

College of Architecture

ARCH 2351 - Architectural Construction I - Undergraduate

TCCNS: [ARCH 2312] Prerequisite or corequisite: ARCH 2401 or equivalent, and C or better in ID 3387 . Introduction to construction systems, methods, and materials with emphasis on the wall section. Introduction to issues of sustainability and envelope performance.

ARCH 2355 - Architectural Environmental Systems - Undergraduate

Introduction to thermal design; daylighting; analysis of mechanical, electrical, and plumbing systems; and acoustical design.

ARCH 3373 - Environmental Analysis - Site Planning - Undergraduate

Basic course to develop a working knowledge of the techniques and principles involved in site planning to provide optimum living and working environments.

ARCH 5301 - Special Problems in Architecture - Graduate

Prerequisite: College approval. Individual study projects in architecture of special interest to students. Particularly useful for Interdisciplinary Studies master's program.

ARCH 5601 - Integrative Design Studio - Graduate

Corequisite: ARCH 5354 . Design of a comprehensive architectural project based on a building program and site that includes understanding of structural and environmental systems, building assemblies, and principles of sustainability.

College of Agricultural Sciences & Natural Resources

Agricultural and Applied Economics

AAEC 4309 - Sustaining Global Ecology, Natural Resources and Economy - Undergraduate

Challenges to global markets and environment across diverse systems and histories. Fulfills multicultural requirement. (Writing Intensive)

AAEC 4313 - Natural Resource Economics - Undergraduate

Prerequisite: AAEC 3315 . Economics of natural resource use and allocation including land economics, economics of water development, and environmental economics.

AAEC 5308 - Natural Resource Economics - Graduate

Prerequisite: ECO 5312 or instructor consent. Economic theory and empirical investigations of resource utilization with special emphasis on arid and semi-arid land areas and environmental issues.

AAEC 5314 - Environmental Economics and Policy Analysis - Graduate

Familiarize students with economic techniques and their use in analyzing natural resources and environmental policy issues

Landscape Architecture

LARC 4302 - Environmental Planning for Sustainable Development - Undergraduate

Prerequisites: BIOL 1305 and BIOL 1113 . An introduction to environmental planning issues with emphasis on the integration of related disciplines to attain environmentally and socially sustainable development.

LARC 5302 - Advanced Environmental Planning for Sustainable - Graduate Development

An introduction to environmental planning issues with emphasis on the integration of related disciplines to attain environmentally and socially sustainable development.

Natural Resources

NRM 1300 - Environmental Science as a Social Pursuit - Undergraduate

Application of scientific methods to global and environmental issues. Explores the impact of culture and science on core natural resources such as food and clean air. Fulfills core Social and Behavioral Sciences and multicultural requirement.

NRM 2302 - The Ecology and Conservation of Natural Resources - Undergraduate

An introduction to the ecology and conservation of renewable natural resources of native lands, including their multiple use for timber, water, range, recreation, and wildlife.

NRM 2307 - Diversities of Life - Undergraduate

Principles of evolution, genetics, and biodiversity as related to conservation and management of natural resources at scales ranging from genes to the biosphere.

NRM 3304 - Principles of Range Management - Undergraduate

Prerequisite: C or better in NRM 3402 . Application of ecological principles in the management of rangelands for sustained livestock products consistent with conservation of the range resource. Field trips required.

NRM 3307 - Principles of Conservation Science - Undergraduate

A survey of the theory and practices of conservation biology. Emphasis is placed on methods used to maintain plant and animal biodiversity.

NRM 3308 - Quantitative Methods in Natural Resources - Undergraduate

Prerequisite: MATH 1330 . Survey of quantitative and statistical methods used in natural resource management, conservation biology, and in assessing biodiversity.

NRM 3309 - Restoration Ecology - Undergraduate

Case studies, literature, and hands-on experience illustrate the theory and practice of ecological restoration, including plants and animals.

NRM 4302 - Range Improvements - Undergraduate

Application of principles and practices necessary to enhance the productive potential of the range resource for all potential uses. Methods for brush management, revegetation, conservation, etc. are considered. Improvement for increased domestic livestock production and for enhancing wildlife habitat is emphasized.

NRM 4314 - Watershed Planning - Undergraduate

The watershed as a unit of resource-oriented planning and development. Principles and objectives of watershed management. Physical description of watershed. Relationship between land-use conditions and the water delivery character of watersheds. Watershed analysis, including techniques, collection of field data, and sources of information.

NRM 4324 - Tropical Ecology and Conservation - Undergraduate

An introductory survey of tropical ecology and conservation covering both theory and practice. Previous ecology course, instructor consent, and field trips are required.

NRM 4335 - Freshwater Bioassessment - Undergraduate

Prerequisite: C or better in NRM 2305 . No freshmen. An overview of the methods used to evaluate the condition of waterbodies, including surveys and other direct measurements of aquatic species attributes and habitats.

NRM 4340 - Urban Ecology and Human Dimensions - Undergraduate

Prerequisite: C or better in NRM 1300 and NRM 1401 , or instructor consent. An introduction to urban ecology, human dimensions of natural resources, and urban wildlife management. Case studies, policies, socioeconomic factors, and ecosystem function are examined.

NRM 4401 - Fisheries Conservation and Management - Undergraduate

Prerequisites: ZOOL 4410 , C or better in NRM 2305 and either AAEC 2401 , MATH 2300 , or C or better in NRM 3308 or instructor consent. Theory and practice regarding conservation and management of aquatic resources, including ecology, population biology, sampling, restoration, and resource conflict.

NRM 5201 - Foundations of Ecology and Conservation Biology - Graduate

Examination of classic foundational papers in ecology and conservation biology, their influence in these fields, and their relevance to current research.

NRM 5312 - Ecology of Renewable Natural Resources - Graduate

An introduction to the ecology of renewable natural resources such as vegetation, wildlife, soil, and water.

NRM 5320 - Natural Resource Biopolitics - Graduate

Policy, planning, and conflict resolution from a natural resource management perspective. Historical, agency, and private organization roles in natural resource management are evaluated.

NRM 5347 - Advanced Conservation Science - Graduate

Prerequisite: Instructor consent. A survey of the theory and practice of conservation biology for advanced students.

NRM 5401 - Advanced Fisheries Conservation and Management - Graduate

Prerequisite: Instructor consent. Theory and practice regarding the conservation and management of aquatic resources, including ecology, population biology, sampling, restoration, and resource conflict.

Plant Soil & Sciences

PSS 3311 - Sustainable Vegetable Crop Production - Undergraduate

Prerequisite: C or better in PSS 1411 or PSS 1321 . Study of principles and practices of sustainable vegetable production methods used by commercial growers. Focus will be on planning, production, and marketing of major vegetable crops within Texas.

College of Arts and Sciences

Economics

ECO 3336 - Environmental Economics - Undergraduate

Prerequisites: ECO 2301 and ECO 2302 or consent of instructor. Applies economic models to current local and global environmental issues with an emphasis on evaluating policies.

ECO 5317 - Natural Resource and Environmental Economics - Graduate

Prerequisite: ECO 5312 or consent of instructor. Covers theory and policy in natural resource and environmental economics. Optimal rules for renewable and nonrenewable patterns of use, public policy. Intensive study of one sector (energy, water, forestry)

Geosciences

GEOL 3323 - Environmental Geology - Undergraduate

Prerequisite: GEOL 1303 or GEOL 3324 . Study of geological processes that affect human activities, emphasizing natural hazards, water resources, waste disposal, energy, mineral resources, and land use and planning.

Political Science

POLS 3334 - Sustainability: Energy, Environment, and Society - Undergraduate

Students will learn the key concepts of sustainability and the challenges with energy resource management, climate change, and environmentalism in developed and developing countries.

PUAD 5324 - Energy, Climate, and Sustainability - Graduate

Students learn the political and administrative dynamics of U.S. energy, climate, and sustainability law policy.

College of Engineering

Bioengineering

BIOE 4301 - Bioengineering System Design - Undergraduate

Covers systematic design processes, engineering economics, FDA requirements, safety engineering ethics, design failures, and sustainability through the design of biomedical and biotechnological devices.

Civil, Environmental, and Construction Engineering

CONE 3302 - MEP Systems and Design for Construction - Undergraduate

Prerequisite: At least junior standing in construction engineering or instructor consent. Introduces students to mechanical, electrical, and plumbing systems in buildings. Includes basic design principles, conservation measures, and green building practices.

CONE 3304 - Sustainable Building Design and Construction - Undergraduate

Techniques and methods of sustainable construction and design. Addresses the importance of team effort among owners, developers, architects, engineers, and contractors. USGBC and LEED process will be studied.

CONE 5304 - Sustainable Building Design and Construction - Graduate

Prerequisite: Graduate standing or instructor consent. Design and construction of high-performance buildings with the basis on which sustainability can be evaluated.

CE 5351 - Advanced Pavement Materials - Graduate

Materials science, microstructure, engineering properties, life-cycle, constitutive models, tests, constructability and performance of soils, aggregates, granular materials, stabilized materials, bituminous binders and asphalt concrete, mix design, sustainability.

CE 5356 - Sustainable Material Systems and Engineering Design - Graduate

Engineering design process, infrastructure systems, principles of ecology and sustainability, industrial ecology, design for sustainability, sustainability metrics, material selection, material flow, life-cycle assessment, design project.

ENVD 5342 - Sustainability for Fashion - Graduate

Focuses on innovative ways of thinking about textiles, accessories, and garments based on sustainability values and an interconnected approach to design.

ENVD 5383 - Sustainable Communities and Design - Graduate

Examination of sustainability concepts related to design of communities, buildings, and interiors.

Electrical & Computer Engineering

ECE 5390 - Functional Materials - Graduate

Prerequisite: ECE 5314 or ECE 5381 . Introduction to functional materials and their applications, including sustainability, bio-inspired materials, and nano-structured materials.

Engineering

ENGR 1301 - Engineering Design for Sustainability - Undergraduate

Emphasizes energy, environment, creativity, engineering design, innovation, entrepreneurship and teamwork. Teams design projects focused on conceptualization of sustainable transportation and/or building systems for the future.

ENGR 2393 - Environmental Literacy and Ethics - Undergraduate

Familiarizes students with some of the contemporary challenges they are likely to face as professionals as the concepts and practices of environmental literacy and sustainability become more prevalent in their industries.

Industrial Engineering

IE 5353 - Sustainable Manufacturing - Graduate

Prerequisite: Consent of instructor. Life Cycle Assessment for product design and manufacturing process design; three-dimensional sustainability environmental, social, and economical aspects.

Mechanical Engineering

ME 4354 - Sustainable Transportation Design - Undergraduate

Prerequisite: ME 3371 . Application of engineering processes to design creative, innovative, and economically viable fuels, powertrains, vehicles, and transportation systems that promise to significantly reduce the use of fossil fuels and the production of greenhouse gasses. Approved departmental elective.

ME 4360 - Sustainable Energy - Undergraduate

Prerequisites: ME 2322 , MATH 3350 . Exploration of the global energy demand and its environmental impact for continued human development. Alternative and petroleum-based fuels will be examined for near-term and long-term solutions. Includes researching, developing presentations, and participating at a high level of activity. Approved departmental elective.

Wind

WE 1110 - Wind Energy Analytical Methods Laboratory - Undergraduate

Corequisite: WE 1310 . Hands-on exercises in the development of practical MatLab skills associated with mathematical modeling and data manipulation in wind energy.

WE 1300 - Introduction to Wind Energy - Undergraduate

Provides a basic understanding of the wind energy industry and discusses the basic meteorology of wind, extraction of energy from wind, wind plant development, and the environmental and ecological impact of wind energy plants.

WE 1310 - Analytical Methods in Wind Energy - Undergraduate

Covers fundamentals of wind mathematical modeling (one to three dimensions).

WE 3315 - Renewable Energy and the Environment - Undergraduate

Provides an overview of society's needs and future energy demands. Examines conventional energy sources and systems. Provides in-depth analysis of renewable energy sources.

WE 4000 - Internship in Wind Energy - Undergraduate

Prerequisite: Junior or senior standing, consent of instructor. Supervised internship in an approved wind energy industry or professional establishment.

WE 4300 - Wind Energy Grid Integration - Undergraduate

Prerequisite: WE 3301 . In-depth instruction in wind turbine generator technology, grid integration techniques, and market and grid regulations.

WE 4310 - Wind Modeling and Design - Undergraduate

Prerequisites: ENGL 1302 ; WE 2300 , WE 3300 , WE 3301 , WE 3100 , and WE 3310 . Instruction in the process and development of wind energy projects emphasizing technical, environmental, and financial aspects of project development.

WE 4311 - Wind Energy Law and Regulatory Issues - Undergraduate

Prerequisite: WE 3315 , ENGL 1302 , or declared minor in legal studies. Provides an in-depth understanding of the law as it relates to the development of wind projects.

WE 4313 - Wind Energy Geographic Information Systems and Mapping - Undergraduate

Prerequisites: WE 2310 and WE 3100 . Focuses on the tools, methods, technology, data, and related issues of GIS and mapping systems in wind energy.

WE 4320 - Independent Study in Wind Energy - Undergraduate

Prerequisite: 9 hours of WE courses and consent of instructor. Individual research in the wind energy area of student's choice under faculty guidance.

WE 4321 - Wind Dynamics for Wind Energy - Undergraduate

Prerequisite: WE 4323 . Provides a background on the physical and mathematical bases of wind prediction.

WE 4322 - Wind Turbine Aerodynamics - Undergraduate

Prerequisite: WE 3301 . Provides an in-depth understanding of wind turbine aerodynamic principles and applications.

WE 4323 - Meteorology for Wind Energy - Undergraduate

Prerequisite: WE 1311 and WE 2310 . Covers topics related to wind power meteorology.

WE 4390 - Advanced Wind Farm Project Design and Analysis - Undergraduate

Prerequisites: WE 3100 and WE 4313 . Focuses on design of wind farm projects, optimized layouts, and data analysis using real-world data, problems, and considerations.

WE 5300 - Advanced Technical Wind Energy I - Graduate

A multidisciplinary course for students with a physical science/engineering background wishing to pursue a technical approach to wind energy.

WE 5301 - Advanced Technical Wind Energy II - Graduate

Prerequisite: WE 5300 . An in-depth multidisciplinary course for students with a physical science/engineering background wishing to pursue a technical approach to wind energy.

WE 5302 - Renewable Energy Systems - Graduate

Provides an overview of different types of renewable energy technology, the global demand for different energy resources, and a brief discussion of energy policies.

WE 5310 - Advanced Managerial Wind Energy I - Graduate

Non-technical version studying wind turbine and wind farm architecture, wind energy conservation, aerodynamics, electrical systems, economics, regulatory issues with environmental and utility industries.

WE 5311 - Advanced Managerial Wind Energy II - Graduate

Prerequisite: WE 5310 . An in-depth multidisciplinary course for students with a business/managerial/natural science background wishing to pursue a non-technical approach to wind energy.

WE 5320 - Renewable Energy Policy - Graduate

Provides overview of basic economic concepts and examines the progress made in renewable energy policy in the U.S. and the world.

College of Human Sciences

Interior Design

ID 4350 - Sustainable Buildings and Communities - Undergraduate

Prerequisite: Junior or senior standing in interior design or consent of instructor. A review of concepts, strategies, and rating systems adopted by the Leadership in Energy and Environmental Design (LEED) program of the U.S. Green Building Council (USGBC).

Nutritional Sciences

NS 5345 - Nutrition and Sustainability of Global Food Supplies - Graduate

Examination of sustainable nutrition practices and global food issues such as starvation and malnutrition.

College of Rawls Business

Energy Commerce

ENCO 4373 - Energy and Developing Economies - Undergraduate

Prerequisites: C or better in ENCO 3301 and ENCO 3385. Growth in global energy demand will be centered in emerging nations. Course focuses on availability and sustainability of energy resources to meet projected need.

ENCO 5373 - Energy and Developing Economies - Graduate

Focuses on availability and sustainability of energy resources to meet global energy demand. Emphasizes opportunities and risks involved with investing in markets centered in emerging economies.

Museum Science

HMGY 5323 - Principles of Heritage Management - Graduate

Prerequisite: Consent of instructor. Provides a theoretical framework and examines issues of evaluation, legislation, sustainability, socioeconomic impact, and communication to foster global responsibility and present integrative approaches to managing heritage resources.