

Natural Resources, Semester A

Credits: 0.5

Course Overview and Goals

Natural Resources, Semester A, is the first part of a two-semester course. The course begins with an introduction to types of natural resources, including biotic, abiotic, renewable, and nonrenewable resources, as well as their geographic distribution and uses. You will examine how various human activities, including agriculture, industry, transportation, and outdoor recreation, affect the availability of natural resources. You will create a natural resource management plan to conserve and preserve natural resources. As the course progresses, you will examine natural cycles such as the carbon, water, oxygen, and nitrogen cycles. You will explore air quality management and water conservation. Additionally, you will delve into the methods of extraction, processing, and use of minerals and fossil fuels. You will evaluate the costs and benefits of using renewable energy resources such as wind energy, solar energy, and hydroelectric power. Finally, you will develop plans for soil management, land management, and rangeland management.

This course consists of 12 lessons organized into four units, four Unit Activities, and four Discussions. Additionally, there is one Course Activity and one Course Project that you need to work on throughout the course. Each lesson contains one or more Lesson Activities. You will grade your work in the Lesson Activities by comparing it to sample responses. You will submit the Unit Activities, Course Activity, and Course Project to your teacher for grading.

By the end of this course, you will be able to do the following:

- ❖ Evaluate the uses of natural resources and the impact these uses have on the environment.
- ❖ Use industry tools and technologies to create management plans and solve problems.
- ❖ Assess conservation and management solutions to choose those that best benefit the environment and human needs.
- ❖ Evaluate the uses of renewable and nonrenewable energy sources and the environmental, social, and economic effects of their uses.
- ❖ Examine the impact of human actions on the environment and climate change.

UNIT 1: UNDERSTANDING THE BASICS (DAYS 1 – 22)

In this unit, you will classify natural resources as biotic, abiotic, renewable, or nonrenewable based on their characteristics. You will map the geographic and demographic uses of various natural resources. You will analyze the environmental and economic consequences of natural resource use and overuse. You will understand how different natural resource products are harvested, manufactured, processed, and marketed. You will distinguish between natural resource management conservation strategies and preservation strategies. You will create a plan to sustainably manage natural resources.

Lesson	Lesson Objective
Syllabus and Orientation	Review the Student Orientation and Course Syllabus at the beginning of this course.
Introduction to Natural Resources	Review the uses of natural resources and analyze their effects on the environment and the economy.
Human Activity and Natural Resources	Recognize the impact of human activity on the availability of natural resources, and assess the effects of using natural resources, such as environmental degradation, habitat disturbances, and climate change.
Managing Natural Resources	Produce a natural resource management plan using geospatial skills, tools, and technologies to conserve and preserve natural resources.

UNIT 2: AIR AND WATER RESOURCES (DAYS 23 – 43)

In this unit, you will learn about important natural cycles such as the carbon, water, oxygen, and nitrogen cycles as well as related phenomena. You will understand how the atmosphere regulates these cycles. You will identify common causes and effects of air pollution. You will explore emission-management strategies and common air pollution controls. You will discuss the essential uses of water. You will differentiate between point source and nonpoint source pollution. You will analyze how various activities, such as agricultural, industrial, power-plant cooling, recreational, and public activities, affect water quality and quantity. You will outline measures to conserve water.

Lesson	Lesson Objective
Natural Cycles	Discover natural cycles such as the oxygen, nitrogen, water, and carbon cycles, and assess the atmosphere's role in their regulation.
Air Quality Management	Produce an air-quality management plan that incorporates common air pollution controls and emission management strategies.
Water Resource Management	Implement water conservation strategies, and examine the effects of water resource management on the environment and human needs.

UNIT 3: MINERALS AND ENERGY RESOURCES (DAYS 44 – 66)

In this unit, you will learn about the global distribution of mineral resources and fossil fuels. You will explore the extraction, processing, and use of minerals and fossil fuels. You will compare the costs and benefits of extracting minerals and fossil fuels. You will outline strategies for the sustainable management of mineral resources and fossil fuels. You will examine the functioning of wind turbines, solar panel farms, and hydroelectric dams. You will understand how social and economic considerations can affect the use and sustainability of renewable energy technologies.

Lesson	Lesson Objective
Mineral Resource Management	Produce a management plan for mineral resources that incorporates the economic and environmental effects of their extraction and depletion.
Fossil Fuels	Review the supply and demand of nonrenewable energy resources, and provide suggestions to limit the environmental, social, and economic effects of their extraction, processing, and use.
Renewable Energy	Review the environmental, social, and economic effects of using renewable energy resources such as wind energy, solar energy, and hydroelectric power.
Course Activity	Management Practices

UNIT 4: SOIL AND LAND RESOURCES (DAYS 67– 90)

In this unit, you will learn how soils are analyzed and classified. You will understand the significance of soil conservation. You will examine techniques associated with soil management, including soil survey and interpretation, and erosion-control methods. You will distinguish between publicly and privately held lands. You will explore the public land survey system and understand how surveying equipment is used to determine area, boundaries, and elevation differences. You will outline strategies and practices to maintain the general quality of the world's rangelands.

Lesson	Lesson Objective
Soil Management	Develop and implement a soil management plan after analyzing existing soil surveys.
Land Management	Develop a land management plan map after completing a land survey using surveying equipment.
Course Project	Environmental Consequences of Human Activities
Rangeland Management	Implement strategies and practices to manage rangelands and create a rangeland monitoring plan.