Environmental Sustainability: Theory, Issues, and Management

ESM 220  Spring 2015  3 credits

Instructor:  Jill Coleman Wasik, Ph.D.
Lecture:  MWF 10-10:50 am, AGS 328  Office Hours: MWF 9-10am,11am-12pm, and by appt
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Email:  jill.colemanwasik@uwrf.edu

Texts:
• Taking Sides: Clashing Views on Environmental Issues; 15th edition, Thomas A. Easton
• Additional materials will be assigned and available on D2L. You are responsible for these materials in class discussions and on exams.

Please call me Dr. Coleman, or Professor Coleman. I encourage all students to make use of my office hours for questions and general discussion of course-related issues. Also please do not hesitate to contact me outside of office hours. Email is always the best way to contact me outside of office hours and it is the method that I will use to send out information to the class.

Course Description: This course presents an essential foundation for critical thinking and professional development in the environmental science and management field. The course explores the broad spectrum of philosophical, historical, and technical issues pertaining to the management of natural resources and the people using those resources in a sustainable manner. Selective topics will include a critique of professionalism, sustainable development, environmental ethics, biodiversity, environmental quality standards, risk management, cost/benefit analysis, carrying capacity, limits of acceptable change, and ecosystem management. It will also focus on administrative structures currently in place for selecting the appropriate management responses necessary to address the complexity of environmental and social circumstances faced by governmental and non-governmental agencies. Prerequisite: ESM 105 and 151, or consent of instructor.

Course Goals:
1. Provide students with a multi-disciplinary foundation for thinking about sustainability.
2. Discuss the concept of sustainability from a biogeochemical perspective.
3. Address the social and economic facets of sustainability.
4. Discuss the challenges that face humanity in becoming sustainable.
Learning Outcomes:
By the end of this course students will be able to:
1. Create a personal definition of sustainability.
2. Analyze human impacts on natural systems and processes that affect the ability of humanity to live sustainably.
3. Interpret sustainability issues in the context of element cycles.
4. Compare and contrast the role of public and private entities in creating sustainable societies.
5. Identify facets of social/economic/industrial structures that could be changed to make society more sustainable.

Coursework

Coursework will consist of readings from your text and outside material, participation in class, two group projects, 4 in-depth activities, weekly quizzes, and a final exam.

Grading:
I do not intend to grade on a curve because I believe it creates unnecessary competition among students and inflates grades.

Total course points = 400
A = 96-100%
A- = 90-95%
B+ = 87-89%
B = 84-86%
B- = 80-83%
eetc...

Class Participation = 50 points
Your attendance is crucial to your success in this course. We do in-class activities throughout the semester and I will ask you to turn in your work associated with some of these activities for credit. Activities will be worth a total of 50 points so they can make a big difference to your grade (1 full grade!!!). I will not announce activities in advance so you take a risk if you decide not to come to class. I will offer at least 12 opportunities, but will grade 10. You can miss two with no penalties therefore you CANNOT make these up! Examples of activities include in-class discussions, short writing assignments, drawing diagrams, and field trips.

Assignments:
In-depth Activity 4 x 25 points each = 100 points
In the first activity I will ask you to assess consumer products in your local drugstore for their chemical content and their likely impact on water resources. In the second activity I will ask you to assess waste habits on campus by both surveying trash and recycling bins in a campus building and by interviewing a random sample of people on campus. In the third activity I will ask you to interview a friend or family member about the food they
ate for breakfast. You will then assess how sustainable that meal is and how it compares with a typical breakfast eaten by individuals in different countries. In the fourth activity I will ask you to assess the life cycle of a product that you use in your daily life.

Group project = 50 points
Report Due February 18th; Presentations February 18th and 20th
You will form groups of four and survey the sustainability practices of a business of your choosing in River Falls (yes it has to be River Falls!). You will write a report synthesizing your findings, analyzing the importance the business places on sustainability issues, and making recommendations for how the business might be more sustainable. You will make a 5-10 minute presentation to the class about your experience.

Recycling Education Project = 50 points
Due May 8, 2014
Students in previous semesters of ESM 220 have found that information about how to recycle is lacking on campus. Your assignment is to create educational materials about how students, staff, and faculty should handle their waste and recycling on campus. You will consider your findings from In-depth Activity 2 and design educational materials that you think will improve recycling rates and reduce waste on campus. I would prefer that you work in pairs for this project. Part of your grade will come from anonymous peer-evaluation at a “poster session” during the last week of class.

Quizzes and Exams:
Online Quizzes = 50 points
I will offer 12 5-point quizzes throughout the semester on your reading material and our in-class discussions. You may drop the lowest two scores. Quizzes must be completed by 11:59 pm each Friday for the material we covered during that week.

Final = 100 points
The final will incorporate major concepts from your reading as well as in-class activities. I will ask a combination of multiple choice, true/false, and short answer questions as well as one essay question. I may also ask you to draw diagrams for some of the cycles that we will discuss in our study of how to make society more sustainable.
# Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Readings*</th>
<th>Assignment /Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 26,28,30</td>
<td>Syllabus, Introductions, What is sustainability?</td>
<td>Easton: Introduction, Miller &amp; Spoolman Sections 2.2-2.4,</td>
<td>Syllabus quiz Weekly quiz 1</td>
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<tr>
<td>2</td>
<td>Feb 2,4,6</td>
<td>Environmental Science review</td>
<td>Miller &amp; Spoolman Sections 3.1-3.5, 4.1-4.6, 5.1-5.3</td>
<td>Weekly quiz 2</td>
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<tr>
<td>3</td>
<td>Feb 9,11,13</td>
<td>Ecosystem services, Biodiversity, threats</td>
<td>Easton Issue 3</td>
<td>Weekly quiz 3</td>
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<tr>
<td>4</td>
<td>Feb 16,18,20</td>
<td>Sustaining biodiversity and ecosystem services</td>
<td>Worldwatch Ch 9 Easton Issue 4</td>
<td>Group business presentations</td>
</tr>
<tr>
<td>5</td>
<td>Feb 23,25,27</td>
<td>Water resources, threats</td>
<td>Miller &amp; Spoolman Ch 13</td>
<td>Weekly quiz 4</td>
</tr>
<tr>
<td>6</td>
<td>Mar 2,4,6</td>
<td>Sustaining water resources</td>
<td>Worldwatch Ch 8</td>
<td>In-depth Activity 1 due 3/6 Weekly quiz 5</td>
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<tr>
<td>7</td>
<td>Mar 9,11,13</td>
<td>Climate system, threats</td>
<td>Miller &amp; Spoolman Ch 19, Easton Issue 7</td>
<td>Weekly quiz 6</td>
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<td>8</td>
<td>Mar 16,18,20</td>
<td>ENJOY SPRING</td>
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<td>BREAK!!!</td>
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<td>10</td>
<td>Mar 30, Apr 1,3</td>
<td>Waste</td>
<td>Miller &amp; Spoolman Sections 21.2-21.6</td>
<td>WWTP tour (tentative) Weekly quiz 8</td>
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<tr>
<td>11</td>
<td>Apr 6,8,10</td>
<td>Food systems</td>
<td>Worldwatch Ch 5, Easton Issues 15</td>
<td>In-depth Activity 3 due 4/10 Weekly quiz 9</td>
</tr>
<tr>
<td>12</td>
<td>Apr 13,15,17</td>
<td>Energy systems</td>
<td>Miller &amp; Spoolman Ch 16, Easton Issue 10</td>
<td>Guest Speaker Weekly quiz 10</td>
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<tr>
<td>13</td>
<td>Apr 20,22,24</td>
<td>Campus sustainability initiatives</td>
<td>Skim through the UWRF Sustainable campus-community plan</td>
<td>In-depth Activity 4 due 4/24 Weekly quiz 11</td>
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<tr>
<td>14</td>
<td>Apr 27,29, May 1</td>
<td>Transitioning to sustainability</td>
<td>Worldwatch Ch 4, Easton Issue 1</td>
<td>Ecovillage tour (tentative) Weekly quiz 12</td>
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<tr>
<td>15</td>
<td>May 4,6,8</td>
<td>Transitioning to sustainability</td>
<td>Worldwatch Ch 10, Easton Issue 2</td>
<td>Waste education presentations due 5/8</td>
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<tr>
<td>16</td>
<td>Wed May 13th</td>
<td>FINAL EXAM AgSci 328 10:15am-12:15pm</td>
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<td>Final</td>
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*I reserve the right to change readings with advance warning if our discussions seem to warrant different (i.e. better) readings.