

Natural Resources, Semester B

Credits: 0.5

Course Overview and Goals

Natural Resources, Semester B, is the second part of a two-semester course. The course begins with an introduction to ecosystems, biodiversity, ecological succession, and key ecological concepts. You will analyze the economic and environmental significance of plant, animal, and aquatic resources along with their management. You will delve into modern technologies used in agriculture and analyze the benefits of a supervised agricultural experience (SAE) program. As the course progresses, you will evaluate the management of forests and wildlife populations. You will become familiar with laws and regulations pertaining to the management of various natural resources. You will understand the importance of workplace safety. Additionally, you will explore opportunities for employment and entrepreneurship in natural resources, energy, agriculture, and forestry. Finally, you will examine the skills necessary for a rewarding career in natural resources.

This course consists of 13 lessons organized into four units, four Unit Activities, and four Discussions. Additionally, there is one Course Activity and one Course Project. 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:

- ❖ Analyze the environmental and economic importance of plant, animal, and aquatic resources.
- ❖ Evaluate the impact of advanced technologies used in modern agriculture.
- ❖ Formulate a forest stewardship plan and assess strategies used for the sustainable management of forests.
- ❖ Compare practices used to manage, preserve, and conserve wildlife populations.
- ❖ Propose an emergency response plan and examine safety concerns in agriculture and natural resources workplaces.
- ❖ Evaluate career prospects in natural resources, energy, agriculture, and forestry.

UNIT 1: ANIMAL AND PLANT RESOURCES (DAYS 1 – 27)

In this unit, you will outline strategies to enhance biodiversity and improve the function of an ecosystem. You will study ecological concepts such as population ecology, density, and dispersion. You will apply the concepts of scientific taxonomy to classify plants, animals, and aquatic species. You will identify plants and animals using a dichotomous key. You will examine the physiology of plants, animals, and aquatic species. You will employ techniques to prevent the spread of common plant and animal diseases. You will explore the management of plants, animals, and aquatic species.

Lesson	Lesson Objective
Syllabus and Student Orientation	Review the Student Orientation and Course Syllabus at the beginning of this course.
Ecosystems	Interpret ecological succession, interdependence of living organisms, ecosystem function, and ecological concepts.
Plant Resources	Examine the taxonomy, anatomy, physiology, uses, care, and management of plant resources.
Animal Resources	Examine the taxonomy, anatomy, physiology, and the environmental and economic significance of animal resources.
Aquatic Resources	Examine the anatomy, uses, environmental and economic significance, and management of aquatic resources.

UNIT 2: AGRICULTURE, FORESTRY, AND WILDLIFE (DAYS 28 – 48)

In this unit, you will explore precision technologies used in agriculture such as geographic information systems (GIS), the Global Positioning System (GPS), and small unmanned aircraft systems (sUAS). You will identify the requirements and benefits of a supervised agricultural experience (SAE) program. You will examine business records such as a budget, income statement, balance sheet, cash flow statement, profit and loss statement, and equity statement in the context of agriculture. You will assess common forest management practices and systems. You will evaluate the causes of the extinction of wildlife species. You will analyze practices used to manage wildlife populations.

Lesson	Lesson Objective
Agriculture	Evaluate the use of advanced and emerging technologies in agriculture and analyze the purpose of a supervised agricultural experience (SAE) program.
Forest Management	Evaluate forest management practices and systems and develop an environmental forestry stewardship plan.
Wildlife Management	Examine the extinction of wildlife species, analyze habitat requirements for wildlife populations, and evaluate wildlife management practices.
Course Project	Sustainable Management of Forests and Wildlife

UNIT 3: SAFETY AND REGULATIONS (DAYS 49 – 67)

In this unit, you will identify safety hazards common to agriculture, food, and natural resources (AFNR) workplaces. You will outline common safety procedures for operating tools and equipment in natural resource management laboratories. You will examine the significance of using personal protective equipment. You will identify the steps to assess an emergency and determine appropriate responses for emergency situations. You will analyze the significance of legislation for managing air, water, soil, land, aquatic resources, and wildlife.

Lesson	Lesson Objective
Workplace Safety	Evaluate safety hazards, precautions, and procedures in agriculture, food, and natural resources (AFNR) workplaces.
Emergency Response	Develop an emergency plan to provide aid in workplace accidents.
Laws and Regulations	Evaluate the effects of laws and regulations on the management of various natural resources including aquatic resources, wildlife, land, soil, air, and water.

UNIT 4: CAREER DEVELOPMENT (DAYS 68 – 90)

In this unit, you will explore employment and entrepreneurship opportunities in natural resources, energy, agriculture, and forestry. You will also identify educational qualifications, technical skills, and certifications for various careers in these fields. You will examine positive work habits and personal qualities necessary for a rewarding career in natural resources. You will analyze the importance of communication, conflict resolution, teamwork, and leadership skills. You will understand the significance of ethics in natural resource stewardship. You will evaluate the consequences of illegal or unethical workplace behaviors.

Lesson	Lesson Objective
Career Opportunities	Create a career plan in the fields of natural resources, energy, agriculture, and forestry after identifying employment and entrepreneurial opportunities.
Career Skills	Examine essential work habits, communication skills, conflict resolution, teamwork skills, and leadership qualities.
Ethics in the Workplace	Evaluate workplace situations by applying ethical reasoning.
Course Activity	Leadership Skills