EAS 1600. Introduction to Environmental Science. 4 Credit Hours. 
Introduction to environmental field science. Case study approach. 
Exposure to basic field equipment and techniques, analysis of data.

EAS 1601. Habitable Planet. 4 Credit Hours. 
Introduction to the origin and evolution of Planet Earth, creation of 
the universe and the elements, early history of Earth, radioisotope 
geochronology and the timing of events in the universe, the galaxy, and on 
Earth. Formation of the atmosphere and oceans. Climate.

EAS 1XXX. Earth&Atmos Sci Elective. 1-21 Credit Hours.

EAS 2420. Environmental Measures of Urban and Regional Change. 3 
Credit Hours. 
Identify and quantify nature's physical and chemical contributions to 
human-made urban environments, and measure the impacts of urban 
area feedback on these natural systems.

EAS 2551. Introduction to Meteorological Analysis. 1 Credit Hour. 
An introduction to analysis of forecasting data and moel output.

EAS 2600. Earth Processes. 4 Credit Hours. 
An introduction to earth materials and processes.

EAS 2602. Earth Through Time. 3 Credit Hours. 
Dynamic processes affecting the Earth system on all time scales.

EAS 2655. Quantitative Techniques in Earth and Atmospheric Sciences. 3 
Credit Hours. 
Integrated course in mathematical, physical, and computing techniques 
for applications in earth and atmospheric sciences.

EAS 2698. Research Assistantship. 1-12 Credit Hours.

EAS 2699. Undergraduate Research. 1-12 Credit Hours. 
Independent research conducted under the guidance of a faculty 
member.

EAS 2750. Physics of the Weather. 3 Credit Hours. 
An introductory treatment of the application of the basic physical laws to 
the understanding of weather phenomena. Crosslisted with PHYS 2750.

EAS 2801. Special Topics. 1 Credit Hour.

EAS 2802. Special Topics. 2 Credit Hours.

EAS 2803. Special Topics. 3 Credit Hours.

EAS 2804. Special Topics. 4 Credit Hours.

EAS 2900. Special Problems. 1-21 Credit Hours.

EAS 2XXX. Earth&Atmos Sci Elective. 1-21 Credit Hours.

EAS 3110. Energy, Environment, and Society. 3 Credit Hours. 
This course analyzes the path towards alternative energy infrastructures 
for the 21st century with careful consideration of economic, 
environmental, technological, and political factors.

EAS 3603. Thermodynamics of Earth Systems. 3 Credit Hours. 
Introduction to the principles of equilibrium thermodynamics and 
physical chemistry with applications to the atmosphere, ocean, and solid 
earth.

EAS 3610. Introduction to Geophysics. 3 Credit Hours. 
An introduction to visualizing and understanding earth history, structure, 
and dynamics through geophysical methods including seismology, 
gravity, magnetism, heat flow, geochronology, and geodesy.

EAS 3620. Geochemistry. 4 Credit Hours. 
A quantitative treatment of geochemical processes in the Earth and 
natural waters, with emphasis on chemical reactions among atmospheric 
gases, minerals, and aqueous solutions.

EAS 3XXX. Earth&Atmos Sci Elective. 1-21 Credit Hours.

EAS 4110. Resources, Energy and the Environment. 3 Credit Hours. 
Learn about the science behind the nature, occurrence and extraction of 
earth resources used by humans and the environmental impacts of that 
use.

EAS 4200. Structural Geology and Continuum Mechanics. 4 Credit Hours. 
Structural geology and continuum mechanics for scientists and civil 
engineers. Stress and strain in rocks; faults, joints, and folds; basic field 
mapping; laboratory exercises.

EAS 4220. Environmental Geochemistry. 3 Credit Hours. 
An exploration of the chemical, biological, and geological processes 
controlling the distribution of chemical nutrients and pollutants in aquatic 
and soil environments.

EAS 4221. Environmental Geochemistry Lab. 1 Credit Hour. 
Lab and field exploration of the chemical, biological, and geological 
processes controlling the distribution of chemical nutrients and 
pollutants in aquatic and soil environments.

EAS 4300. Introduction to Physical and Chemical Oceanography. 3 Credit 
Hours. 
Study of the dynamics of large-scale ocean circulation, air-sea interaction 
and their roles in biogeochemical cycling of carbon and nutrients.

EAS 4312. Geodynamics. 3 Credit Hours. 
Quantitative discussion of dynamic processes in the solid Earth; 
lithospheric dynamics, continuum mechanics, lithospheric flexure 
and elasticity, heat transfer, viscous rheology, fluid mechanics, and 
earthquake dynamics.Credit not allowed for both EAS 4312 and 
EAS 6312.

EAS 4313. Tectonics. Climate, and Landscape Evolution. 3 Credit Hours. 
Introduction to the interactions and feedbacks between tectonics and 
climate that act to shape landscapes. Includes field- and computer-based 
data collection and analysis.Credit not allowed for both EAS 4313 and 
EAS 6313.

EAS 4314. Seismology. 3 Credit Hours. 
Introduction to elastic wave propagation, and studies of the solid Earth's 
interior and earthquake source from seismic waves.Credit not allowed for both 
EAS 4314 and EAS 6314.

EAS 4331. Physical Volcanology. 3 Credit Hours. 
This class examines the dynamics and thermodynamics of planetary 
volcanism. The course material covers the generation and transport of 
magma in the mantle and crust, and the fluid dynamics of eruptions and 
their impact on the landscape and atmosphere.Credit not allowed for both 
EAS 4331 and EAS 6331.

EAS 4350. Paleoclimatology and Paleoceanography. 3 Credit Hours. 
This course will explore the history of the Earth’s climate, covering 
methods for reconstructing past climate and the mechanisms behind 
these climate changes.
EAS 4360. Space Physics and Space Instrumentation. 3 Credit Hours.
This course will explore the interaction of the solar wind with the Earth’s magnetosphere using a combination spacecraft observations and fundamental plasma physics. Credit not allowed for both EAS 4360 and EAS 6360.

EAS 4370. Physics of Planets. 3 Credit Hours.
In this course we will study the forces and influences that determine the composition, structure and evolution of the planets in our solar system.

EAS 4410. Climate and Global Change. 3 Credit Hours.
The physics behind the climate and its potential changes, as well as an introduction to the policy issues in global change.

EAS 4420. Environmental Field Methods. 4 Credit Hours.
Semester-long focus on single environmental project in the local area. Chemical and physical techniques for parameterizing environmental problems, data analysis, report writing, and interpretation of results in societal context.

EAS 4430. Remote Sensing and Data Analysis. 3 Credit Hours.
Introduction to the remote sensing of the atmosphere and the Earth. Laboratory examples of data and image analysis for remote sensing applications.

EAS 4450. Synoptic Meteorology. 3 Credit Hours.
A description of physical and mathematical procedures used in weather forecasting. Students will practice forecasting.

EAS 4460. Satellite and Radar Meteorology. 3 Credit Hours.
Interpretation of satellite and radar data for meteorological forecasting based on understanding radiative transfer and the resulting strengths and limitations of the imagery.

EAS 4470. Large-scale Atmospheric Circulations. 3 Credit Hours.
Structure and dynamics of phenomena including weather regimes, storm tracks, El Nino-Southern Oscillations, teleconnections, monsoons, Arctic Oscillation, stratospheric polar vortex, and stratosphere-troposphere coupling.

EAS 4480. Environmental Data Analysis. 3 Credit Hours.
Data Analysis methods used in environmental research are taught through examples. Students learn to implement these methods to areas of their own interests.

EAS 4510. Exploration Geophysics. 4 Credit Hours.
Methods of exploration geophysics, including refraction and reflection seismology, resistivity, gravity, magnetics, and ground penetrating radar. Includes laboratory work and introduction to operation of field equipment.

EAS 4515. Fluids in the Earth’s Crust I. 3 Credit Hours.
Fundamentals of porosity and permeability in soils, sediments, and crystalline rocks; basic physics of fluid flow through interconnected pore spaces and cracks; introductory analysis of fluid flow as an agent of heat and chemical transport in geological systems.

EAS 4520. Seismic Methods in Exploration Geophysics. 3 Credit Hours.
A study of seismic reflection exploration methods and theory. Examples are taken from oil industry exploration and production and near-surface environmental imaging.

EAS 4602. Biogeochemical Cycles. 3 Credit Hours.
An investigation of global change focusing on the chemical, physical, geological, and biological processes that cycle the elements through the Earth system.

EAS 4610. Earth System Modeling. 3 Credit Hours.
An introduction to computer modeling in Earth system science.

EAS 4625. Water Quality Modeling. 3 Credit Hours.
Gain hands-on experience using geochemical software and understanding governing geochemical principles pertaining to transformation of contaminants and other subsurface species through case studies.

EAS 4630. Physics of the Earth. 3 Credit Hours.
Introduction to methods and observational data used to determine solid Earth structure and to understand the dynamical processes driving surface deformation and plate tectonics.

EAS 4641. Atmospheric Chem Lab. 1 Credit Hour.
A hands-on laboratory course in which students will learn basic concepts and techniques used by atmospheric chemists including analysis, data quality and experimental design.

EAS 4651. Practical Internship. 3 Credit Hours.
Faculty-supervised and approved independent internship, employment, or research project related to earth and atmospheric sciences.

EAS 4655. Atmospheric Dynamics. 3 Credit Hours.
An introduction to the atmospheric physical and dynamic processes that control weather and climate.

EAS 4656. Atmospheric Dynamics Practicum. 1 Credit Hour.
Students learn to apply meteorological analysis tools to atmospheric observations to interpret the structure and dynamics of historical and real-time weather events.

EAS 4670. Atmospheric Dynamics II. 3 Credit Hours.
This course emphasizes physical concepts and analytic techniques for solving problems in atmospheric instabilities and wave dynamics at various temporal and spatial scales.

EAS 4698. Undergraduate Research Assistantship. 1-12 Credit Hours.
Independent research conducted under the guidance of a faculty member.

EAS 4699. Undergraduate Research. 1-12 Credit Hours.
Independent research conducted under the guidance of a faculty member.

EAS 4740. Atmospheric Chemistry. 3 Credit Hours.
This course provides a general chemical description of the Earth’s atmospheric system with a major focus on the two lowest layers of the atmosphere, i.e., the troposphere and the stratosphere. Crosslisted with CHEM 4740.

EAS 4795. Groundwater Hydrology. 3 Credit Hours.
Dynamics of flow and solute transport in groundwater, including theory, implementation, and case studies. Crosslisted with CEE 4795.

EAS 4801. Special Topics. 1 Credit Hour.

EAS 4802. Special Topics. 2 Credit Hours.

EAS 4803. Special Topics. 3 Credit Hours.

EAS 4804. Special Topics. 4 Credit Hours.

EAS 4900. Special Problems. 1-21 Credit Hours.

EAS 4XXX. Earth & Atmos Sci Elective. 1-21 Credit Hours.