

Natural Resources Management – Dual Credit Fall 2025

Nebraska College of Technical Agriculture

Course Number: AGR 1213

Credit Hours: 3

When and Where: Dual Credit course via Canvas

Instructor: Dr. Brad Ramsdale

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PROGRAM (DEGREE) OUTCOME SUPPORT

AGR 1213 Natural Resource Management is an elective course for Agricultural Production Systems degrees and certificates. The course is used to assess the Technical Competence outcome of applying economically sound and environmentally sustainable agricultural crop production practices in the Great Plains.

COURSE DESCRIPTION:

A study of our natural resources with special emphasis on soil and water management including land classification, conservation practices, and protection methods used to conserve our natural resources, plus the role of government agencies in Natural Resource Management.

COURSE PURPOSE

The course serves as an elective course at NCTA and other universities and would greatly benefit any student pursuing a career that affects how our soil, land and water resources are managed.

CANVAS RESOURCES AND LECTURE NOTES

All resources needed for this course are provided on the Canvas Learning Management System page for the course. Lecture PowerPoints with Voiceovers will be posted. Course notes will also be posted on Canvas. These will include a general outline of material presented in lecture as well as pertinent tables, graphs, and illustrations. Students should have these printed out prior to the lecture in which they will be utilized. Assignments, study questions, and other resources are also provided.

STUDENT LEARNING OUTCOMES

1. Students will be able to describe the impact of world population growth on natural resource availability and management.
2. Students will be able to outline the scientific method and distinguish fact versus opinion regarding environmental issues.
3. Students will identify the major factors depleting water supplies and will be able to develop management strategies to conserve water.
4. Students will classify the major pollutants of water, air, and land resources and will be able to develop and apply strategies to prevent pollution.

5. Students will distinguish how invasive plants can affect land and water resources and know the processes involved in controlling invasive species.
6. Students will be able to compare and contrast alternative energy sources with particular emphasis on biofuels and wind energy.
7. Students will be able to critically evaluate the science behind global warming and atmospheric carbon dioxide levels.
8. Students will distinguish soil erosion processes and be able to develop soil conservation strategies for agricultural and natural land areas.
9. Students will be able to locate and utilize important government agencies that assist in managing natural resources.

LECTURE OUTLINE

1. Scientific Method and Critical Thinking
2. Introduction to natural resources and conservation
 - Types of natural resources
 - Importance of natural resources
 - Ecosystems and ecology: plant-land-climate-wildlife interactions
 - Government agencies and policies to support conservation
3. Soil and land resources
 - Soil erosion processes and impacts
 - Soil conservation practices in crop production, range and natural habitats
 - Invasive plants and Noxious weeds
 - Sustainable forestry
4. Water resources
 - Groundwater pollution and management
 - Surface water pollution and management
 - Surface water resources in Nebraska, U.S. and Globally
 - Ogallala aquifer issues
 - Invasive plants: impacts on available water in Republican and Platte River Basins
5. Air resources
 - Air pollution and agriculture
 - Atmospheric carbon dioxide levels, global warming and agriculture
6. Global energy and food demands
 - Population growth: impacts on energy and food shortages
 - Social values and economic impacts on policies and perceptions
 - Sustainable Agriculture and Organic Farming
 - Alternative energy sources and environmental impacts

ASSESSMENT

Academic assessment is the process for *ongoing improvement of student learning and success*.

The assessment program at NCTA has four specific interrelated purposes:

1. To improve student learning
2. To improve teaching strategies
3. To document successes and identify opportunities for improvement
4. To provide evidence for institutional effectiveness

Criteria for Assessment:

Exams:	50%
Final Exam:	15%
Assignments:	35%

Exams

A full schedule of topics and exams is provided on the last page of this syllabus. The topics from the lecture outline are divided into 5 exam sections. Exams will be emailed to the facilitator/instructor at your school and they will administer the exam.

Examinations will consist of a combination of fill in the blank, short answer essay, matching, and multiple choice questions. The Final Exam will be comprehensive.

Assignments – Reports:

Turn in all assignments and reports based on the course schedule on the last page of the syllabus. Full details of the assignments will be posted on Canvas. Attach completed assignments to an email. bramsdale2@unl.edu

Grading Scale: the college maintains a uniform grading scale which is provided below.

<u>Letter</u>	<u>Range</u>	<u>Points</u>	<u>Letter</u>	<u>Range</u>	<u>Points</u>
A+	100.0 – 100.0	4.00	C+	73.3 – 76.3	2.33
A	90.0 – 99.9	4.00	C	70.0 – 73.3	2.00
A-	86.7 – 90.0	3.67	C-	66.7 – 70.0	1.67
B+	83.3 – 86.7	3.33	D+	63.3 – 66.7	1.33
B	80.0 – 83.3	3.00	D	60.0 – 63.3	1.00
B-	76.3 – 80.0	2.67	F	00.0 – 60.0	0.00

IDENTITY VERIFICATION

All courses offered through an online format must document identification of the student completing the course. Only registered students are granted access to the course utilizing the MyNCTA username and password. Student identity during exams is determined through the use of an exam proctor.

COMMUNICATION

The instructor will be maintaining weekly communication with the student to ensure students are progressing properly. Unless extenuating circumstances occur, all emails will be responded to within 24 hours. Exams and assignments will be graded and posted on Canvas within 72 hours.

TECHNOLOGY REQUIREMENTS/ACCESSIBILITY

The course content that students will be utilizing on the Canvas Learning Management System will function best utilizing a desktop or laptop computer. Some files are not fully compatible with iPad systems. Students will need to be able to view the following file types:

- Adobe PDF
- Microsoft Word
- MP4 Video Player

Students also need to have an email account as this will be the primary tool for communication in the course. The ability to attach completed assignments to emails is also necessary.

ACADEMIC DISHONESTY POLICY

Plagiarism on assignments will not be tolerated. A copy of NCTA's plagiarism policy is included on the Canvas LMS site for the course. The policy includes descriptions of what qualifies as plagiarisms. Assignments that are plagiarized will be assigned a score of 0. A failure for the course will result after the second documented plagiarism offense.

DISABILITY

Students with disabilities are encouraged to contact Kevin Martin, ADA/504 Compliance Officer, 308-367-5217, Education Center Room 113E, for a confidential discussion of their individual needs for academic accommodation. It is the policy of the Nebraska College of Technical Agriculture to provide individualized accommodations to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements.

TITLE IX

Title IX is a Federal civil rights law that prohibits discrimination on the basis of sex or gender in all programs and activities. The Nebraska College of Technical Agriculture will not discriminate on grounds of race, color, sex, national origin, or any other factor prohibited by law in providing any educational or other benefits or services. For more information or to report a Title IX incident, please contact Jennifer McConville, Title IX Coordinator, 308-367-5259, Ag Hall 25.

Natural Resources Management Topic, Assignment, and Exam Schedule

Exams must be taken within 1 week of the scheduled date. With my approval, students may take the exam earlier if working ahead.

Module 1
• What are natural resources?
• Scientific Method and Critical Reading (Begin Assignment 1)
• Population Growth and Natural Resource Trends
• Ecosystems and Ecology – Resource Interactions
• Exam 1 – Sept. 16 (Assignment 1 Due)
Module 2
• Water Resources Overview
• Water Dynamics
• Price of Water Video
• Playas Video (Begin Assignment 2)
• Tri-County Project
• Exam 2 – October 7 (Assignment 2 Due)
Module 3
• Water Quality Intro and Groundwater Quality Management
• Surface Water Quality Management
• Nebraska Water Laws (Begin Assignment 3)
• Invasive Plants Affecting Land and Water Resources
• Exam 3 – October 30 (Assignment 3 Due)
Module 4
• Biofuels
• Alternative energy sources (Begin Assignment 4)
• Air Quality
• Global Warming and Carbon Sequestration
• Trees are the Answer Video
• Exam 4 – November 20 (Assignment 4 Due)
Module 5
• Soil and Soil Erosion
• Soil Erosion Management (Begin Assignment 5)
• Terrace and Waterway Design and Maintenance
• Universal Soil Loss Equation – Crop Residue Estimates
• Bioengineering for Steambank and Hillslope Erosion
• Exam 5 – December 11 (Assignment 5 Due)
Comprehensive Final Exam – December 17

Assignment 1 – Critical Reading of an Article.....complete prior to Exam 1

Assignment 2 – Local water resource analysis.....complete prior to Exam 2

Assignment 3 – Nebraska NRD's.....complete prior to Exam 3

Assignment 4 – Alternative Energy.....complete prior to Exam 4

Assignment 5 – Natural Resource Conservation Service.....complete prior to Exam 5