Please identify (on the appropriate tab) sustainability courses (tab AC-1a), or courses that include sustainability (tab AC-1b) using sustainability (tab AC-1b) using the definitions outlined in ***Standards and Terms*** *(also see "Reporting Criteria" tab for definitions)*.
For course "Level" please list UG as Undergraduate and G as Graduate.
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SUSTAINABLITY COURSES

Title	Department	Instructor	Level	Description	Knowledge Outcomes	Skills Outcomes
5331 Conservation Biology	BIOL	Allan Dale Nelson	G	Principles of conservation biology and the major issues that define the discipline. Study of value, threats to, and conservation of biodiversity. Conservation issues at the population and species levels, policy, and practical applications of the science will be included.	Introduced to the literature of the discipline and will be expected to read, comprehend and critique books and journal articles. Understand basic concepts of conservation biology, more specifically students will 1) explain the meaning of biodiversity and know locations of lowered biodiversity throughout the world; 2) understand terminology necessary to discuss basic concepts in genetics, ecology, and taxonomy and apply terminology to problems of conservation biology; 3) describe the importance of biodiversity in terms of bioethics and ecological economics; 4) discuss the major threats to biological diversity and how conservationist work to overcome environmental problems related to biodiversity; 5) understand extinction rates and causes for extinction; 6) describe concepts of evolution and speciation; 7) understand the genetic consequences of small population size; 8) calculate levels of heterozygosity in	Prepare oral and written presentations over selected topics in conservation biology.

2210 Introduction to Civil Engineering	CVEN	Rajesh B. Vuddandam	UG	Introduction to the disciplines of civil engineering practice through understanding of various sub-specializations within civil engineering discipline such as geotechnical, structural, transportation, water resources and environmental engineering; sustainable design approaches to civil engineering projects through critical thinking and environmental stewardship. Professional and ethical obligations of civil	Understand the interrelationship between pure sciences such as mathematics and civil engineering. Understand major sub-discipline of civil engineering and available career choices with particular emphasis on environmental engineering, transportation engineering, geotechnical engineering, structural, and water resources engineering. Understand sustainable approaches to civil engineering design. Understand the roles and responsibilities of engineers with particular emphasis on ethical and societal obligation and professional licensing issues. Understand	Critically study and analyze important case studies in civil engineering.
3305 Environmental Communication	COMM	Christi Choat Horton	UG	This course is designed to improve students' understanding of the human communication process in shaping perceptions of and relationships with nature and environmental decision making.	Students will learn environmental communication is inherently rhetorical. Students will know legal rights and forums that allow citizens to meaningfully participate publically and directly in decisions regarding the environment. Students will know traditional and alternative (collaborative) approaches to environmental dispute resolution. Student will learn different perspectives on "acceptable risk" regarding environmental hazards to public's health and safety.	Students will identify ways in which public discourses socially construct relationships between humans and nature. Students will recognize key federal laws and common modes of public participation in environmental decisions. Students will identify benefits and barriers to collaborative approaches to managing environmental conflict and recognize effective communication skills needed for successful collaboration. Students will recognize difficulties in defining "acceptable risks" and articulate the different perspectives on risks that are held by government agencies, news media, and the public.

5340 Environmental Communication	COMM		G	This course focuses on the role human communication plays in creating and sustaining relationship with nature.Topics can include: Public Participation, Environmental Conflict, promoting environmental sustainability, etc.	Learn environmental communication is inherently rhetorical. Recognize legal rights and forums that allow citizens to meaningfully participate publicly and directly in decisions regarding the environment. Understand traditional and alternative (collaborative) approaches to environmental dispute resolution. Identify different perspectives on "acceptable risk" regarding environmental hazards to public's health and safety.	Identify ways in which public discourses socially construct relationships between humans and nature. Recognize key federal laws and common modes of public participation in environmental decisions. Identify benefits and barriers to collaborative approaches to managing environmental conflict and recognize effective communication skills needed for successful collaboration. Recognize difficulties in defining "acceptable risks" and articulate the different perspectives on risks that are held by government agencies, news media, and the public.
3350 Environmental Science	EASC	Stephen W. Field	UG	Integration of existing knowledge of geological, hydrological, and environmental processes associated with environmental management and land-use planning issues; including discussions of surface and		
4313 Environmental Techniques	EASC	Carol Ann Thompson	UG	A survey of techniques used in environmental investigations focusing on sampling and geochemical methods important to the environmental industry. Topics to be covered may include topographic surveying,		

3304 Environmental Economics	ECON	Alexander M. Tanter	UG	The study of the economics of the natural environment. Economic tools and issues such as social cost, externalities, cost-benefit analysis, property rights, and state and federal environmental policies will be examined with emphasis on problems associated with water pollution, waste disposal, and society's burden of social costs.	Students will understand the effects of different types of market failure, such as public goods and externalities, on the efficiency of market-determined outcomes. Examine the potential for government intervention to correct market failures. Determine the efficient level of pollution control and specific policies that can be used to control pollution. Develop and understanding of the distinction between the economically efficient level of pollution control and cost-effective policies. Understand how economic value is measured and identifying techniques that can be used to estimate the value of non-market goods. Develop an understanding of the basic elements of benefit-cost analysis. Understand the distinction between exhaustible (nonrenewable) and renewable resources.	Locate published research in environmental and natural resource economics. 2. Explain key economic concepts and describe how they can be used to analyze specific environmental and natural resource issues. 3. Prepare a decision memorandum that describes how to resolve a dispute involving environmental quality or natural resources in an economically efficient manner. 4. Summarize a current controversy in the environmental and natural resource economics literature. 5. Prepare an economic analysis of a current environmental or natural resource issue and present the results of the analysis in both written and oral form.
2310 Introduction to Environmental Engineering	ENVE	Lynal S. Albert	UG	Introduction to environmental and occupational health, atmospheric systems and air pollution control, hazardous waste management, solid waste management, waste water management, and water supply treatment.	Understand the relevance of chemistry in environmental treatment; identify traditional and less common environmental contaminants; explain the principles of unit operations and processes in environmental engineering	Apply mass balance to developing treatment schemes; analyse the kinetics of reactions; design the layout of water and wastewater treatment plants.
4302 Atmospheric Systems and Air Pollution Control	ENVE	Kartik Venkataraman	UG	Study of atmospheric impact on air pollution. Study of sources of air pollution and their control to include gases and particulate matter. Study of air pollution regulations and air pollution modeling. Design of systems to control and abate air pollution. Study and design of sampling systems to monitor air pollution.	Describe the impacts of air pollution on human health, human welfare, living organisms, materials and the ecosystem. Describe the chemical and physical processes that transform and transport pollutants in the atmosphere. Describe the fundamentals of aerosol dynamics and gas-phase chemistry. Describe the mechanism that lead to the formation and emissions of air pollutants. Describe the control technologies used to	Calculate pollutant concentrations and dispersions. Analyze and compare pollutant control technologies.

4330 Texas Water Resource Management	ENVE	Kartik Venkataraman	UG	The ecological relation of water in this biosphere with special reference to the human role; the role of behavioral sciences (social, legal, economic, political, and psychological) in the development, conservation, regulation, and utilization of water resources; current political structure and laws		
4350 Solid and Hazardous Waste Managaement	ENVE	Lynal S. Albert	UG	This course is designed to provide students with the necessary background and knowledge pertaining to the engineering design of solid and hazardous waste management and disposal. Topics covered include landfill	1) Address engineering economics issues such as life-cycle analysis and selection of alternatives for waste management. 2) Identify and characterize solid and hazardous wastes. 3) Identify recycling and reuse options for sustainable waste management.	1) Apply knowledge of legislation and regulations for designing solid and hazardous waste collection, handling and disposal facilities. 2) Develop conceptual landfill designs
5320 Issues in Water Resources	ENVS	Carol Ann Thompson	G	This course will provide a broad introduction to the critical issues relating to the world's freshwater resources. Students will examine the occurrence, use, management, and conservation of water and water resources in the U.S. and the world. Students will develop an understanding of the history and current issues in water resources	Understand the scientific, social, political and economic aspects of water resource issues. Understand the history of water problems in the U.S. and how it has led to the development of current legal constraints. Understand how pollutants can migrate, concentrate and how water quality standards are set.	Be able to find specific information on water pollutants including standards and health information. Be able to find and use scientific material on a variety of subjects. Be able to distill and present complex subjects in a timely fashion.
5328 Environmental Literacy	ENVS		G	Scientific, social, business, and educational aspects of environmental topics, to include biodiversity, water quality, point and nonpoint source pollution control, carcinogens in the environment, industrial and agricultural chemicals, ozone hole and CFCs, global warming,		
5390 Topics in Environmental Science	ENVS		G	Scientific aspects of varied environmental topics, which may include waste disposal, wetlands, air pollution, energy,		
1407 Introduction to Environmental Science	GEOL	Stephen W. Field	UG	Introduction to the study of the environment. The course will examine air, water, and soil pollution, and pollution remediation. Energy, mineral resources, and land use will be studied. The course will also emphasize a study of the water supply, water use, and water	Understand the impact humans have had on the environment. Understand the role resource extraction, utilization, and disposal has on the environment. Understand human population trends and the factors that affect them. Understand the control humans have over non-human species, and the impact of this control. Understand the potential solutions to environmental problems.	Be able to plan and carry out a basic environmental study. Be able to conduct basic soil and water tests.

4300 Analysis of Alternative Energy Sources	MEEN		UG	Study of renewable and alternative energy sources, energy management and conservation techniques, and modern energy conversion devices, such as wind farms, fuel cells, nuclear, etc.	Explain the fundamental characteristics of various renewable/alternative energy sources. Identify the components of various renewable/alternative energy systems.	Present persuasive, scientific arguments related to the impact and use of alternative energy sources.
3310 Environmental Politics	POLS	Anne E. Egelston	UG	An introduction to the politics of environmental protection in America. The focus of the course is upon domestic environmental policy with particular attention paid to the federalism in shaping and implementing environmental policies.	1. Demonstrate knowledge of key environmental principles. 2. Explain the historical development of environmental awareness and policy making. 3. Develop a broad understanding of current environmental policy making by media type, including multimedia issues.	1. Students will learn about characteristics of academic theory and apply these characteristics to theory construction. 2. Analyze the status of current environmental policy making using the policy making process. 3. Apply the environmental principles and environmental policy making process to a regional environmental challenge.
4310 International Environmental Issues	POLS		UG	An introduction to environmental politics and policy on the international level. The focus of this course is upon international environmental policy with particular attention paid to the agreements and treaties made by nations to shape and implement	Understand how science and politics interact within global environmental politics. Understand the global processes that create policy. Understand the formal treaty making process as well as the informal expectations that shape global environmental policy.	Demonstrate how to analyze global policy decisions. Demonstrate how global processes cause national, state, and local activities. Explain the intricacies of global environmental diplomacy.
5310 International Environmental Issues	POLS		G	A seminar on environmental politics and policy on the international level. The focus of this course is upon international environmental policy with particular attention paid to the agreements and treaties made by nations to shape and implement environmental policy, plus a	Understand how science and politics interact in the field of international environmental regulations. Understand how international environmental policies came into being. Understand the limits of treaties as a means of protecting the global environment.	Demonstrate how to analyze international policy decisions. Determine how to interpret the language of law and policy making in the international environment Explain how treaties come to be written, approved, and ratified.
5362 Environmental Policy	POLS	Eric V. Morrow	G	The study of the politics of the natural environment with emphasis on the role of government in		

3312 Environmental Sociology	SOCI	Robert L. Cavazos	UG	Examines relationships and interactions between society and the environment. Also examines how the natural world and its degradation influence the way societies are organized by studying human communities as part of natural ecosystems.	1. Students will be acquainted with the importance of socioeconomic aspects of environmental issues and problems and with alternative approaches used by sociologists (and, to some extent, by other social scientists) to understand the social forces that underlie environmental problems.	1. Students will be able to define and apply the fundamental concepts of the sub-discipline of Environmental Sociology. These include, but are not limited to: environmental attitudes and behaviors, human carrying capacity, ecosystem, sustainability, environmental justice, and eco-feminism.
1301 Society, Natural Resources, and the Environment	WSES	T. Wayne Schwertner	UG	This course provides a broad overview of the role of the environment and natural resources in human society, with particular emphasis on Texas and the United States. A history of the environmental movement is presented. Students study the importance of natural resources in providing basic human necessities, and how these resources are	Students will receive basic knowledge concerning natural resources critical to human society, and the effect of human actions on these resources.	Students will learn to critically evaluate policy decisions concerning natural resources.
1307 Concepts and Controversies in Food Studies	WSES	Paula McKeehan	UG	Society has begun to take steps to know more about their food. This course will introduce students to the principles of Food Studies and will explore the role food narratives and exposés play in the consumer's perception of the current food supply. It will provide a foundation for understanding the connections among food production, ecology,	Students will develop an understanding of the connections among food production, ecology, ethics, cuisine, nutrition and health within the framework of sustainability.	Students will apply their knowledge to critically assessing food issues and making important decisions regarding food choice and policy.

2302 Sustainability	WSES	Barbara C. Bellows	UG	Sustainability is often defined as the intersection among ecological, economic, and social factors. Sustainability is also used to describe systems that are resilient and, thus, are able to recover following a disturbance. In the almost 30 years since this term became popular, “sustainable” has been used to describe various activities: sustainable development, sustainable agriculture, sustainable fisheries, sustainable energy use, sustainable transportation systems, and sustainable economic growth. Indicators of sustainability have been developed to analyze the sustainability of everything from wildlife management practices to		
2309 Biotechnology and Sustainability	WSES	Jeff Brady	UG	Beginning with background information on basic biological molecules and processes, the course will provide students with an overview of agricultural, medical, pharmaceutical, and forensic applications of biotechnology, both historical and modern. Fundamental technical processes used to manipulate living organisms and biomolecules will be discussed. The development of biotechnology will be explored using case studies, and the ethical,	Students will better understand agricultural, medical, pharmaceutical, and forensic applications of biotechnology, both historical and modern, as well as fundamental technical processes used to manipulate living organisms and biomolecules will be discussed.	Students will be equipped with the skills necessary to critically assess emerging issues in biotechnology as they relate to environmental and social sustainability.
3302 Soils, Land Use, and the Environment	WSES	Barbara C. Bellows	UG	Students will examine the interactions among soil physical, chemical, and biological process affecting soil, water, and environmental quality. These interactions will be addressed in relation to land use management practices such as erosion control, soil conservation, soil reclamation, riparian buffers, bioswales, and		

3309 Aquaponics	WSES	Hennen Cummings	UG	Students will examine the pros and cons of various aquaponics methods like raft, nutrient film, vertical towers, and media filled beds and their applications for growing fish and plants sustainably for a family/community or for profit. Students will construct a backyard aquaponics system, establish/harvest plants, and prepare a meal in laboratory. Topics covered are plant and fish choices and recommendations; planting/growing techniques; fish biology, stocking rates, and feeds; plant/fish care and health; water	Identify aquaponic systems.	Demonstrate skills in development and use of aquaponic systems.
3319 Composting	WSES	Don Cawthon	UG	The art and science of composting of agricultural, municipal, foodservice and household wastes to include composting techniques, waste products and feedstocks, aerobic vs. anaerobic processes, evaluation of composted products	Describe composting techniques.	Apply composting techniques.
3320 Watershed Management	WSES	Anne McFarland	UG	Management and planning of range or forest land watersheds for maintenance or improvement of water and soil resources. Effects of vegetation and land management practices on water quality and quantity, erosion, and sedimentation.	Students will develop extensive knowledge of management and planning of range or forest land watersheds for maintenance or improvement of water and soil resources, and the effects of vegetation and land management practices on water quality and quantity, erosion, and sedimentation.	Students will acquire the skills necessary to make informed decisions concerning the management of range or forest land to successfully manage watersheds for improved water quality and quantity.
3375 Population, Pollution, and Resource Depletion	WSES	Hennen Cummings	UG	Principles and philosophies associated with the development, management, and use of natural resources are studied in the relationship to the ecological and social implications inherent in management alternatives involving		
4303 Ecological Restoration of Plant Communities	WSES	Darrel Murray	UG	The class is an introduction to landscape- scale, process-oriented approaches to ecological restoration. Topics include enhancing resource capture, techniques in re-vegetation and restoration of historic vegetation. Prescribed fire and grazing as	Students will understand landscape-scale, process-oriented approaches to ecological restoration, including enhancing resource capture, techniques in re-vegetation and restoration of historic vegetation, as well as prescribed fire and grazing as restoration and management techniques.	Students will be able to apply their knowledge to solving landscape-scale ecological problems.

4305 Urban Wildlife and Fisheries	WSES	Jeff Breeden	UG	This course trains students to establish and maintain diverse, self-sustaining urban wildlife and fish populations at levels in harmony with ecological, social, an economic values of the human community and to develop optimal levels of public appreciation and use of urban wildlife an fish resources and associated habitats. Includes	Students will understand the unique attributes of fish and wildlife communities located in close association with dense human populations, and how human activities affect these communities.	Students will acquire the skills necessary to manage and maintain urban wildlife and fish communities.
4306 Water Resources Policy and Management	WSES	Robert Cavazos	UG	This course will present an overview of water policy, laws and regulations related to ecosystem resource management focusing on water quality, water quantity and water as habitat. Major US and Texas environmental laws regarding water will be covered including the respective agencies involved with regulations. Case		
4307 Energy, Society, and the Environment	WSES		UG	This course addresses fundamental principles and concepts of energy including the nature of energy flows and storage, potential and kinetic energy, energy loss and reversible and irreversible processes, as well as the effects of energy exploration, distribution,		

4341 Study Abroad in Natural Resource Conservation	WSES	Heather Mathewson	UG	This course will be conducted at various sites outside the United States. The goal of this course will be to introduce students to the natural resources of other countries, with a focus on wildlife and ecosystem management and conservation in the context of continued development. We will address issues such as human-wildlife conflicts, the role of wildlife in ecotourism activities, the provision of ecosystem services by wild animals, and the management of wildlife on both public and private lands. Enrollment in this course requires a significant study abroad program fee. May be repeated for credits when topics vary.	The globally competent learner understands the world in a larger context. Demonstrates knowledge of global issues, processes, trends, and systems (i.e., economic and political interdependency among nations; environmental-cultural interaction; global governance bodies). Understands his/her culture in global and comparative context – that is, recognizes that his/her culture is one of many diverse cultures and that alternate perceptions and behaviors may be based in cultural differences. Understands how his/her intended field (academic/professional) is viewed and practiced in different cultural contexts. Understands intercultural communication concepts. Demonstrates in-depth knowledge of a single culture (other than their own).	The globally competent learner makes practical applications. Demonstrates coping and resiliency skills in unfamiliar and challenging situations. Interprets issues and situations from more than one cultural perspective. Mediates cross-cultural interactions - that is, facilitates intercultural relations for and between others. Uses a foreign language to communicate - that is, may be able to perform one or more of the following skills. Speaks, reads, and/or writes in a language other than his/her first language. Listens in a language other than his/her first language.
4342 Field Study Abroad in Natural Resource Conservation	WSES	Heather Mathewson	UG	This is the field component to WSES 4341, where students will engage in hands-on activities geared toward understanding the biology of local wildlife populations and associated management issues. Enrollment in this course requires a significant study abroad program fee. May be repeated for credits when topics vary. Requires concurrent enrollment in the relevant section of WSES 4341.	The globally competent learner understands the world in a larger context. Demonstrates knowledge of global issues, processes, trends, and systems (i.e., economic and political interdependency among nations; environmental-cultural interaction; global governance bodies). Understands his/her culture in global and comparative context – that is, recognizes that his/her culture is one of many diverse cultures and that alternate perceptions and behaviors may be based in cultural differences. Understands how his/her intended field (academic/professional) is viewed and practiced in different cultural contexts. Understands intercultural communication concepts.	The globally competent learner makes practical applications. Demonstrates coping and resiliency skills in unfamiliar and challenging situations. Interprets issues and situations from more than one cultural perspective. Mediates cross-cultural interactions - that is, facilitates intercultural relations for and between others. Uses a foreign language to communicate - that is, may be able to perform one or more of the following skills. Speaks, reads, and/or writes in a language other than his/her first language. Listens in a language other than his/her first language.

4408 Sustainable Food Systems	WSES	Paula McKeehan	UG	This course will survey issues surrounding food production and examine the environmental and social impact of current food production systems. Specific emphasis will be placed on emerging trends to increase the sustainability of food production, distribution, and consumption. This	Students will learn about issues surrounding food production and examine the environmental and social impact of current food production systems. Specific emphasis will be placed on emerging trends to increase the sustainability of food production, distribution, and consumption.	Students will used the knowledge the acquire to think critically and make decisions regarding food issues, especially as they pertain to environmental and social sustainability.
5302 Natural Resource Ecology	WSES	Darrel Murray	G	Expanding upon a firm understanding of basic ecology, this course explores the relationship of ecological principles to natural resource, wildlife, and range conservation and management. Topics include ecology's historical context, evolution, the niche, intraspecific and interspecific competition, succession, predator-prey dynamics, and spatial ecology. Emphasis will be placed on the	Demonstrate an advanced knowledge in ecosystem processes.	Demonstrate an advanced skills in analyzing ecosystem function.

Please identify (on the appropriate tab) sustainability courses (tab AC-1a), or courses that include sustainability (tab AC-1b) using sustainability (tab AC-1b) using the definitions outlined in ***Standards and Terms*** *(also see "Reporting Criteria" tab for definitions)* **.**
For course "Level" please list UG as Undergraduate and G as Graduate.
In addition - please fill out the course offering information on the "Reporting Criteria" tab.

Courses that Include

Title	Department	Instructor	Level	Description	Knowledge Outcomes	Skills Outcomes
5301 Environmental Issues and Agricultural Policy	AGEC	Edward Osei	G	Current and emerging problems in economics of environmental issues relating to agriculture and agribusiness firms. Examination of policy issues, institutions, and legal and political constraints in relation to environmental quality and agricultural resources.	Students who successfully complete this course will be able to understand the significance of contemporary environmental issues, the trade-off between environmental quality and sustainable economic development, environmental concerns which have emerged from different disciplinary areas, as well as the impacts that result from alternative environmental policies. Students who successfully finished this course will also be able to use economic principles and models, such as benefit-cost analysis, to conduct environmental policy	
5318 Ethical/Environmental Issues in Agriculture	ANSC		G	Ethical and environmental issues affecting public policy as related to agrieducation/industry/business.	Understand the principles and concepts of tissue growth at the cellular level. Be knowledgeable of process that are involved in creating tissue growth. Be knowledgeable of current terminology growth, development and physiology. Be familiar with the livestock evaluation as it relates to growth and development. Be knowledgable of current market grades of animals and how it relates to growth and development and body composition. Understand basic concepts of embryonic growth, myogenesis,	Be able to evaluate tissue growth through performance traits measures.
5320 Environmental and Restoration Biology	BIOL	Allan Dale Nelson	G	Study of human interactions with plants and animals within ecosystems with an emphasis on conservation and restoration ecology.	Develop a foundation in ecology and understanding of the complex interrelationships between organisms and their environment.,Discuss responsibilities that mankind has in managing and conserving resources.	Gain an appreciation for the complexity and delicate balance of ecosystems and how humans have impacted,environments through exploitation, pollution
5310 Environmental Chemistry	CHEM		G	Study of the impact of chemistry on the environment to include topics on air, water, and soil pollution, with special emphasis on water. Beneficial chemical modification of the environment will be covered.	Frequently used terminology in Environmental Chemistry. Fundamental of aquatic chemistry, including solubility, pH, redox, phase interactions, and aquatic microbial actions. Fundamentals of water pollution and water treatment. Fundamentals of atmospheric chemistry and air pollution. Fundamentals of geochemistry and soil chemistry. Influences of technology on the environment. Hazardous wastes. Environmental biochemistry and toxicology. Principles of major environmental	

5086 Environmental Problems	ENVS	Ali Saleh	G	Independent research under the supervision of an instructor. A formal		
5185 Graduate Seminar	ENVS		G	A graduate seminar with content varying according to the needs and experiences of		
5300 The Regulatory Environment	ENVS		G	A survey of local, state, national, and international regulatory agencies to include their organization and authority. Case studies of environmental problems		
5310 Environmental Geology	ENVS		G	Explores the physical controls geology imparts to the global ecosystem through systems analysis of geologic processes. Hydrologic processes, river system processes and restoration, energy resources, coastal systems, and karst	Understand laws pertaining to stormwater management and solutions for stormwater control. Understand the basis for riparian restoration including the science and social aspects. Understand the complex legal, social, and scientific problems with waste disposal particularly nuclear waste.	Be able to do a comprehensive stream evaluation as part of a stream restoration plan. Be able to find and use scientific material on a variety of subjects. Be able to research
5325 Environmental Hydrology	ENVS		G	An examination of the processes that govern the earth's hydrologic cycle such as precipitation, evaporation and transpiration, runoff, infiltration and ground water and an exploration of anthropogenic effects on the hydrologic cycle. Topics include land-atmosphere interactions, movement of water in	Understand the hydrologic cycle from plot to watershed scales. Understand the climate and weather drivers of the water balance. Understand how hydrology is used in watershed assessments.	Be able to find specific hydrological information. Be able to use equations needed to develop a water balance. Be able to distill and present complex subjects in a timely fashion.
5329 Applications 0f Geographic Information Systems in Environmental	ENVS		G	Environmental and natural resource applications of Geographic Information Systems. Introduction to spatial analysis		
5335 Watershed Modeling	ENVS		G	The course will explore commonly used watershed models that can be used in linking sources of pollutants to receiving waterbodies. The course will explore large watershed, streamflow, water quality, urban watershed, and agricultural		
5341 Environmental Site Assessment	ENVS	Carol Ann Thompson	G	Introduction to Phase I and Phase II investigations, principles of siting and installation of monitoring wells, a review of sampling methods and sample design,		
5380 Research and Writing in Agriculture and Environmental Science	ENVS		G	Preparation of writing samples, technical reviews, and/or professional manuscripts related to various topics in agriculture or environmental science. Prerequisite:		
5311 Environmental Law	POLS	Anne E. Egelston	G	Focuses on the role of the American judiciary with respect to environmental policy and law, with particular emphasis on judicial review of environmental legislation and regulations, state-versus-federal environmental matters, and judicial review and interpretation of environmental treaties to which the	Define specific policy outcomes in a variety of areas of environmental law, including policy addressing climate change, energy production and conservation, food production and distribution, water pollution and distribution, environmental terrorism, and security issues related to the environment. Recall how environmental law impacts other areas of public policy and America’s relations with other nation-	Develop skills in policy analysis, including gauging the success or failure of environmental laws in effect and the causes of those successes or failures. Articulate said analysis through oral and written presentations, both incorporating development of

5303 Graduate Field Studies in Ecology	WSES	T. Wayne Schwertner	G	Students explore various facets of ecology during extended field trips to various locations in Texas and the other United States. Topics may vary depending upon location. May be repeated for credit when topics vary. This course requires an		
5320 Advanced Topics in Ecosystem Biogeochemistry	WSES	Donald McGahan	G	Multidisciplinary analysis of energy and nutrient transfers within terrestrial ecosystems. Examination of processes system interactions between the		
3318 Land Surveying and Soil/Water Concervation Practices	AGSD	Jessica Courtney Curry	UG	Surveying principles including leveling, total station, laser levels, and mapping as applied to agriculture. The utilization of GPS in the agricultural industry. Planning	Understand surveying principles; and Know important concepts specific to planning and development of structures for surface water and waste water management.	Utilize surveying equipment including the level, station, laser levels: and Utilize GPS equipment.
3323 Ethical Issues in Agriculture and the Natural Resources	ANSC	Kimberly A. Guay	UG	Students will examine the several major ethical issues facing agriculture and natural resources sciences in our current society. Readings, discussions and lectures will focus on the scientific, capitalistic, and philosophical motivation in common ethical issues. Upon completion of the course, students will be able to construct	Recognize agricultural and natural resource ethical issues.	Apply their skills in dealing with agricultural and natural resource ethical issues.
3340 Introduction to Marine Biology	BIOL	Allan Dale Nelson	UG	General considerations of the marine environment including habitats, biota, zoogeography, and humans' impact.	Students who successfully complete the course will be expected to have a basic understanding of the interactions of physical, geological, meterological, chemical and biological processies in the marine environment and how human populations have impacted marine resources..	Students learn the importance of the marine environment and how climate, food and the atmospheric gases such as oxygen and carbon dioxide are affected by the ocean. They will also gain an appreciation for the
4477 Environmental Chemistry	CHEM	Rajani Srinivasan	UG	This is an undergraduate course intended for any student who has completed College chemistry 1 and college chemistry II with an interest towards Environmental Science. This course includes both lecture and laboratory components. Lectures will cover topics which provide the understanding of interactions between chemical compounds whether anthropogenic or natural with the ecosystem. This course will provide qualitative and quantitative knowledge on effects of changes in water, soil, air and its effects on the environment. The lab	Understand the chemistry of troposphere, stratosphere, rocks, water, air and soil; understand the analysis of water and water pollutants, air and air pollutants, soil and soil pollutants and their treatment methods and technologies; understand the interaction of metals and organic chemicals in the environment; learn and appreciate the use of Green chemistry and its effect on sustainability of environment.	Analyze qualitative and quantitative measurements in water, air and soil using chemical methods; detect various pollutants present in the atmosphere.
2311 Soil Mechanics	ENVE	Kartik Venkataraman	UG	Introduction to the principles of soil and their influence on the hydrological cycle, Darcy's law and fluid flow through porous medium, stress distribution and consolidation of soil, subsurface exploration.	Understand of the origin, categorization, physical characteristics and composition of soils; understand how loads are distributed in soils.	Apply Darcy’s Law to construct flow nets; analyse stresses on soils due to different types of loads; perform laboratory exercises for determining soil textural composition, Atterberg

2450 Environmental Biotechnology	ENVE	Lynal S. Albert	UG	Application of fundamental principles of aquatic chemistry, molecular biology and biochemistry to understand and analyze complex chemical/biological processes in environmental engineering (natural and engineered systems).	Understand basic concepts and general principles related to environmental chemistry, molecular biology and biotechnology. Acquire an understanding of Stoichiometry, acid-base chemistry, redox reactions, electro chemistry, microbial classification, enzyme catalysis, microbial kinetics and energetics. Apply chemical and biological principles to understand the chemistry and the role of microorganisms in natural and engineered systems. Learn and demonstrate basic lab technique and procedure/regulations to be followed when working with chemicals and microorganisms.	Demonstrate understanding of fundamentals using quantitative methods, design and problem solving. Develop problem solving skills to analyze complex chemical and biological processes/systems. Develop laboratory skills to use standard laboratory equipment to perform and design experiments, and to analyze results obtained. Individually research an environmental issue of interest and critically analyze findings. Communicate scientific
3310 Engineering Hydrology	ENVE	Kartik Venkataraman	UG	Study of the hydrologic cycle, precipitation processes, soil moisture, infiltration, groundwater, rainfall-runoff processes, utilization of water resources, and frequency analysis; introduction to HEC-	Describe the major global hydrologic processes. Interpret rainfall analysis Develop an appreciation for hydrologic research by reading and reviewing scientific publications.	Apply commonly-used methods for estimating components of the hydrologic cycle. Investigate the applications and limitations of these methods Simulate
3401 Environmental Systems Modeling	ENVE	Lynal S. Albert	UG	Apply conceptual and numerical techniques to model environmental systems. Use differential equations to describe processes.	Demonstrate an understanding of basic environmental chemistry and biology; . demonstrate an understanding of the hydraulics involved in water distribution and wastewater collection systems and demonstrate the ability to select and design of a	Demonstrate a basic understanding of the methods employed to model surface water quality, subsurface water quality and air quality through
3420 Groundwater Hydrology	ENVE		UG	Topics include aquifer characteristics, infiltration, fluid dynamics of groundwater flow, potential flows, well analysis, water quality, groundwater pollution, legal		
3440 Environmental Risk Assessment	ENVE	Lynal S. Albert	UG	Introduction to the fundamentals of environmental and ecological risk assessment, including toxicity assessment, characterizing fate and transport processes in various environmental media, evaluating exposure pathways, dose-response assessment and modeling	Communicate results of risk assessment studies to stakeholders and resource planners and aid in the development of public health policies.	(a) Apply basic principles of environmental risk assessment to understand current environmental health issues. (b) Quantitatively predict and model chemical exposure and response to assess risk. (c)
4310 Water Resources Engineering	ENVE	Kartik Venkataraman	UG	Fundamentals of hydraulics applicable to open channel flow, natural streams and waterways; irrigation flow characteristics; hydrologic analysis; fluid measurement methods; introduction to hydraulic models	Understand the engineering application of hydraulic machinery. Understand the challenges involved in sustainable management of water resources.	Apply hydrologic and hydraulic principles in designing water supply networks and managing excess water in urban areas Design and analyze hydraulic
4340 Advanced GIS Applications	ENVE	Kartik Venkataraman	UG	The course presents the application of Geographic Information Systems (GIS) in Civil and Environmental Engineering. The components of ArcGIS and applications in the field of sustainable natural resource planning and management are discussed. Introduction to and hands-on experience with (a) data acquisition and processing, (b) hydrologic terrain analysis, (c) soil and land use mapping, (d) transportation	Recognize the importance and application of modern tools and techniques.	Create base maps of hydrologic features of an area, such as streams and aquifers. Spatially interpolate measured data at discrete points to form raster surfaces over a region Perform raster calculations. Analyze digital elevation models (DEMs) of land surface to derive watershed/stream networks.

4420 Water and Waste Water Treatment	ENVE	Lynal S. Albert	UG	Treatment and distribution of residential and industrial water supplies, waste water treatment and disposal methods of municipal and industrial systems, environmental toxicology; aspects of groundwater monitoring and water quality maintenance. Laboratory analysis of water	Demonstrate the ability to conduct preliminary planning, design, and management of water and waste water treatment systems Recognize water quality standards relevant to water supply and waste water treatment Identify the hydraulic structures relevant to water supply and waste water engineering Recognize the characteristics and	Demonstrate the principles of water and waste water treatment methods Determine design flow rates and constituent loadings Identify biological treatment of waste water and biosolids
2451 Introduction to Geographic Information Systems	ENVS	Opeyemi A. Zubair	UG	This is a cross-listed course with GEOG 2451 Intro to GIS. Basic concepts of design, planning and implementation of geographic information systems. Students will learn how to create, manipulate,	Demonstrate an understanding of GIS software and uses.	Exhibit spatial thinking skills, and spatial cognition from learning how to envision and project geographic information.
4084 Environmental Science Internship	ENVS		UG	Formally arranged and approved on-the-job training with a cooperating sponsor in government or private sector of the environmental field. A minimum of 40 hours of training is required for each hour of academic credit. A maximum of six hours of credit may be earned. Oral and	Students will have knowledge of real-world applications in environmental science.	Students will have skills applicable to real-world applications in environmental science.
4086 Environmental Problems	ENVS	Carol Ann Thompson	UG	Independent study or research of current topics in student's major. Content and		
4185 Seminar	ENVS	Barbara C. Bellows	UG	A review of current problems and developments in environmental arena. Discussions of current literature and		
1309 Clothing and Society	FACS		UG	A study of the functions of apparel in society. Includes cultural and environmental influences, communications, social, and psychological		
2305 Consumer Issues and Decision Making	FACS		UG	Designed to make the student an intelligent consumer of goods and services and to understand consumer decision-making in the marketplace. Major		
3304 Food Processing	FACS	Paula Hunter Mckeehan	UG	A study of the world food supply, trends and traditions in diet and food sanitation, safety, security, and biotechnology, and		
4335 Food and Culture	FACS		UG	A study of the food beliefs and practices of the major ethnic and religious groups in the U. S. and the nutritional implications of these food practices, a cultural analysis of American food trends; ethnic issues and		
1309 Fashion and Culture	FASH	Karol Blaylock	UG	A study of the functions of fashion items in society. Includes cultural and environmental influences, communications, social, and psychological functions.	1. Define terms and relate relevant theory to underlying cultural choices of apparel. 2. Know the development within a society of cultural expectations and perceptions of dress. 3. Relate theory of dress to societal influences including the environment, communications, and social and psychological	1. Recognize different cultures by their dress cues and specific expectations of each culture. 2. Relate theory of dress to problem solving.

1303 World Regional Geography	GEOG	John B. Martins	UG	Introduction to the basic concepts of geography through a study of the major regions of the world. This course enhances the understanding of world events, lifestyles, environments, cultures, and conflicts and emphasizes thinking spatially to study human-land relationships.	Identify common rocks and rock-forming minerals, and determine how each major type of rock was created; read topographic maps and recognize landscape characteristics on these maps; read geologic maps and interpret geologic structures on the maps; recognize faults and folds; compute plate velocities from tectonic data; understand the processes that drive earth's global cycles; identify potential for and causes of natural disasters; and understand where and how natural resources are found. At the conclusion of this course, students will appreciate the complexity of the earth's natural systems and human impact on these systems, as well	
1320 Introduction to Human Geography	GEOG	Kelly K. Lemmons	UG	This course is an introduction to geography as a social science, emphasizing the relevance of geographic concepts to		
1451 Pre-GIS: GPS, VGI, and Cartography	GEOG	Opeyemi A. Zubair	UG	An introductory course to GIS. Pre-GIS focuses on the knowledge, instruments, and data necessary for GIS. Pre-GIS is a student-centered, hands-on course that will introduce students to the GIS concepts that are intrinsic in introductory and advanced GIS courses. Students will create virtual maps by gathering data	Students will understand fundamental geospatial techniques needed in spatial problem solving, have an understanding of the fundamentals of cartography, GPS and volunteered geographic information through crowdsourcing techniques.	Students will be able to utilize GPS units to collect field data, analyze and interpret field data, integrate field data into a GIS, design and produce high quality digital maps and acquire necessary crowdsourcing techniques need to contribute
2301 The Geography of Texas	GEOG		UG	This course uses the key concepts of regional geography to study the evolving character and nature of the different areas of Texas. The interaction of people and environment is used to study the economic development, social and		
2312 Economic Geography	GEOG	Kelly K. Lemmons	UG	This course examines economic activity and production as a function of geographic location. Introduces the basic concepts related to the advance, spread, and distribution of economic activity around the planet and considers the		
2451 Introduction to Geographic Information Systems	GEOG	Opeyemi A. Zubair	UG	Basic concepts of design, planning and implementation of geographic information systems. Students will learn how to create, manipulate, project, and interpret	Recognize GIS software and uses.	Show spatial thinking skills, and spatial cognition from learning how to envision and project geographic information.
3451 Advanced Geographic Information Systems	GEOG	Opeyemi A. Zubair	UG	Advanced topics in geographic information systems (GIS), manipulation of raster data types; three-dimensional	Recognize GIS software and uses.	Show advanced spatial thinking skills, and spatial cognition from learning how to envision and
3310 Geomorphology	GEOL	Carol Ann Thompson	UG	Study of surface processes in geological environments with emphasis on environmental and engineering applications. Topics include weathering, soil formation and erosion, landslides, and landforms associated with rivers, groundwater, coasts, arid and semi-arid climates. Laboratory emphasizes aerial	Understand landform evolution and the relationship between process and resultant landforms. Understand the effects of climate on landscape development. Have a deeper knowledge of the importance of rivers in geomorphology. Have a developed understanding of the processes operating in karst (limestone) regions. Have a developed understanding of processes operating in glacial and	Be able to recognize and interpret various landforms from maps and aerial photos. Be able to interpret landforms in the field. Be able to research and present complex topics in a scientific format. Can interpret the landscape around them in

3320 Hydrogeology	GEOL	Carol Ann Thompson	UG	Aquifer characteristics, physical principles of groundwater flow, well analysis, geologic controls on local and regional groundwater movement, water chemistry, groundwater pollution, legal issues in groundwater.	Understand the processes in the water cycle. Understand the proper methods for hydrogeologic evaluation. Understand proper well analysis methods. Be able to list common water contaminants and their sources.	Be able to read, access, and critically evaluate the scientific literature. Be able to use some of the tools of the research and professional hydrogeologist. Describe the processes in the hydrologic cycle and explain how rates of each are quantified. Use lab and non-lab methods to estimate values of porosity, specific yield, permeability, and hydraulic conductivity for any given type of porous medium. Describe a hydrogeologic setting in terms of aquifers, aquitards, and hydrostratigraphic units. Know
3413 Stratigraphy and Sedimentology	GEOL	Catherine L. Ronck	UG	A study of the origin, transportation, and deposition of sediments and the formation of sedimentary rocks. Emphasis on the study of strata and depositional systems and the utilization of sedimentology and stratigraphy in economic geology, environmental geology,	The student should generally understand how sedimentologists construct hypotheses and how they analyze and interpret sedimentological data. The student should comprehend how sedimentology and stratigraphy is utilized in geological studies and the geology and environmental science industries.	Knowledge of sedimentology allows the student to better understand the formation and distribution of their natural resources. Sedimentological studies are widely used in conservation practices, and
3320 Biotechnology and Bioethics	HPTC	Anthony Charles Edwards	UG	This course will cover the recent advances in biology which have made new techniques and technologies possible for the production of pharmaceuticals, foods, textiles, pesticides and chemicals. Ethical principles in biotechnology and biomedicine are studied and applied to contemporary problems in medicine and		
1301 Horticulture	HORT	Manon Lori Shockey	UG	Introduction to the horticulture industry and the career opportunities that are available. The course includes an introduction to plant classification and structure, greenhouse construction and	Students that complete this course will know the basic horticultural principles to include career opportunities, plant classification, greenhouse construction and management, and plant propagation.	Students that complete this course will know the basic horticultural principles to include career opportunities, plant classification, greenhouse
3300 Plant Propagation	HORT	Manon Lori Shockey	UG	Principles of propagating plants, including vegetables, ornamentals, and fruits. Methods of handling seed; starting plants by the use of cuttings, layers, buds, grafts, and bulbs; ways of propagating specific		
4301 Greenhouse and Nursery Management	HORT		UG	A study of the variables affecting greenhouse and nursery crop production. Both economic and physical variables will be explored. Particular emphasis will be placed on management techniques used		
4303 Greenhouse Crop Production	HORT		UG	Principles of propagating various plant materials, vegetative propagation methods, handling, starting, storing, and collecting seed, greenhouse management practices as related to propagation,		

4320 Landscaping with Native Plants	HORT	Crissa Diane Nugen	UG	Identification, characterization, and utilization of herbaceous and woody plants indigenous to Texas and other areas useful for landscaping purposes.		
4330 Horticultural Enterprises	HORT	Michael R. Wade	UG	Horticultural business and educational enterprises will be visited or explored. Students are required to complete a business portfolio which will include		
4350 Retail Horticulture	HORT	Manon Lori Shockey	UG	The establishment and management of a retail store with emphasis on plant display, care, and marketing in a retail environment, and on customer relations		
3316 Consumer Behavior	MKTG	Yi-Chia Wu	UG	Acquaints students with individual and group behavior of people performing in consumer role. Considers such topics as buying motives, social class, and research techniques in consumer behavior.	Intended Student Outcomes: (Must include outcomes of knowledge and skills, and may also include behavioral). A. Understand the process of consumer decision making and its impact upon marketing strategies B. Understand the cognitive variables (beliefs, needs, perceptions, and attitudes) and the descriptive consumer characteristics (demographics, personality, and lifestyle) and how they affect consumer behavior and impact marketing strategies C. Understand the environmental considerations of culture, social class, group influence, the family and situational determinants and the impact they have on buyer behavior and on marketing strategies. D. Understand market segmentation and product positioning and how these impact marketing opportunities. E. Understand the differences between organizational buyer behavior and consumer buyer behavior F. Understand the impact of consumerism on ethical and public policy issues regarding consumers' rights and the responsibilities of business and government in securing these rights. At the conclusion of the course the (successful) student will have demonstrated understanding of the principles and tactics of Consumer Behavior though	
3301 Political Economy of Globalization	POLS	Barry L. Price	UG	This course provides an overview of the demographic, technological, and economic forces that have come together to shape a more culturally, economically, and politically integrated world. It will also examine the hard political and economic choices that both individuals and governments must make in this more	By the end of this course, students should be able to: a) describe the major technological changes that have produced this new "Flat World" b)describe the massive demographic changes that are changing world populations centers c)describe the rules and norms that govern international political and economic interaction in the new "Flat" world.	By the end of this course, students should be able to: a)identify, access and utilize data banks maintained by major regional and international organizations b)use internet resources/tools to communicate and work with their
4311 Environmental Law	POLS	Anne E. Egelston	UG	Focuses on the role of the American judiciary with respect to environmental policy and law, with particular emphasis on judicial review of environmental legislation and regulations, state-versus-federal environmental matters, and judicial review and interpretation of environmental treaties to which the	Demonstrate knowledge of specific policy outcomes in a variety of areas of environmental law, including policy addressing climate change, energy production and conservation, food production and distribution, water pollution and distribution, environmental terrorism, and security issues related to the environment. Demonstrate how environmental law impacts other areas of public policy and America's	Develop skills in policy analysis, including gauging the success or failure of environmental laws in effect and the causes of those successes or failures. Articulate said analysis through oral and written presentations, both incorporating development of

3300 Rangeland and Forest Plants	RNRM	Randall E. Rosiere	UG	Comprehensive study of native and naturalized North American plants used for range, habitat, and wood products. Major domesticated pasture plants. Detailed treatment of systematics, nomenclature, morphological features,		
3301 Principles of Range Management	RNRM	Randall E. Rosiere	UG	Principles and practices for managing native grazing lands. Use of the Cardinal Principles for conservation of range resources. Sustained forage, animal, water, etc., production and ranching profitability. Application of ecology and	Identify principles and practices for managing native grazing lands; Sustained forage, animal, water, etc., production and ranching profitability; and recognize application of ecology and plant physiology to grazing management.	Classify range flora and fauna,land-vegetation manipulations to restore deteriorated ranges and watersheds, and use of the Cardinal Principles for
3315 Range Ecology	RNRM	Randall E. Rosiere	UG	Introduction of the physical and biological components of rangeland ecosystems and their influence on plant and animal growth. Field study of range ecosystems in the Cross Timbers area with emphasis on		
4312 Range Improvement and Development	RNRM	Randall E. Rosiere	UG	Principles and practices associated with the development of rangelands for livestock and wildlife production. Study of grazing systems, facilities development, brush control, reseeding, fertilization, and		
5315 Rangeland Ecosystems	RNRM		UG	Specialized study of rangeland ecosystems with emphasis on herbivory as an ecological process. An in-depth review of assessment methodology, trends in		
4313 Globalization	SOCI	Robert L. Cavazos	UG	This course focuses on social processes and social problems as they are contained in the highly interdependent world system. Social change and development stresses historical, comparative, and critical perspectives, and addresses the problem of how and why societies and cultures around the world change and whether those changes promote justice, equity, democracy, and development of human potential.	1. Learn theories and models of societal development and social change. 2. Identify the contemporary social changes and the consequences of these changes in the United States and globally. 3. Learn the consequences of technological innovations. 4. Understand their position in a growing and international economy. 5.Learn the relationship between, developed countries, less developed countries and the least developed countries. 6.Recognize controversies regarding the impact globalization has on our economy and global economies. 7. Describe the impacts of globalization	1. Appreciate the social, institutional, cultural, economic and political contexts of technology transfer. 2. Enhance critical thinking skills in regard to development. 3. Recognize the global indicators of development. 4. Identify global issues of health and health indicators. 5. Understand the many factors that initiate social changes.
1305 Fundamentals of Crop Science	WSES	David Kattes	UG	Classification and distribution of farm crops; importance of food cultivars and good seed; crop improvement; preparation of seedbed, commercial fertilizers, manures, and lime; seeding practices; crop tillage; harvesting;	Students will leave the course with a fundamental knowledge of major crop production systems.	Students will be able to apply the knowledge learned to producing agricultural crops.

2322 Principles of Wildlife Conservation and Management	WSES	Jeff Breeden	UG	A study of the fundamental principles of wildlife conservation and management, stressing the application of ecological principles to achieve wildlife management objectives. Topics will include conservation, management, and restoration of wildlife habitats; wildlife population assessment and management; human dimensions and human-wildlife	Demonstrate the fundamental principles of wildlife conservation and management, stressing the application of ecological principles to achieve wildlife management objectives.	Demonstrate the skills necessary to succeed in upper division wildlife courses and in the wildlife field.
2375 Soil as the Basis for Society	WSES	Donald McGahan	UG	The underpinnings of the scientific principles of soils, how people have harmed them, and why everyone should be concerned with how we treat them. This course may not be used to fulfill the		
2405 Ecology for Natural Resource Managers	WSES	Hemanta Kafley	UG	A study of the interactions of plants, animals, and the environment and how these interactions respond to human influence. Emphasis will be placed on terrestrial ecosystems (rangelands, grasslands, deserts, wetlands, and forests), and specific interactions among	Identify the principles of ecology as they relate to the analysis and management of natural populations of plants and animals.	Apply their knowledge to solving natural resource problems.
3305 GIS for Natural Resource Scientists	WSES	Hemanta Kafley	UG	A study of the world food supply, trends and traditions in diet and food sanitation, safety, security, and biotechnology, and impact of processing on diet quality.	Students will become knowledgeable in the use of geographic information systems (GIS) in natural resource management. Laboratory exercises will apply knowledge learned in lectures to solve real world problems in natural resource management	Students will acquire skills that apply knowledge learned in lectures to solve real world problems in natural resource management using GIS
3313 Plant Diversity and Conservation	WSES	Darrel Murray	UG	The course focuses on patterns and distribution of plant diversity and threats to plant diversity. The focus will be on plant communities found in a variety of range, forests, and other systems.	Students will understand patterns and distribution of plant diversity and threats to plant diversity, and the range of strategies and approaches used in plant conservation will be discussed.	Students will apply their knowledge to addressing problems of plant conservation.
3314 Honey Production and Pollinator Ecology	WSES	David Kattes	UG	This course is designed for students interested in honey bee production. Topics discussed will include, honey bee biology, pollination ecology, honey bee hive management, disease and arthropod pest management, and the harvesting and marketing of honey, pollen, wax, and	Recognize bees and pollinator ecology.	Raise bees for honey production.
3323 Ethical Issues in Agriculture and the Natural Resources	WSES	Kimberly Guay	UG	Students will examine the several major ethical issues facing agriculture and natural resources sciences in our current society. Readings, discussions and lectures will focus on the scientific, capitalistic, and philosophical motivation in common ethical issues. Upon completion of the course, students will be able to construct	Identify ethical issues in agriculture and natural resources.	Define ethical issues in agriculture and natural resources.

4324 Organic Agriculture		WSES		Justin Tuggle		UG		Organic agriculture will examine a brief history of the industry development, changes in the structure and industry, USDA NOP rules and regulations, and certification to provide a scope of understanding for the course. The majority of the course will focus on the mechanics of crop and vegetable production in an organic system including		Recognize organic agriculture.		Develop and manage an organic agriculture operation.
4340 Natural Resources Field Studies		WSES		Jeff Breeden		UG		A field course in which students capture, measure, and mark animals; collect descriptive measures of vegetation that characterizes wildlife habitat; and record field observations using a journal. This course requires a one-week field trip at student's expense (in addition to the field		Students will gain hands-on knowledge of the wildlife of Texas and the United States, techniques used to study wildlife, and methods used to manage wildlife populations.		Students will acquire and practice skills such as wildlife capture, population estimation, and habitat manipulation.

Credit	Credit Title	Reporting Field	Response
AC-1	Academic Courses	Number of undergraduate sustainability courses offered by this department	
		Number of undergraduate courses offered by this department that include sustainability	
		Total number of undergraduate courses offered by this department	
		Number of graduate sustainability courses offered by this department	
		Number of graduate courses offered by this department that include sustainability	
		Total number of graduate courses offered by this department	

AC-1a - Sustainability Courses

Sustainability courses are courses in which the primary and explicit focus is on sustainability and/or on understanding or solving one or more major sustainability challenge (e.g. the course contributes toward achieving principles outlined in the Earth Charter). This includes:

1) Foundational courses in which the primary and explicit focus is on sustainability as an integrated concept having social, economic, and environmental dimensions. Obvious examples include Introduction to Sustainability, Sustainable Development, and Sustainability Science, however courses may also count if their course descriptions indicate a primary and explicit focus on sustainability.

2) Courses in which the primary and explicit focus is on the application of sustainability within a field. As sustainability is an interdisciplinary topic, such courses generally incorporate insights from multiple disciplines. Obvious examples include Sustainable Agriculture, Architecture for Sustainability, and Sustainable Business, however courses may also count if their course descriptions indicate a primary and explicit focus on sustainability within a field.

3) Courses in which the primary focus is on providing skills and/or knowledge directly connected to understanding or solving one or more major sustainability challenges. A course might provide knowledge and understanding of the problem or tools for solving it, for example Climate Change Science, Renewable Energy Policy, Environmental Justice, or Green Chemistry. Such courses do not necessarily cover "sustainability" as a concept, but should address more than one of the three dimensions of sustainability (i.e. social wellbeing, economic prosperity, and environmental health).
While a foundational course such as chemistry or sociology might provide knowledge that is useful to practitioners of sustainability, it would not be considered a sustainability course. Likewise, although specific tools or practices such as GIS (Geographical Information Systems) or engineering can be applied towards sustainability, such courses would not count as sustainability courses unless their primary and explicit focus is on sustainable applications. If there is a sustainability unit, module or activity within one of these courses, but it is not the main focus, the course may be counted as a course that includes sustainability.

AC-1b - Courses that Include Sustainability
A course that includes sustainability is primarily focused on a topic other than sustainability, but incorporates a unit or module on sustainability or a sustainability challenge, includes one or more sustainability-focused activities, or integrates sustainability issues throughout the course.
While a foundational course such as chemistry or sociology might provide knowledge that is useful to practitioners of sustainability, it would not be considered to be inclusive of sustainability unless the concept of sustainability or a sustainability challenge is specifically integrated into the course. Likewise, although specific tools or practices such as GIS (Geographical Information Systems) or engineering can be applied towards sustainability, such courses would not count unless they incorporated a unit on sustainability or a sustainability challenge, included a sustainability-focused activity, or incorporated sustainability issues throughout the course.