Syllabus

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Earth's Natural Resource Systems:
NRES 108
Fall 2008

Instructor:
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(Click on the areas above for more detail)

Print

Technical Requirements

In order to take this course, you must have:

1. E-mail
2. An Internet connection (Netscape 3.01 or higher and Internet Explorer 4.0 or higher)
3. Microsoft Word
4. PowerPoint
5. Adobe Acrobat Reader
6. RealPlayer

- The technology skills you will need to succeed in this course are a basic familiarity with your Web browser, e-mail, word processing, and the ability to locate specific information on the Internet. You must also know or learn how to use Blackboard courseware.
- Clicking **here** will take you to a link that will direct you to any of the plug-ins you might need for this course.

Note: When you click on the link above a new browser window will open. Be sure to close the window when you are done.

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Course Introduction

In this class, you will develop an understanding of the Earth's natural resource systems using a systems approach. This course will provide opportunities for you to start making connections between a variety of disciplines and concepts.

It is critical that you understand the dependence of all people on both renewable and non-renewable resources and the potential consequences that human activities have on global processes and the availability of natural resources. This class will employ a systems approach to understanding natural resource systems that recognizes that everything is connected to everything else (ECEE). Using this approach, natural resources are considered part of a larger system that allows us to deal more responsibly and rationally with local, regional and global issues. In addition, this approach recognizes that humans are dependent on, impact the distribution of, and influence natural resource systems. This course will emphasize earth, water and soil resources. This course will

provide a general understanding of the processes that relate to the interaction of the atmosphere, hydrosphere and, geosphere and biosphere.

For the future educators in this class, many of the activities that we will do in this class may be able to be used directly in an elementary, middle school or high school classrooms. All activities are designed to challenge you as learners. All the concepts in this class can be related to both the K-12 National and Nebraska science education standards. It is important to recognize that this is a science class and not a methods class.

My role in this class is to provide you with opportunities to learn about the Earth and to challenge you as learners so that you can understand and apply basic Earth system science concepts to your own community. Everyone can be successful in this class, but it is up to you. I am always available for help.

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Learning Objectives

By the end of the course, you will:

1. Describe and explain the basic interactions between the hydrosphere, geosphere, atmosphere, and biosphere.
2. Acknowledge and work with individuals who have different perspectives about natural resources.
3. Develop conceptual models for a variety of Earth's natural resource systems that qualitatively include mass and energy exchange.
4. Demonstrate an understanding of the properties, occurrence and distribution of water and soil.
5. Demonstrate an understanding of rocks and minerals as fundamental resources for humans and scientists who study the Earth.
6. Explain the basic chemical and physical processes that control the distribution of geologic resources from the Earth including metals and energy.
7. Explain the social and economic issues that control the availability of mineral and energy resources
8. Collect basic data required for the analysis of natural resource systems.
9. Plot, analyze and interpret data using graphs.
10. Understand the dependence of all people on both renewable and non-renewable resources
11. Describe the impact of humans as stewards, managers and components of natural resources systems.

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Professional Behavior

Professional behavior determines the way others view you. This includes professional colleagues, parents, students, instructors, and your peers.

Professional behavior includes, but is not limited to:

- Being responsible
- Maintaining an excellent attendance record
- Showing initiative
- Developing rapport with other professionals and with those you interact with such as students
- Maintaining flexibility
- Being prepared
- Maintaining confidentiality
- Demonstrating ability to meet deadlines
- Maintaining a positive attitude

These behaviors, along with other considerations, are important attributes of quality employees and professionals. You will be challenged to succeed if you do not have these characteristics.

Modified from: PROTOCOL, POLICIES, AND PROFESSIONAL REQUIREMENTS CI 495C or WLED 495C, http://www.ed.psu.edu/preservice/things%20to%20update/495C%20Policies%20and%20Protocol_FA06.doc
The Pennsylvanian State University.

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Calender

(Subject to change by instructors)

	Lesson	Activity	Completion Date
Module 1 Natural Resources: Linking Science, Society and Systems	1. Welcome to Earth's Natural Resource Systems	1 - 1 Introduce Yourself	
		1 - 2 Your Expectations	
		1 - 3 What is your learning style preference?	
		1 - 4 Discuss the implications of learning styles.	
	2. Exploring Natural Resources and You	1 - 5 What materials do I use everyday?	
		1 - 6 Natural resources: Developing a common language.	
	3. Earth's Spherical Systems	1 - 7 Website Research	
		1 - 8 ECEE Discussion	
Content Mastery Activity			
Module 2 Earth's Matter, energy, and their interaction	4. Understanding Systems	2 - 1 Application of systems knowledge	
	5. Earth Systems: Nothing but energy and matter I	2 - 2 Making sense out of mass, volume, density, and significant figures.	
		2 - 3 The weight of gravity	
	6. Earth Systems: Nothing but energy and matter II	2 - 4 How does energy rank for you.	
		2 - 5 Graphing data in excel.	
		2 - 6 Melting and vaporizing matter	
		2 - 7 Black and sliver cans	
		2 - 8 Aquarium energetics	
	7. Sources of Earth's Energy	Group Collaboration and Discussion	
Content Mastery Activity			

Module 3 Rock and Mineral Resource Systems	8. Rock and Mineral Resources and the Human Endeavor	3 - 1 Strategic minerals: Past, present, and future.	
		3 - 2 Cookie mining: An application of knowledge.	
	9. Elements, rock, minerals, and their relationships	3 - 3 Mineral identification lab	
		3 - 4 Rock research	
		3 - 5 Going Venn with the rock cycle	
	10. The Rock Cycle, resources, and plate tectonics	3 - 6 Your model of the rock cycle	
		3 - 7 Snack on plate tectonics	
Content Mastery Activity			
Module 4 Soil Resource Systems	11. Who Cares about soils	4 - 1 Who cares about soils?	
	12. Soil in the field, factors and formation	4 - 2 Soil tripping in the field	
		4 - 3 Urban and ruralnsoil use-A challenge	
	13. Soil Surveys-Bringing it all together	4 - 4 Putting soil surveys to work	
Content Mastery Activity			
Module 5 Water Resource Systems	14. Water-Our most valuable resource	5 - 1 How much water do I use?	
		5 - 2 Your water supply	
		5 - 3 Water language journey	
	15. Surface Water Resources	5 - 4 Geography of U.S. rivers	
		5 - 5 Rivers and Hydrographs	
	16. Groundwater Resources	5 - 6 Geology, groundwater and the two P-words	
		5 - 7 A groundwater journey essay	

	5 - 8 Investigating your groundwater resources	
Content Mastery Activity		

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Structure and Method

Structure: NRES 108 is a three-credit undergraduate level course that is structured around five modules:

Module 1. Natural Resources: Linking Science, Society, and Systems

Module 2. Earth's Matter, Energy, and Their Interaction

Module 3. Rock and Mineral Resource Systems

Module 4. Soil Resource Systems

Module 5. Water Resource Systems

Each Module includes:

- Learning objectives and an introduction that highlights these objectives
- Module summary
- Multiple lessons that include learning activities, websites, readings, powerpoint presentations, and other related materials designed to help you learn.

Methods: A variety of learning strategies will be used and include, but not be limited to: presentations, activities, group cooperative strategies in which the individuals and group will be held accountable through peer evaluation; group discussions will provide students the opportunity to think about and integrate course content through free writing and focused questions; on-line content essays; and field exercises.

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Grading

This course is designed to help you learn more about Earth's natural resources and as such, the focus is on learning, not grades. Your grade in this course will be based on your ability to **master course content** along with **active participation** and the **on-time, quality completion** of the grading elements in this course, not the accumulation of points. These elements include: assignments, activities, discussions, assessment tools, or other items to which the facilitators assign a due date. See the generalized rubrics that will be used to assess the quality completion of assignments (activities), discussions, and projects.
Discussion -- Active participation in the discussion board is an important part of this course. Your individual discussion board participation will be assessed primarily on the ***quality*** of your contributions (See rubric). Irrelevant, redundant or unresponsive comments are discouraged. More specifically, we will be examining individual contributions based on the following criteria:

- The extent to which comments/questions relate to the current discussion.
- The extent to which the comment/question moves the discussion forward.
- The extent to which the comment/question is related to course content (e.g., assigned readings, activities, and assignments), or your own personal experience.
- The extent to which your reasoning is consistent and logical.
- The extent to which your comment/question brings a fresh analytic perspective and/or increased insight to the discussion.

Course facilitators will comment selectively and may post a final comment on the group discussion board.
Group Work -- There will be a variety of group activities during this course including data and information collection. The data and information collected may be used in other phases of the class so it is imperative that you participate. If you have difficulties within your group, please let the instructor know and steps will be taken to resolve the issue.

Data Collection, Presentations and Projects -- There will be at least one group project that will involve the collection and interpretation of data. The goal of these projects is to provide you the opportunity to access data and information on a chosen natural resource issue and to use your new knowledge and skills. Once the data is collected, each group may be asked to give a presentation of their data, information and interpretations to the class. Project evaluation will include the overall group presentation as well as individual contributions to the group effort.

At the end of each module, you will also be asked to use one of several methods to demonstrate your mastery of the content. Instructors will provide feedback as appropriate and may ask you to revisit an assignment after additional guidance is given in order to receive full credit. If you do not respond to the feedback and suggestions, the original level of credit will be given. If you have a problem with a given deadline, please contact one of the instructors, otherwise if an assignment is not completed by its due date no

credit will be given.

Your **success** and that of the other course participants **depends on your active, on-time participation**. You can view your record by going to My Grades on Blackboard, which can be accessed by clicking on the course tools button.

An “A” grade will be given if your record documents the quality completion of greater than 90% of the grade elements and meaningful completion of the course content questions. Documented mastery of 90% of the concepts will also be required.

A “B” grade will be given if your record documents the quality completion of 80 to 89% of the grade elements and meaningful completion of the course content questions. Documented mastery of 80 to 89% of the concepts will also be required.

A “C” grade will be given if your record documents the quality completion of 70 to 79% of the grade elements and meaningful completion of the course content questions. Documented mastery of 70 to 79% of the concepts will also be required.

A “D” grade will be given if your record documents the quality completion of 60 to 69% of the grade elements and meaningful completion of the course content questions. Documented mastery of 60 to 69% of the concepts will also be required.

An “F” grade will be given if your record documents the quality completion of less than 60% of the grade elements and meaningful completion of the course content questions. Documented mastery of less than 60% of the concepts will also be required.

If tasks that you do are not complete, you may be asked to revisit some aspect of the assignment, but issuing points and worrying about such things should not be a concern. Our goal is for you to be intrinsically motivated to learn the material and not need grades as a motivator or be concerned about grades to the point that it distracts from your learning. We want everyone to feel comfortable exposing your areas of need and willing to work until you have the required concept knowledge and understanding.

You are welcome to ask about your grade, but please trust us that the goal is learning and if you do what is asked, your grade will take care of itself.

Content Questions – The goal of this course is learning. To show that each of you have learned from the course, we have designed a set of content questions. At the beginning and end of the course, it is required that each student complete a series of content questions. Lack of meaningful participation will result in the potential lowering of your final grade. The goal is to have you show your initial knowledge and then have you revisit and update your responses. This way you can see what you have learned. In addition, we can learn about those concepts on which we may need to change our presentation.

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Student Conduct

Academic honesty:

Academic honesty is essential to the existence and integrity of an academic institution. The responsibility for maintaining that integrity is shared by all members of the academic community. To further serve this end, the University supports a Student Code of Conduct which addresses the issue of academic dishonesty.

Diversity:

The University is committed to a pluralistic campus community through Affirmative Action and Equal Opportunity. We assure reasonable accommodation under the Americans with Disabilities Act.

Ethics and Integrity:

The instructor is committed to offering a course that maintains an atmosphere of ethical behavior, individual integrity, and equitable treatment of each person. Expression of ideas from various perspectives acknowledges the dignity of all class members.

Students with Disabilities:

Students with disabilities are encouraged to contact the instructor for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.

Click here for a link to the "Academic Services Handbook."

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Technical Problems

For all technical problems related to this course, please contact the:

UNL Blackboard Help Desk

Phone: (402) 472-3970

E-mail: helpdesk@unl.edu

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