INTRODUCTION TO ENVIRONMENTAL SCIENCE

COURSE INFORMATION:

Title: Introduction to Environmental Science

Department/Number: HLRM 101 (ESCI 101)  Credits: 3

Prerequisites: none

Location: distance delivered via Blackboard and E-Live

Meeting Dates/Time: Spring 2008 semester, Tuesdays and Thursdays, 5:10 – 6:40 PM

INSTRUCTOR INFORMATION:

TODD RADENBAUGH
Assistant Professor, Envir Science
UAF Bristol Bay Campus
PO Box 1070
Dillingham, AK 99576
907-842-4668
bftar@uaf.edu

LOCAL CONTACT INFO:

UAF Northwest Campus
Pouch 400
Nome, AK 99762
907-443-2201
800-478-2202

COURSE READINGS/MATERIALS:

Course Textbook: Environmental Science: Working with the Environment, 4th Edition

Author: Typer Miller, Jr.  Publisher: Thomson Brook/Cole, Inc.

Supplementary Readings (Indicate whether required or recommended):

Students will be provided with supplementary handouts and web assignments will be posted on Blackboard.
Any Supplies Required: Access to a computer that supports the UAF Blackboard and E-Live course delivery system.

COURSE DESCRIPTION:

This interdisciplinary course introduces the systems operating on Earth and the scientific principles used to understand environmental questions. It focuses on fundamentals of environmental science including Earth's materials, ecological processes and human influences. Issues debated including energy, biodiversity, land management, landscape alteration and climate change.

COURSE GOALS:

General Description of Goals:
- Provide a basic introduction to ecological systems and environmental issues.
- Study the impact of humans on ecosystems, with a focus on environmental problems and sustainable solutions.
- Basic review of scientific and ecological concepts that cover the three fundamental aspects of environmental studies - population, resource depletion, and pollution.
- Facilitate knowledgeable opinions and meaningful decisions about today's environmental issues.

Student Learning Outcomes/Objectives (Provide Examples):
- define pertinent terms in environmental science
- present and interpret quantitative information
- explain the scientific and social principles of sustainability
- delineate the reasons behind population growth, quantify population growth, detail the impacts of human population growth on the planet, and recall the various means to stabilize population growth
- outline the scientific method and use critical thinking to understand environmental problems and discoveries
- explain the basic principles of ecology
- analyze American energy use, list problems associated with energy use, and state specific sustainable strategies for energy usage in the U.S. and around the world
- discuss biodiversity, the many benefits of biodiversity and provide the main reasons for species loss
explain the principles of evolution, including the mechanisms of speciation and extinction
• delineate the principles of modern agriculture, including the Green Revolution, and describe the impact of agriculture on ecosystems
• interpret how environmental contaminants affect ecosystems and human biological functions
• clearly and effectively communicate scientific discoveries and controversial environmental issues, both verbally and in writing
• compare western and Alaska Native societal values and environmental ethics and relate them to the current environmental situations

INSTRUCTIONAL METHODS:

This course will be taught via distance delivery using Blackboard and E-Live. Lecture, demonstrations, assignments and discussion integrated on the Blackboard system. Online debate and interaction between students on environmental issues will take place.

SYLLABUS / COURSE CALENDAR:

This schedule is subject to modification to meet the needs of the class.

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<thead>
<tr>
<th>Class</th>
<th>Topic</th>
<th>Reading assignments</th>
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<tr>
<td>1</td>
<td>Introduction: What is Environmental Biology; Environmental Problems</td>
<td>Chapter 1</td>
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<td>2</td>
<td>Environmental Issues, Their Causes and Sustainability</td>
<td>Chapter 1</td>
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<td>3</td>
<td>The Economic and Political Landscape</td>
<td>Chapter 2</td>
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<td>4</td>
<td>Environmental Worldviews</td>
<td>Chapter 2</td>
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<td>5</td>
<td>Science, Systems, Matter, and Energy</td>
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<td>6</td>
<td>Ecosystems and the Flow of Energy &amp; Resources</td>
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<td>7</td>
<td>Interconnections: Ecosystem Services</td>
<td>Chapter 4; handouts</td>
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<td>8</td>
<td>Evolution and Biodiversity</td>
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<td>9</td>
<td>Speciation</td>
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<td>10</td>
<td>Climate, Terrestrial Biodiversity</td>
<td>Chapter 6</td>
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<td>11</td>
<td>Aquatic Biodiversity</td>
<td>Chapter 6</td>
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<td>12</td>
<td>Community and Population Ecology: Structure, Species Interactions, and Succession, Review for Exam</td>
<td>Chapter 7</td>
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<td>13</td>
<td><strong>Midterm Exam (Chapters 1 – 7)</strong></td>
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<td>14</td>
<td>Population Dynamics</td>
<td>Chapter 8</td>
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<td>15</td>
<td>Conservation Biology</td>
<td>Chapter 8</td>
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<td>16</td>
<td>Geology: Processes, Minerals, Hazards, and Soils <strong>Project 1 - letter to congress due</strong></td>
<td>Chapter 9</td>
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<td>17</td>
<td>Risk, Toxicology, and Human Health</td>
<td>Chapter 10</td>
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<td>The Human Population: Growth and Distribution</td>
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<td>Air and Air Pollution</td>
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<td>20</td>
<td>Climate Change and Ozone Loss</td>
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<td>21</td>
<td>Water Resources and Water Pollution</td>
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<td>22</td>
<td>Solid and Hazardous Waste</td>
<td>Handout</td>
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<td>23</td>
<td>Sustainability <strong>Project 2 - debate</strong></td>
<td>Handout</td>
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<td>24</td>
<td>Food Resources and Production Issues <strong>Project 2 - debate</strong></td>
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<td>The Ecosystem Approach to Sustainability</td>
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<td>Ecosystems: Human’s role</td>
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<td>Nonrenewable Energy Resources</td>
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<td>Energy Efficiency and Renewable Energy</td>
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<td>28</td>
<td><strong>Final Exam</strong></td>
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EVALUATION:

Expectations of Course Participants: Participants will participate in lectures, contribute to the class discussions, and complete assignments. The reading assignments will be reviewed before the class so participants can share their learning and insights during the course.

Short Assignments will be given periodically throughout course

Projects: Two projects are required:
1. Review a current environmental bill currently being debated in congress. Write a letter to your Senator/Representative stating your position and reasons why you support disagree with the proposed bill. Two good places to start: http://www.eenews.net/EEDaily.htm and http://www.congress.org

2. Environmental issue debates
The class will be divided into opposing fractions over a current environmental issue. Both the group and individuals will be graded on presentations and arguments offered during the debate.

Grades in this course will be determined as follows:
10% Class Participation
10% Small Assignments
25% Projects
25% Midterm Exam
30% Final Exam
The grading scale in this course will be determined as follows:
A = 90%-100%, B = 80%-89%, C = 70%-79%, D = 60%-69%, F = 0%-59%

Late Policy: Any homework assignment turned in after the due date will be deducted by 10%. There will be no makeup assignments but the lowest assignment grade will be dropped (so one can be missed).

SUPPORT SERVICES:

Barbara Oleson, Student Services Program Manager, 443-8402 or Bob Metcalf, Records & Registration, 443-8403.

DISABILITIES SERVICES:
The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. State that you will work with the Office of Disabilities Services (203 WHIT-7043) to provide reasonable accommodation to students with disabilities:

DISABILITIES SERVICES TEXT FOR DISTANCE FACULTY SYLLABI  
(Approved by Mary Matthews, UAF Disability Services, June 16, 2004)

UAF DISABILITY SERVICES FOR DISTANCE STUDENTS

UAF has a Disability Services office that operates in conjunction with the College of Rural Alaska's (CRA) campuses and UAF’s Center for Distance Education (CDE). Disability Services, a part of UAF’s Center for Health and Counseling, provides academic accommodations to enrolled students who are identified as being eligible for these services.

If you believe you are eligible, please visit [http://www.uaf.edu/chc/disability.html](http://www.uaf.edu/chc/disability.html) on the web or contact a student affairs staff person at your nearest local campus. You can also contact Disability Services on the Fairbanks Campus at (907) 474-7043, [fysdo@uaf.edu](mailto:fysdo@uaf.edu).