**ENVIRONMENTAL STUDIES (ENVI)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVI F101</td>
<td>Introduction to Environmental Science</td>
<td>3</td>
<td>Spring</td>
<td>Introduces the interconnected topics that make up environmental science. By exploring Earth's systems, environmental questions are investigated such as how to sustainably use natural resources and the influence of population growth on ecosystems. The course takes a holistic approach to reinforce scientific principles. Key topics covered include ecosystem functions, energy, biodiversity, resource management, landscape alteration and climate change. Recommended: F100-level biology, chemistry or geology class. Lecture + Lab + Other: 3 + 0 + 0</td>
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<tr>
<td>ENVI F110</td>
<td>Introduction to Water Quality I: Measurement</td>
<td>1</td>
<td>Spring</td>
<td>Introduces students to standard water quality methods used and applies them to rural Alaska. Students will become familiar with EPA water quality standards and programs that help preserve water quality in rural communities. Key topics covered include: stream ecology, wastewater management, storm water runoff and data analysis. Lecture + Lab + Other: 0.5 + 0 + 1.5</td>
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<tr>
<td>ENVI F111</td>
<td>Introduction to Water Quality II: Monitoring and Assessment</td>
<td>1</td>
<td>As Demand Warrants</td>
<td>Course builds upon methods learned in ENVI F110 with emphasis placed upon data quality objectives, electronic storage of data, and information analysis and reporting. Methods and equipment used for surface water monitoring will be introduced. Students start the process of developing an EPA approved Quality Assurance Project Plan for surface water quality monitoring. Prerequisites: ENVI F110. Lecture + Lab + Other: 1 + 0 + 0</td>
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<tr>
<td>ENVI F112</td>
<td>Introduction to Water Quality III: Data Quality Assurance</td>
<td>1</td>
<td>As Demand Warrants</td>
<td>Students participating in this class will review proper use of surface water quality testing equipment and calibration and operation methods learned in ENVI F110 and ENVI F111. Emphasis in this class will be placed on conducting data quality assurance measures that meet data quality objectives, writing and following a data Quality Assurance Project Plan (QAPP), and data analysis and reporting. Students will continue to develop their own U.S. EPA approved QAPP for surface water quality monitoring. Prerequisites: ENVI F111. Lecture + Lab + Other: 1 + 0 + 0</td>
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<tr>
<td>ENVI F115</td>
<td>Rural Solid and Hazardous Waste Management</td>
<td>1</td>
<td>As Demand Warrants</td>
<td>An overview of solid and hazardous waste management focusing on rural Alaskan communities. Topics covered include: workplace safety, worker roles, recycling facility operation, solid waste composting, hazardous material and waste inventorying, toxicology principles, risk assessment, hazardous site community open dumpsite assessment and the implications of the National Environmental Policy Act. Lecture + Lab + Other: 1 + 0 + 0</td>
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<tr>
<td>ENVI F116</td>
<td>Rural Alaska Landfill Operator</td>
<td>1</td>
<td>As Demand Warrants</td>
<td>Best practices in managing rural landfills in compliance with State of Alaska regulations with an emphasis on operator and public safety. Course is designed to train operators for rural Alaska Class II and Class III landfills; passing grade results in recognition by the Solid Waste Association of North America-Alaska. Lecture + Lab + Other: 1 + 0 + 0</td>
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<td>ENVI F117</td>
<td>Community Spill Response</td>
<td>1</td>
<td>As Demand Warrants</td>
<td>Overview of the responses to petroleum and other spills that threaten community health with emphasis placed upon the issues, techniques and the basic elements of spill response in Alaskan communities. Topics include: storage tanks above and underground, spill contamination site treatment, state and federal governmental regulations related to spills, spill reporting/incident action plans, and practical procedures in spill response. Lecture + Lab + Other: 1 + 0 + 0</td>
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<td>ENVI F120</td>
<td>Home Energy Basics</td>
<td>1</td>
<td>Fall and Spring</td>
<td>Basics of space heating and electricity use and production for Alaskan homes. Main topics include fundamentals of physics related to home energy, lighting and appliances, energy bills, building science, retrofits, home renewable energy systems. Course emphasizes how to decrease fossil fuel consumption of homes. Lecture + Lab + Other: 1 + 0 + 0</td>
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<td>ENVI F121</td>
<td>Building Ventilation and Energy</td>
<td>1</td>
<td>Spring</td>
<td>Basics of indoor air quality and its relationship to ventilation and energy use in buildings. Main topics include types of indoor air pollutants; basic science related to moisture, condensation, and mold; and heat recovery ventilation. Course emphasizes practical ways of how homeowners can maintain healthy indoor air while keeping their energy bill low. Lecture + Lab + Other: 1 + 0 + 0</td>
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<tr>
<td>ENVI F122</td>
<td>Energy Efficient Building Design and Simulation</td>
<td>1</td>
<td>Spring</td>
<td>In this course, students gain basic practical knowledge related to the process of designing energy efficient buildings, as applied to both new construction and retrofits. Main topics covered include basic building science, principles and techniques of energy efficient construction, and building energy simulations. Lecture + Lab + Other: 1 + 0 + 0</td>
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ENVI F130  Introduction to the National Environmental Policy Act  
1 Credit  
Offered Spring  
Provides a brief introduction to the National Environmental Policy Act (NEPA). This course will explain what community members need to do to be heard in the NEPA process with special emphasis on public involvement and Environmental Impact Analysis (EIA). The course covers the roles and the content of scoping and Environmental Assessments in relation to key natural resource development projects in rural Alaska.  
Lecture + Lab + Other: 1 + 0 + 0

ENVI F150  Viewpoints in Environmental Studies  
1 Credit  
Offered As Demand Warrants  
Discussions and activities will focus on how scientists or research technicians evaluate environmental issues. The course is intended for first year college students and community members. Specific topics may include sustainability, resource development, ecosystem management, indigenous viewpoints, building technology, appropriate energy applications, and analysis of data. Topics announced prior to each offering and course may be repeated for credit towards a certificate or degree program to a maximum of 3 credits.  
Lecture + Lab + Other: 1 + 0 + 0

ENVI F160  Internship in Environmental Studies  
1-2 Credits  
Offered As Demand Warrants  
Under the guidance of a UAF Bristol Bay Campus-approved agency or business (public or private that monitors, tests, analyzes or studies the environment), students gain supervised pre-professional experience in environmental studies. The intern will explore the interdisciplinary aspects of field or laboratory research, build practical expertise and make contacts. Internships make one to ten weeks of full-time commitment to the agency or business and when completed make public presentations on the experience.  
Prerequisites: ENVI F101.  
Lecture + Lab + Other: 0 + 0 + 3.1-15.4

ENVI F170  Solar Energy Basics  
1 Credit  
Offered As Demand Warrants  
Provides basics of solar energy, harvesting solar energy, system components, design considerations, energy storage, installation and cost/benefit considerations, career opportunities, and safety.  
Lecture + Lab + Other: 1 + 0 + 0

ENVI F173  Basics of Small Wind Systems  
1 Credit  
Offered As Demand Warrants  
Provides basics of design, installation, and operation of wind energy systems with an emphasis on residential-scale systems. Introduces physics related to wind energy, methods to harvest wind energy, turbine and site selection, energy storage vs. grid-tie considerations, system components, installation techniques, cost/benefit considerations, and safety.  
Lecture + Lab + Other: 1 + 0 + 0

ENVI F174  Basics of Heat Pump Systems  
1 Credit  
Offered As Demand Warrants  
Provides basics of heat pump (geoexchange) systems and their use for space heating/cooling and domestic hot water production. Includes both ground-source and air-source heat pumps. Introduces physical concepts related to harvesting energy at Earth’s surface, system components, common installation configurations, cost/benefit considerations, and safety.  
Lecture + Lab + Other: 1 + 0 + 0

ENVI F175  Introduction to Biomass Energy Systems  
1 Credit  
Offered As Demand Warrants  
Biomass is a rapidly growing portion of the sustainable energy sector. Innovation meets historic and contemporary organic fuel types such as wood, agricultural, waste and algae. Various technologies and fuel types are covered that contribute to practical biomass energy today, with a focus on wood thermal energy in Alaska.  
Lecture + Lab + Other: 1 + 0 + 0

ENVI F180  Alaska Utility Lecture Series  
1 Credit  
Offered As Demand Warrants  
Lecture series introduces students to operations, management and employment in Alaska’s rural and urban electric utilities. Lecturers will share their expertise and various perspectives related to utility management (small and large utility, agency, project development and integration, training/education, utility customers, etc.). Discussion and reflection/synthesis will be encouraged.  
Lecture + Lab + Other: 1 + 0 + 0

ENVI F220  Introduction to Sustainable Energy  
3 Credits  
Offered Fall  
Introduction to societal problems and solutions related to its energy use and production. Problems discussed are mainly related to the extent of sustainability of current energy practices. Solutions discussed cover both energy efficiency and renewable energy.  
Prerequisites: MATH F105 or CTT F106 or TTCH F131.  
Recommended: ENVI F101; ENVI F120.  
Lecture + Lab + Other: 3 + 0 + 0

ENVI F250  Current Topics in Environmental Studies  
1-3 Credits  
Offered As Demand Warrants  
Using multiple scientific viewpoints, a specific environmental issue is explored through case studies and in-depth discussions with an emphasis on complex connections between ecosystems and society. Themes include sustainability, resource development, indigenous viewpoints, resource management, building technology, and energy applications. Topics announced prior to each offering and course may be repeated for credit towards a certificate or degree program to a maximum of 3 credits.  
Prerequisites: ENVI F101; WRTG F111X; 100-level science class.  
Lecture + Lab + Other: 3 + 0 + 0
ENVI F260  Field Techniques for Environmental Technicians
2 Credits
Offered Summer
Provides hands-on instruction in interdisciplinary field and laboratory
techniques used by environmental technicians. Basic methods for
sampling and studying terrestrial or aquatic ecosystems will be
introduced. Students will participate in data collection and analysis
procedures as part of an independent research project.
**Prerequisites:** ENVI F101 or NRM F101; ENVI F110; 4 credit lab-based
F100-science course.
**Recommended:** CIOS F100; CIOS F135.
**Lecture + Lab + Other:** 1 + 3 + 0

ENVI F265  Introduction to Methods in Environmental Studies
Reporting
2 Credits
Offered Fall
Introduces basic data collection methods used in environmental studies
then concentrates on research skills necessary to analyze, interpret,
and document field and laboratory data and the technical reporting
processes. The course is designed to integrate raw environmental data
into a technical report covered include ecosystem functions, energy,
biodiversity, that can be presented in scientific meeting format.
**Prerequisites:** ENVI F101 or NRM F101; ENVI F110; ENVI F260; a lab-
based F100 level science course.
**Recommended:** ENGL F104 or WRTG F111X; ENVI F160.
**Lecture + Lab + Other:** 1.5 + 0 + 1.5