

**ENV/ERS 467/667: Regional and Global Issues in Environmental and Natural Resource Sciences  
Spring 2004**

<b>Instructors:</b> Dr. Glenn Miller Office: ARF 302 Phone: 784-4108 Email: gcmiller@unr.edu Office Hours: Tuesdays 9:00 – 11:00 AM or by appointment	Dr. Robert Nowak Office: FA 125 Phone: 784-1656 Email: nowak@cabnr.unr.edu Office Hours: Tuesdays 11:00 AM – 1:00 PM or by appointment
--	---

Class meets on Tuesdays and Thursdays from 1-2:15 in FA 253 unless otherwise indicated.

**Course Outline:** (subject to change)

Date	Assignment due	Topic	Instructor
Jan 20		Introduction to course, Tragedy of the Commons	Nowak & Miller
22		Resource and land management <ul style="list-style-type: none"> <li>• Resource management paradigms</li> <li>• Policy sciences</li> <li>• Principles of resource management</li> </ul>	Nowak
27			
29			
Feb 3	<b>BN #1 due</b>		
5		Tragedy of the Commons, Nevada Env. Commission	Miller
10	<b>BN #2 due</b>	Global pollution, Persistent Organic Pollutants	
12		Global Pollution, CFC's	
17	<b>GM #1 Due</b>	Other indicators of global pollution	
19		Metals	
24		Guest lecturer	
26	<b>Quiz</b>	Nevada Env. Commission,	
Mar 2		Invasive species <ul style="list-style-type: none"> <li>• What are invasive species</li> <li>• Why should we be concerned</li> <li>• Why are they invasive</li> </ul>	
4			
9			
11	<b>BN #3 due</b>		
16, 18	<i>Spring break</i>		
23		Mining in Nevada	Miller
25		Mining in Nevada	
30		Radioactive Waste: Shallow-land burial systems	Nowak
Apr 1		Arsenic	Miller
6		Student Presentations	
8		Stratospheric Ozone Depletion	
13		Open	
15	<b>GM #3 due</b>	Student Presentations.	
20		Global change <ul style="list-style-type: none"> <li>• The precautionary principle</li> <li>• Climate change</li> <li>• Increasing atmospheric CO<sub>2</sub></li> <li>• Global treaties</li> </ul>	Nowak
22			
27			
29	<b>BN #4 due</b>		
May 4			
May 6	<b>BN #5 due</b>	<i>Final exam period: Noon – 2 PM</i>	

**Course Objectives:**

The overall goal of this capstone course is to provide a sound foundation on how to systematically integrate and use biological, physical, and social science principles in order to address environmental and natural resource problems and issues. The course will use specific examples of case studies as well as individual and group investigations to:

1. identify critical scientific and social issues that are related to the environmental and resource problems
2. develop reliable expert knowledge and data bases on those issues

3. integrate information and evaluate potential environmental and social impacts
4. communicate effectively the results of the problem analysis

**Course Grading:**

This course will have formal exams and quizzes, written assignments, and oral discussion assignments. Grading will also depend upon your verbal and written communication skills as assessed by your participation in discussions, presentations, individual reports, and group activities. **All written assignments are due at the beginning of the class period indicated;** late assignments will not be accepted for grading and will be scored as zero. All written assignments must be typed; handwritten assignments are unacceptable. Oral assignments will be made during the class period assigned by the instructor; missed oral assignments will not be rescheduled and will be scored as zero without a UNR-approved excuse.

Grading for a particular assignment will consider both content (80% of the assignment grade) and style (20%). Content includes items such as careful consideration of data and results, critical examination of problems and issues, creativity, and critical thinking. Style includes clarity of presentations and composed manner for oral assignments; spelling, punctuation, neatness, and rules of formal writing for written assignments.

**Graduate student grading:** Graduate students will be expected to give a better synthesis of information required in the exams and assignments and to use up-to-date, pertinent, peer-reviewed journal articles to substantiate their discussions.

Final grades for the course will be based on assignments and participation and assigned as follows

- A = >90%
- B = 80-90%
- C = 70-80%
- D = 60-70%
- F = <60%

NOTE: This course does not use the plus/minus system of grading.

**Required text:**

**The Drama of the Commons**, edited by E. Ostrom, T. Dietz, N. Dolsak, P. Stern, S. Stonich and E. Weber.

National Academy of Sciences, National Research Council. 2002. Available on Amazon.com or directly from the National Academy Press.

**Reference Materials:***Reference books:*

The following are some good reference texts that provide supplemental readings on topics covered in class as well as serve as a starting point for assignments. Books with call numbers are in the Life and Health Sciences (LH) or DeLaMare (DLM) Library; the call number is at the end of the citation.

Azcue, J.M. 1998. Environmental Impacts of Mining Activities: Emphasis on Mitigation and Remedial Measures. Springer Press. TD195.M5 E517 1999 (DLM).

Butcher, S.S., R.J. Charleson, G.H. Orians, & G.V. Wolfe. 1992. Global Biogeochemical Cycles. Academic Press. QH344.G56 (DLM).

Freedman, B. 1995. Environmental Ecology: The Ecological Effects of Pollutants, Disturbance and Other Stress, 2<sup>nd</sup> Edition. Academic Press. QH545.A1 F74 1995 (LH).

Gliessman, S.R. 1998. Agroecology: Ecological Processes in Sustainable Agriculture. CRC Press. S589.7 .G58 1998 (LH).

Hoffmann, D.J., G.A. Burton Jr., B.A. Rattner, & J. Cairns, Jr. 1995. Handbook of Ecotoxicology. CRC Press. QH545.A1 H36 1995 (LH).

Manahan, S.E. 1993. Fundamentals of Environmental Chemistry. Lewis Publishers. TD193.M36 1993 (DLM).

Manahan, S.E. 1994. Environmental Chemistry. Lewis Publishers. QD31.2.M35 1994 (DLM).

Morgan, S. 1995. Ecology and Environment: The Cycles of Life. Oxford University Press. QH541 .M565 1995 (LH).

- Nierenberg W.A. (ed.) 1995. Encyclopedia of Environmental Biology. Academic Press. 3 volume set in reference section of Life & Health Sciences Library; QH540.4 .E52 1995.
- Peine, J. (ed.) 1999. Ecosystem Management for Sustainability: Principles and Practices Illustrated by a Regional Biosphere. Lewis Publishers. QH75.E323 1999 (LH).
- Rombke, J., & J.F. Moltmann. 1996. Applied Ecotoxicology. CRC/Lewis Publishers. QH545.A1 R65 1996 (LH).
- Samson, F.B., & F.L. Knopf (eds.). 1996. Ecosystem Management: Selected Readings. Springer Press. QH75 .E3 1996 (LH).
- Schlesinger, W.H. 1997. Biogeochemistry: An Analysis of Global Change. Academic Press. QH343.7 .S35 1991 (LH).
- Theodore, L., R.R. Dupont, & T.E. Baxter (eds.). 1998. Environmental Management: Problems and Solutions. Lewis Publishers. GE300 .E584 1998 (DLM).
- Turco, R.P. 1997. Earth Under Siege from Air Pollution to Global Change. Oxford University Press TD883.T85 1997 (DLM).
- Yaffee, S.L., A.F. Phillips, I.C. Frenz, P.W. Hardy, S.M. Maleki, & B.E. Thorpe. 1996. Ecosystem Management in the United States: An Assessment of Current Experience. Island Press. QH76 .E336 1996 (LH).

*Some basic environmental science textbooks that may be helpful:*

- Botkin, D.B., & E.A. Keller. 1995. Environmental Science: Earth as a Living Planet. Wiley Press
- Miller, G.T. 1997. Environmental Science: Working with the Earth. Wadsworth Publishing Co.

*Reference journals:*

Many journals have articles that relate to issues that are covered in class. These include (but are not restricted to) the following journals in ecology, environmental science, resource management, and agriculture. Most are found in the Health and Life Sciences Library

*Agricultural and Forest Meteorology*  
*Atmospheric Environment*  
*Biogeochemistry*  
*Ecological Applications*  
*Ecological Modeling*  
*Ecological Monographs*  
*Ecology*  
*Ecosystems*  
*Ecotoxicology*  
*Ecotoxicology and Environmental Safety*  
*Environmental Geology*  
*Environmental Management*  
*Environmental Monitoring & Assessment*  
*Environmental Pollution*

*Environmental Research*  
*Environmental Science and Technology*  
*Environmental Toxicology and Chemistry*  
*Environ. Tox. & Risk Assessment*  
*Forest Ecology and Management*  
*Global Change Biology*  
*International J. Biometeorology*  
*Journal of Range Management*  
*Microbial Ecology*  
*Oecologia*  
*Science of the Total Environment*  
*Soil Biology and Biochemistry*  
*Soil Science Soc. America Journal*  
*Water Air & Soil Pollution*

In addition to these discipline specific journals, journals for a general scientific audience such as *Science* or *Nature* often have articles of importance.

### **Academic Dishonesty Policy:**

Students are expected to adhere to the ethical code as described in the UNR Student Handbook. This code specifies that with enrollment, an individual commits to the principles embodied in the code. Academic dishonesty in any form is unacceptable. In the event of an academic dishonesty issue, the procedures for addressing the issue are outlined in the University's "Academic Dishonesty Procedures", which can be obtained from the Director of Student Judicial Affairs in the Jones Visitor Center.