

Environmental and Natural Resources

Topic	Skills
Unit 1: Science Foundations	
Sampling Techniques	<ul style="list-style-type: none"> ○ Identify sample types and sampling techniques used to collect laboratory and field data ○ Determine the appropriate sampling techniques needed to generate data. ○ Identify methods of statistical analysis commonly used in research (i.e. means, standard deviation, standard error, error bars, etc) ○ Summarize the purpose of statistical analysis methods commonly used in environmental service systems research and explain examples of their use in practice. ○ Utilize data analysis to identify trends in a data sample and assess the confidence that can be drawn from those conclusions.
Scientific Instruments	<ul style="list-style-type: none"> ○ Identify basic laboratory equipment and explain their uses. ○ Demonstrate the proper use and maintenance of basic laboratory equipment ○ Identify basic environmental monitoring instruments and explain their uses. ○ Demonstrate the proper use and maintenance of environmental monitoring instruments.
Unit 2: Laws & Regulations	
Government Agencies	<ul style="list-style-type: none"> ○ Distinguish between the types of government agencies (i.e., local, state and federal) associated with environmental service systems. ○ Analyze the specific purpose of government agencies associated with environmental service agencies. ○ Evaluate and defend the impact and effectiveness of governmental agencies.
Types of Laws	<ul style="list-style-type: none"> ○ Distinguish between the types of laws associated with environmental service systems ○ Analyze the structure of laws associated with environmental service systems. ○ Present an evaluation on the impact of laws associated with environmental service systems.
Greenhouse Gas Emissions	<ul style="list-style-type: none"> ○ Research and categorize the purpose, implementation, and impact of greenhouse gas emission policies. ○ Assess the effectiveness and impact of greenhouse gas emissions policies. ○ Devise new policies for controlling greenhouse gas emissions that reduce atmospheric carbon levels while generating additional economic activity.
International Trade	<ul style="list-style-type: none"> ○ Research, analyze, interpret and evaluate the impact of specific environmental serve agencies and policies on international trade.
Population Growth	<ul style="list-style-type: none"> ○ Examine and summarize the impact that population growth has on environmental service systems. ○ Analyze the correlation between increased population size and the need for regulations. ○ Predict the impact of future population growth on the environment.

Solid Waste Disposal	<ul style="list-style-type: none"> ○ Compare and contrast different types of solid waste and options for treating solid waste. ○ Research and summarize the benefits and processes of composting. ○ Apply scientific principles to explain the benefits and processes of composting. ○ Analyze and document different recycling methods and classify materials that can be recycled. ○ Survey and evaluate recycling programs and procedures. ○ Analyze and document all steps in the public drinking water treatment process according to applicable standards. ○ Research methods commonly used to treat wastewater and septic waste. ○ Analyze and document the steps necessary to ensure that wastewater and septic waste can be safely released into the environment.
Drinking Water	
Energy Sources	<ul style="list-style-type: none"> ○ Identify the advantages and disadvantages of conventional energy sources in regards to environmental service systems. ○ Analyze and document the main categories of energy consumption. ○ Devise a strategy for improving future energy consumption in a manner consistent with the intents of environmental service systems. ○ Calculate the impact of the carbon cycle imbalance (due to energy consumption).
Unit 5: Natural Resources & their Management	
Natural Resource Availability	<ul style="list-style-type: none"> ○ Summarize and classify the different kinds of natural resources using common classification schemes ○ Devise strategies for the preservation of natural resources based on their classification. ○ Summarize the components that comprise all ecosystems. ○ Conduct analyses of ecosystems and document the interactions of living species and non-living resources. ○ Analyze how biodiversity develops through evolution, natural selection and adaptation; explain the importance of biodiversity to ecosystem function and availability of natural resources. ○ Classify different types of natural resources in order to enable protection, conservation, enhancement, and management in a particular geographical region.
Types of Systems	<ul style="list-style-type: none"> ○ Apply ecological concepts and principles to atmospheric natural resource systems. ○ Apply ecological concepts and principles to aquatic natural resource systems. ○ Apply ecological concepts and principles to terrestrial natural resource systems. ○ Apply ecological concepts and principles to living organisms in natural resource systems.
Unit 6: Humans & Nature	
Human Regulation	<ul style="list-style-type: none"> ○ Assess the impact of human activities on the availability of natural resources. ○ Evaluate how the availability of natural resources can be improved through changes to human activity. ○ Identify solutions to improve the sustainability of modern lifestyles.

Human Perception	<ul style="list-style-type: none">○ Analyze how modern perceptions of natural resource management, protection, enhancement, and improvement change and develop over time.○ Research and assess how historical figures played a prominent role in shaping how natural resources are viewed and used today.○ Anticipate and predict how future technological advancements may affect the use and views of natural resources.
Economic Impact	<ul style="list-style-type: none">○ Compare and contrast how the economic value of a natural resource affects its availability.○ Assess the importance of the use of natural resources on local, state, and national economies.○ Analyze and document how the adoption of green technology and/or alternative energy affected a local, state, or national economy.
Communicate our Impact	<ul style="list-style-type: none">○ Examine and describe ways in which a message regarding natural resources may be communicated to the public through standard media sources.○ Assess how to most effectively communicate a message about natural resources via social media and the Internet.○ Create a communication plan to influence the behavior of people, call people to action, and instill a sense of civic behavior regarding natural resources.
Unit 7: Sustainability in Agriculture	
Sustainable Production	<ul style="list-style-type: none">○ Develop plans to ensure sustainable production and processing of natural resources.○ Summarize forest harvesting methods.○ Develop a forest harvesting plan that ensures economic, environmental, and social sustainability.○ Develop a method for the sustainable harvest of wildlife species.○ Evaluate methods used to extract and process minerals for economic, environmental, and social sustainability.○ Assess the economic impact of fossil fuel extraction in regards to the costs and benefits to a local, state, and/or national economy.○ Evaluate an example of outdoor recreation and develop suggestions for how it can be more sustainable.○ Analyze and apply techniques used to acquire aquatic species for their environmental, economic, and social sustainability.
Cartographic Skills	<ul style="list-style-type: none">○ Summarize how to use maps and technologies to identify directions and land features, calculate actual distance, and determine the elevations of points.○ Analyze an area’s resources using GIS technologies.
Unit 8: Captain Planet-the Power is Yours	
Responsible Management	<ul style="list-style-type: none">○ Demonstrate natural resource protection, maintenance, enhancement, and improvement techniques.○ Devise a comprehensive improvement plan for the following: stream, timber stand, wildlife habitat, rangeland, recreational activities, marine or coastal natural resources.
Diseases	<ul style="list-style-type: none">○ Classify and analyze a plant disease based on its symptoms.○ Classify and analyze diseases in wildlife and aquatic species and determine if it needs to be reported to proper authorities.
Invasive Species	

Wildlife Management	<ul style="list-style-type: none"> ○ Prevent or manage introduction of ecologically harmful species in a particular region. ○ Create a management plan to reduce spread of harmful insects in natural resource systems. ○ Identify and classify invasive species common to a particular region. ○ Devise strategies to prevent ecological damage that would result from the introduction of an invasive species. ○ Differentiate between desirable and undesirable fires and research the role fire plays in a healthy ecosystem. ○ Develop a prevention plan for harmful fires for a particular region. ○ Anticipate and predict how fire management techniques will evolve in the future.
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FWLD 101-Intro to Natural Resources- Fish and Wildlife 101 (Andrew and Carmen)

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SPSCI 105- Dr. Rink- Environmental and Natural Resources