakes, extreme weather events and volcanic eruptions. The course will also examine how hazards impact society, how society deals with disasters, and how we can mitigate the effects of such events.
GEOG 4023	Geography of Arid Lands	Analysis of the physical process shaping the landscapes of deserts and areas around them, emphasizing the causes and effects of climatic change and human activities.
GEOG 4053	Biogeography	Distribution of plants and animals and processes causing distribution. Human impact on biotic resources considered along with policy and management practices.
GEOG 4063/5063	Geoarchaeology and Environmental History.	Theoretical and methodological aspects of geoarchaeology, a discipline that aims at recovering field data for reconstructing environment-society relationships of the past. Key themes include climate change and human-induced land transformation as demonstrated through interdisciplinary research in different geomorphic contexts and cultural groups (hunter gatherers, agriculturalists, and urbanites) from around the world. Meets with 5063.

GEOG 4113	Cultural and Political Ecology	Focus on the relationship between culture and environment, people and place and how environments are politicized. Competing theories of human-environment interactions throughout history. The first half of the course focuses on theories of human agency, diffusion, migration, adaptation, decision-making and agricultural change. The second part of the course focuses on cultural landscapes, perception, and politicized environments to explain current environmental issues.
GEOG 4143	Geography of Travel and Tourism	A systematic and comprehensive analysis of the geographical dimensions of tourism, illustrating the relevance of a spatial perspective to tourism planning, development, and management. Economic, social, and environmental impact of both domestic and international tourism considered.
GEOG 4163/5163	Resource Management in the National Parks	Contemporary resource management issues in U.S. National Park units. The role of human and natural processes in the management of water, air, biotic and cultural resources.
GEOG 4233/5233	Human Dimensions of Global Environmental Change	Discusses the current global environmental science research agendas called for by the international community, explores the arguments set forth regarding global environmental change, and looks at the current explanations and theories explaining the human dimensions of land-use/cover-change (lucc). Special emphasis is on alternative, competing visions, and needs of developing countries within the context of economic development and global environmental change. Meets with 5233. No credit for students with credit in 5233.
GEOG 5123	International Resource Management	Seminar in the theory and utility of resource analysis and resource management, including measures of resource availability, resources and population, sustainable development, minerals and trade, economic efficiency and equitable distribution, resources and national security, renewable resources, forest, food, and water resources, resources and climate change, current events debates.
GEOL 1014	Geology and Human Affairs	The influence of geology and related earth sciences on the human environment. Energy and material resources, beneficial and hazardous natural processes, and the planetary and biological evolution of earth. Lab investigations environmentally oriented.
GEOL 3503	Environmental Geology	Application of geologic principles to environmental issues, including human use of the surface and subsurface of the earth and human interaction with extreme natural events such as earthquakes, floods and landslides. Topics of focus include energy, water, and population.
GEOL 4453	Hydrogeology	Areas of study include the water cycle and ground-water systems as well as general problems related to ground-water occurrence, quantity, quality and pollution. Other topics include climate change and water management.

HHP 5133	Environmental Health	Examination of health issues, etiology of disease, and control and prevention of major environmental health problems in industrialized and developing countries.
HIST 4523	American Environmental History	Examination of the changing ways society (from Native American to post-industrial) has defined, interpreted, valued, and used nature.
HORT 2123	Environmental Issues in Horticultural Science	Impact of urban and suburban development on the environment and a study of horticultural solutions to limit or reverse environmental damage. Emphasis on horticultural design, construction, and maintenance techniques as they relate to the conservation of water, soil, native species, and ecosystems.
HORT 4713	Public Garden Management	Issues and methods in public garden management, including database management of collections, conservation of native species, grant writing, volunteer coordination, computerized mapping systems, master planning, and other topics pertaining to a career in public horticulture. Field trips required.
HRAD 3543	Lodging Property Management	The organization, duties, and administration of hotel support departments. Topics related to sustainability include the "triple bottom line." Synthesize what it means to practice responsible consumption in the hotel environment. As it pertains to waste, utilities, equipment, and supplies. Some discussion on the potential positive impact hotels could play in conservation within their local community as well as the responsibility they have to do so.
IEM 3303	Manufacturing Processes	Manufacturing processes used to transform new materials including metals and non-metals into finished goods. Traditional and nontraditional manufacturing processes. An introduction to manufacturing processes. The impact of manufacturing, byproducts, and environmental impacts discussed in course
IEM 4913	Senior Design Projects	Senior design projects require an investigation of industrial problem(s) and working with industrial clients. Design must consider life cycle costs and issues of proposed solutions.
IEM 4953/5953	Industrial Assessment and Improvement	Plant assessment and improvement-based concepts, strategies, and tools for manufacturing operations. Emphasis is on small to medium-sized manufacturing operations. Issues include energy, water, waste, quality, and productivity analysis across the organization from a systems perspective. Justification of improvement projects and measurement of results.
INTL 5013	Contemporary Issues in International Studies	Examination of major transnational issues and associated problems of international cooperation, including ethnic conflicts, environmental degradation, global standards for human rights, and economic globalization.

LA 3884	Landscape Architectural Construction I	Review mechanical drafting and lettering techniques, understanding contours, principles of stormwater runoff, site grading and earthwork calculations, methods of managing stormwater runoff, erosion control, introduction to paving and drainage construction materials, specifications, cost estimating. Semester project covering grading, drainage, cut and fill, stormwater runoff, specifications, and cost estimating. Utilizing Auto CAD and other computer applications.
LA 4583	Landscape Environmental Planning	Development of landscape architectural projects in the context of the National Environmental Policy Act (NEPA) and state and local government environmental regulations affecting planned projects encountered by the landscape architect.
MGMT 4083	Corporate and Social Responsibility	Management of situations to minimize adverse consequences and serve an organization's best interests.
MGMT 4883	Multiple Perspectives in Global Management	View of how multinational corporations and cross-border business transactions have an impact on countries, cultures, employees, and ecological systems.
MGMT 5083	Corporate and Social Responsibility	Ethics and decision-making in corporations. Students will be exposed to managerial responsibility as well as social responsibility at the corporate level.
MCAG 5413	Fundamentals of Conversion	Principles involved in converting biomass to useful products, including biomass properties, pretreatment, separation, and biochemical and thermochemical conversion. Course available online only through AG*IDEA consortium.
NREM 3323	Forest Economics and Finance	Economic factors and analytical methods influencing decisions in forest resource management; factors affecting the production of wood products; arithmetic of interest and investment criteria; economics of non-market goods.
NREM 3343	Forest Environmental Science	Overview and analysis of forests, their related environments, their associated natural resources, and their tangible and intangible values, emphasizing basic principles of scientific forest management, the use of forest resources by society, natural resource administration and policy, and current issues in forestry.
NREM 3513/ZOOL 3513	Principles of Conservation Biology	Application of ecological principles to the maintenance and restoration of biological diversity at genetic, population, and community levels.
NREM 4001	Issues in Global Change	Student led discussion to learn the causes and consequences of global change and practical implications for natural resource ecology and management.
NREM 4023	Restoration Ecology	Application of ecological theory to the practice of ecological restoration to improve populations, communities, and ecosystems degraded directly or indirectly by human activities.
NREM 4473	Global Issues of Water and Ecosystem Management	Principles and concepts related to integrated fresh water resource management and its provisions for ecosystem and human needs. Examination of water issues related to ecosystem management practices in geographic locations including Alaska, Africa, North America and South America.

NREM 4533	Wildlife Management for Game Species	Life history attributes and habitat relationships of game species relative to life history strategies; conservation and management strategies for game species; and federal and state policies influencing game species management.
NREM 4543	Wildlife Management for Biodiversity	Identification, life history, and conservation management issues affecting non-game species in North America, stressing rare, threatened, and endangered species occurring in Oklahoma. Principles of landscape ecology, wildlife management, and conservation biology applied to management scenarios aimed at recovery of rare species and biodiversity conservation at broad scales.
NSCI 3543	Food and the Human Environment	Impact of the various factors that affect food availability, production, processing, distribution and consumption of food in the world. International cultures and foods. Challenges of and solutions to the world food crisis.
NSCI 4331	Quantity Food Production Practicum	One objective is for students to identify sustainable practices in quantity food settings.
PLNT 1213	Introduction to Plant and Soil Systems	Introduction to the concepts of plant and soil systems including cropland, rangeland and pastureland. A systems approach to the importance of plant and soil resources to the producer, consumer and citizen; modern management and production practices; maintenance of natural resources
POLS 4363	Environmental Law and Policy	Statutory law, case law, and administrative practices relating to regulation of the environment including environmental impact statements, pollution, public lands, and preservation law.
POLS 4593	Natural Resources and Environmental Policy	Current issues in the law, politics and administration of energy, land, water, mineral and other natural resources policy with particular emphasis on relations to environmental policies and law
POLS 5620	Seminar in Natural Resource Policy, Law and Administration	Analysis of the legal and public policy aspects of environmental regulation, including special emphasis on one of three components: environmental law, administrative law, and national resource law and policy.
POLS 5633	Practical Environmental Compliance	Environmental decision-making, reading and understanding environmental statutes and regulations, and effectively dealing with the EPA. Environmental permitting and enforcement, policies and procedures. Review of hazardous waste regulations with emphasis on ground water problems.
POLS 5643	Regulatory Risk Analysis	Risk-based decision making, government's risk analysis paradigm, risk analysis policy, and social aspects of risk assessment. Review of the RCRA corrective action, CERCLA (Superfund) remedial action, and NEPA environmental impact study programs.
RMTR 4473	Recreation in the Natural Environment	Theory and practical application of outdoor recreation concepts with emphasis on philosophies, principles, policies, economics, trends and problems.

SOC 4433	Environmental Sociology	Critical assessment of the social causes and consequences of problems with resource scarcity and environmental degradation. Environmental problems viewed as social problems, requiring an understanding of the structural conditions producing environmental problems and inhibiting resolutions.
SOC 4453	Environmental Inequality	Considers the connection between environmental problems and race/ethnicity and class inequality. Focuses on environmental justice/equity, social movements, health, policy and risk at the local, national and global levels.
SOC 4473	Oklahoma Environmental Sociology	Critical assessment of the social causes and consequences of environmental problems in Oklahoma, both historical and contemporary. Examines the Land Run, the Dust Bowl, the Oil Boom, land ownership and use patterns.
SOC 5463	Seminar in Environmental Sociology	Critical overview of contemporary developments in environmental sociology. Environment concern, disasters, health issues, risk assessment, and environmental conflict.
SOC 5473	Seminar on the Contemporary Environmental Movement	Critical overview of contemporary theory and research on the environmental movement. Analysis of crucial movements dynamics, including historical development, central organizing themes, strategies and tactics, and movement activities, environmental health movements, and transnational movement campaigns.
SOIL 4234	Soil Nutrient Management	Soil fertility and use of fertilizer materials for conservation, maintenance, and improvement of soil productivity and to minimize environmental concerns.
SOIL 4363/ENVR 4363	Environmental Soil Science	Soil processes and interpretation for natural resource management; land reclamation; impact of fertilizer, pesticide and other agrochemicals on soil and water quality; long-term erosion and landscape formation; soil treatment of contaminants in manure, sludge and other organic by-products.
SOIL 4893/ENVR 4893	Soil Chemistry and Environmental Quality	Chemical and colloidal properties of clays and organic matter in soil systems, including ion exchange, retention, and precipitation; soil acidity and salinity; mineral weathering and formation; oxidation-reduction reactions; trace and toxic elements, water quality, land application of wastes, and soil remediation.
SOIL 5813	Soil-Plant Nutrient Cycling and Environmental Quality	Theory and application of soil plant relationships in production and non-production environments. Nutrient cycling, mass balance, soil nutrient supply and plant response. Methods to reduce the impact of nutrients on environmental quality, soil-plant buffering and response models.

ZOOL 3023	Freshwater: Concepts, Threats and Management	Freshwater is a critical, non-substitutable resource. Do we have enough? How are we going to manage it? This course will introduce non-biology majors to the concepts, threats, and policy relevant to freshwaters using information published in the popular science press. Issues directly relevant to Oklahoma, and the U.S. will be discussed. Debates modeled using the legal system of policy formulation will promote critical thought and communication skills in an exciting real-world milieu.
ZOOL 3163	Environmental Biology	Overview of how organisms are influenced by the environment in which they live and how anthropogenic activities impact their environment. Topics include climate change, eutrophication, toxicology, infectious disease as related to natural environments including wildlife and aquatic organisms.
ZOOL 4113/5113	Conservation Genetics	Principles of population genetics as they pertain to issues in conservation biology. Evolutionary relationships, hybridization, natural selection, factors affecting small populations, gene flow, captive populations, and META populations.