Undergraduate Environmental Science Courses

ENVS 1101. Environmental Science Introductory Seminar. 1 Credit Hour (Lecture: 1 Hour, Lab: 0 Hours).
This course introduces students to the interdisciplinary field of environmental science. The class will introduce students to the major science subfields of ecology, geology, and chemistry as well as the social policy subfield consisting of laws and regulations, ethics, and geography.

ENVS 1302. Science, Technology, and the Environment. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
This course introduces students to the interdisciplinary field of environmental science and explores the interrelationships between science, technology, environment, and society. This class examines the scientific and social origins of environmental problems and evaluates the complex role of technology in creating and resolving these concerns.

ENVS 1308. Environmental Science II. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Course discusses how human actions impact the organic components of ecological systems in ways that change the natural environment.

ENVS 2451. Introduction to Geographic Information Systems. 4 Credit Hours (Lecture: 3 Hours, Lab: 2 Hours).
GIS is a computer-based information system used in managing and analyzing spatial data. This course introduces students to the science, theory and techniques of GIS including basic geodesy, spatial data capture, management and analysis, and cartographic output. Emphasis is placed on the use of technical analysis and software in order to provide students with skills and a conceptual base on which they can build further expertise in GIS. After completing this course, students will master basic concepts of GIS and hands-on skills with ArcGIS, a widely-used GIS package. Students will learn how to create, manipulate, project, and interpret geographically-referenced data. Students are strongly encouraged to take GEOG 1451: Pre-GIS. Students can only receive credit for either WSES 2451, GEOG 2451, EASC 2451 or ENVS 2451. Lab fee: $2.

ENVS 3302. Soils, Land Use, and The Environment. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Interactions among soil physical, chemical, and biological processes affecting soil, water, and environmental quality. Addressed in relation to land use management practices such as erosion control, soil conservation, soil reclamation, riparian buffers, bioswales, and artificial wetlands. Land use planning tools, including WebSoil Survey and GIS will be used. Prerequisites: WSES/ENVS 3401; or WSES/SOIL 3301 and WSES/SOIL 3101.

ENVS 3305. GIS for Natural Resource Scientists. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).
An intermediate course on the use of geographic information systems (GIS) in natural resource management. Builds on concepts learned in introductory GIS course. Laboratory exercises will apply knowledge learned in lectures to solve real world problems in natural resource management using GIS software. Prerequisite: WSES 2451.

ENVS 3307. Systems Thinking. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).
This course focuses on the examination and analysis of complex systems, particularly in the environmental, natural resources, and sustainability fields. Major topics will include system structure, system behavior, feedback loops, stock and flow models, non-linear and emergent properties, self-organization, and the application of systems thinking to problem-solving. A significant component of the course will be development and analysis of computer models of complex systems. Prerequisite: C or better in MATH 1314 or equivalent, or approval of the instructor.

ENVS 3310. Environmental Policy. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours). [WI (https://catalog.tarleton.edu/academicaffairs/)]
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 traditional media - air, water, and hazardous waste. Prerequisite: GOVT 2305.

ENVS 3315. Sustainability. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Explore the varied perspectives of sustainability and analyze factors that contribute to or decrease system sustainability. Investigation of the social, economic, and environmental barriers to achieving sustainable systems and options for overcoming these barriers. Credit cannot be awarded for both ENVS 3315 and WSES 3315. Prerequisite: GOVT 2305 or GOVT 2306 or POLS 2304 or approval of the instructor.

ENVS 4084. Environmental Science Internship. 1-6 Credit Hours (Lecture: 1-6 Hours, Lab: 0 Hours).
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 written reports of the experience are required. Prerequisites: Junior or Senior classification and approval of the instructor.

ENVS 4086. Environmental Problems. 1-3 Credit Hours (Lecture: 1-3 Hours, Lab: 0 Hours).
Independent study or research of current topics in student's major. Content and credit dependant on depth of study. May be repeated for credit subject to approval of program lead or department head as appropriate.

ENVS 4088. Undergraduate Research. 1-6 Credit Hours (Lecture: 1-6 Hours, Lab: 0 Hours).
Fundamental research methods will be addressed through a faculty-directed project. Participation in an abbreviated lecture series may be required. Project components may include a literature review, data collection and analysis, testing, planning, project design, and/or computer modeling. the student may be required to prepare a final report and produce a presentation. Prerequisite: approval of the instructor.

ENVS 4090. Special Topics. 1-6 Credit Hours (Lecture: 0-6 Hours, Lab: 0 Hours).
Selected topics in environmental science. May be repeated for credit when topics vary.

ENVS 4185. Seminar. 1 Credit Hour (Lecture: 1 Hour, Lab: 0 Hours).
A review of current problems and developments in environmental arena. Discussions of current literature and research. May be repeated once for credit.

ENVS 4187. Environmental Science Capstone. 1 Credit Hour (Lecture: 1 Hour, Lab: 0 Hours).
Integrate and use fundamental concepts learned in previous environmental science courses to research and analyze real-world environmental issues. Oral and written reports on experiential learning, supplemented by appropriate internet and multimedia materials.

ENVS 4301. Environmental Law. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
This class focuses on US environmental law and regulations including US administrative law and common law. Major laws will be examined including the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation and Liability Act and the National Environmental Protection Act. Last, the class highlights the importance of citizen participation in the legal process. Prerequisite: GOVT 2305.

ENVS 4302. Land Use in the American West. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Beginning with the arrival of humans on the continent, the course comprehensively explores the environmental history of the American West, or the US territory west of the 100th meridian. Students will apply their understanding of the dynamics of the US West to a case study of their choosing using the food-energy-water nexus and the Ecological Society of America’s Four-Dimensional Ecological Education Framework (4DEE).

ENVS 4310. Qualitative Research Methods. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
This course introduces students to key methodologies, including case studies, interviews, focus groups, and content analysis. Students will learn how to design qualitative studies, collect and analyze data, and interpret findings through thematic and narrative approaches. Through hands-on projects and critical discussions, students will develop the skills necessary to conduct rigorous qualitative research and effectively communicate their findings. Prerequisite: ENGL 1301, ENGL 1302.

ENVS 4312. International Environmental Issues. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
An introduction to environmental politics and policy at the international level. The focus of this course is upon global environmental policy with particular attention paid to the processes that create and shape global environmental policy.

ENVS 4340. Environmental Science Field Study. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
A field course involving visits to environmental science businesses, agencies, and organizations including TCEQ, watershed management organizations, river authorities, energy companies, and environmental advocacy organizations to learn about their work and engage in hands-on assessment activities. Requires an extended field trip at student's expense. Prerequisite: Grade of C or better in either (WSES 2305 and WSES 2105) or BIOL 4401.

ENVS 4350. Energy and the Environment. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Overview of the relationship between domestic energy supply and its environmental impacts. This class investigates international environmental affairs' impact on the United States' domestic energy sources. Prerequisite: Communication Core Component Area complete.

ENVS 4380. Environmental Science Capstone. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours). [WI (https://catalog.tarleton.edu/academicaffairs/)]
Integrate and use fundamental concepts learned in previous environmental science courses to research and analyze real-world environmental issues. Oral and written reports on experiential learning, supplemented by appropriate internet and multimedia materials. Prerequisite: Senior Classification.

ENVS 4390. Special Topics. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
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