ESC 111-01  Topics in Environmental Science Syllabus  
Spring 2013  
Monday and Wednesday 11:00–12:15, Shankweiler 234S  
Instructor: Dr. Jason Kelsey  
Office: NSB 302  
Office phone: 484-664-3144  
Email: kelsey@muhlenberg.edu  
Web page: http://www.muhlenberg.edu/envisci/  
Instructor scheduled office hours:  
M 12:15–1:30  
W 12:15–1:00  
(Drop in other times)  
OR: by appointment  

REQUIRED TEXTS:  
(2) Supplemental handouts and web-based readings  

GRADING POLICY  
The final course grade will be determined in the following way.  

‘Fourth-hour’ assignments (see page 3)  
Quiz  
Exam 1:  
Exam 2:  
Exam 3  
Cumulative final exam:  
Participation:  

9%  
10%  
15%  
18%  
18%  
25%  
5%  

Note the following rules about grading, exams, attendance, and classroom etiquette.  

● Exams will be written from all the course materials: textbook and web-based readings, lecture handouts, homework assignments, and anything discussed, mentioned, or displayed during the lecture periods. All exams are cumulative.  
● Students will receive a 0 for each missed exam. If an exam is missed due to a documented emergency, the remaining exams will each be given more weight. There are two exceptions to this rule: 1) all students must take the final exam; 2) you may not miss more than 1 exam. If you do not take the final exam as scheduled and/or if you miss more than 1 exam, you will receive a 0 for the exams you miss.  
● Students will be expected to adhere to the Muhlenberg Academic Code (see page 4 for more information).  
● In general, make-up exams are NOT given. However, at the discretion of the instructor, make-up exams may be given in absolute extreme emergencies. The desire to extend vacations is one example of an UNACCEPTABLE reason to ask for a make-up exam. Most reasons fall into the UNACCEPTABLE category; in other words, make-up exams are the very rare exception, NOT the rule. In any case, no student will be given more than 1 make-up exam. You should expect to take the exams as they are scheduled.  
● Individual students WILL NOT BE GIVEN EXTRA CREDIT PROJECTS—please do not ask for them.  
● Class attendance is mandatory. Each student is a member of our scientific community and will be expected to contribute to discussions and problem solving. TWO class meetings may be missed without penalty; thereafter, the final course average will be reduced by 2 points for each unexcused absence.  
● The class participation grade will depend on the degree to which a student contributes positively to the learning environment. Both insufficient and negative participation will lower the class participation grade.  
● Disruptive students will be asked to leave class at the discretion of the instructor. Cell phone use, text messaging and the like are strictly prohibited in the classroom.  
● No laptop computers (or equivalent) may be used in class unless you have written confirmation of a special need to do some from the Office of Academic Support Services.
• All written assignments must cite references and carefully avoid plagiarism. In other words, any ideas that are not your own MUST be properly referenced. The instructor will provide more guidelines as needed. You may work in groups of two for the homework assignments given. One copy of the assignment (with both student names) should be handed in, though.

• Course unit instruction information (as required by the credit hours provision of the Higher Education Opportunity Act of 2011). This class is scheduled to meet for 3 hours per week. Additional instructional activities for the course include individual and group projects outside of class. Assignments will be given throughout the semester. These activities will add an additional 14 hours of instruction to the course (to make it equivalent to a 4-credit course). See page 3 for more information.

• Final letter grades will be assigned as follows (numbers are percentages of the total number of points available).

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>93 or higher</td>
</tr>
<tr>
<td>A-</td>
<td>90–92.9</td>
</tr>
<tr>
<td>B+</td>
<td>87–89.9</td>
</tr>
<tr>
<td>B</td>
<td>83–86.9</td>
</tr>
<tr>
<td>B-</td>
<td>77–79.9</td>
</tr>
<tr>
<td>C+</td>
<td>77–79.9</td>
</tr>
<tr>
<td>C</td>
<td>73–76.9</td>
</tr>
<tr>
<td>C-</td>
<td>70–72.9</td>
</tr>
<tr>
<td>D</td>
<td>60–69.9</td>
</tr>
<tr>
<td>F</td>
<td>below 60</td>
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</tbody>
</table>

• If you have a problem with the schedule or the syllabus, you must contact the instructor during the first week of the semester to discuss the conflict. Check the dates of exams now; you will be expected to adjust your schedule to meet the demands of this course.

### LECTURE SCHEDULE

<table>
<thead>
<tr>
<th>Date(s)</th>
<th>Topic</th>
<th>Reading(s)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/14, 1/16</td>
<td>Introduction; scope of environmental science;</td>
<td>1; skim 5; 2 (through p. 25)</td>
</tr>
<tr>
<td></td>
<td>Fundamental concepts in environmental science;</td>
<td>’Scientific Measurements…’ (Bb)</td>
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<tr>
<td></td>
<td>Scientific principles, measurements, and uncertainty</td>
<td></td>
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<tr>
<td>1/21</td>
<td>NO CLASS MLK, Jr. Observance</td>
<td></td>
</tr>
<tr>
<td>1/23</td>
<td>Systems and feedback; earth’ s environments and cycles</td>
<td></td>
</tr>
<tr>
<td>1/28</td>
<td><strong>QUIZ</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Earth’s environments and cycles (continued)</td>
<td></td>
</tr>
<tr>
<td>1/30, 2/4, 2/6</td>
<td>Earth's environments and cycles (continued);</td>
<td>2 (p. 25–end);</td>
</tr>
<tr>
<td></td>
<td>Principles of ecology; ecosystems</td>
<td>12 (pp. 247–254; 260–273), including Fig. 12.28; 11 (through p. 230); 3; 8 (through p. 165)</td>
</tr>
<tr>
<td>2/11, 2/13</td>
<td>Ecosystems (continued)</td>
<td></td>
</tr>
<tr>
<td>2/18</td>
<td><strong>EXAM 1</strong></td>
<td></td>
</tr>
<tr>
<td>2/20, 2/25</td>
<td>Trophic structure, interactions among species;</td>
<td>7 (pp. 152–154); web link: “Biomes”; 5 (skim section on earth’s biomes, pp.78–84, carefully read the rest); 11 (pp. 231–234)</td>
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<tr>
<td></td>
<td>Ecological succession;</td>
<td></td>
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<td></td>
<td>Earth’s hazards</td>
<td></td>
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<tr>
<td>2/27</td>
<td>Human population</td>
<td>6; 7; web link to “Rice Growing in S. CA”</td>
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3/4, 3/6  NO CLASSES: Spring Break

3/11, 3/13  Soil and agriculture (continued)

3/18  EXAM 2

3/20, 3/25, 3/27  Energy use 11 (pp. 237–243); 15; 16

4/1  NO CLASS: Easter Monday

4/3  Waste management; extinction; 17; 8 (p. 165–end); 9 (pp.184–199; skim the rest); 12 (pp. 254–260; 273–275)
Wildlife, forest, and fisheries management

4/8, 4/10, 4/15  Chemical pollution of air 13; 14

4/17  EXAM 3

4/22, 4/24  Chemical pollution of air (continued)
Fates of pollutants in soil None
[Personal impact analysis due 4/24]

4/29, 5/1  Fates of pollutants in soil (continued)
Environmental health and toxicology; 10
Risk assessment

The final exam will be scheduled by the Registrar. You must be prepared to stay on campus through the end of the final exam period, Friday, 12/14.

**More information on ‘Fourth-hour’ assignments**

Each student must complete FIVE of these activities/assignments during the semester. You have some flexibility about which ones you choose, but you must complete items 1, 2, 3, and 4 on the list below. Details about each activity/assignment will be distributed at appropriate dates.

You must complete each of the four items on the list below as indicated. Remember that you must complete a total of FIVE assignments.

1. Personal Impact Analysis (due 4/24) [REQUIRED of all students]

2. One of the three available films. You must attend, participate in the discussion, and write a short summary of how the film is relevant for students taking ESC 111. You also must sign in at the time of the activity. Dates TBA.

3. One of the three outside speakers / activities. You must attend, participate in the discussion, and write a short summary of how the film is relevant for students taking ESC 111. You also must sign in at the time of the activity. Dates TBA.
   a. Trip to the Allentown sewage treatment facility. Note: seating for this is limited; reserve your place early.
   b. Presentation about permaculture
   c. Parks and land use in Allentown: a walking tour

4. One of the five written assignments (described on next page)
Written assignments that fulfill the ‘Fourth-hour’ requirement

General directions
You should work in groups of two. Each group should hand in ONE paper with the names of each participant on it. It is expected that each member will contribute equally and that these assignments will be COLLABORATIVE and COOPERATIVE. You should NOT divide up the assignment and work independently; rather, you should meet and discuss these as a group and craft one cohesive, final, typed document that hangs together and flows as if written by a single person.

Use your notes, assigned web links, textbook, and other sources as necessary; however, DO NOT use direct quotes from any source!!! Put your answers into your own words to demonstrate your understanding of the material. In any case, all assignments must cite references and carefully avoid plagiarism. Any ideas that are not your own MUST be properly referenced. Failure to cite references appropriately will result in a 20-point reduction in your grade on the assignment in question. You may use any style you like, but you MUST MUST cite your references. Avoid non-reviewed references (e.g., Wikipedia is no good).

By signing your name to your paper, you certify that you abided by the Muhlenberg Academic Behavior Code in the completion of this work. Failure to do so will result in a grade of F on the assignment in question.

Remember: you must complete a total of FIVE ‘fourth-hour’ assignments. Of these five, AT LEAST two must be from the list below (see page 3 of the syllabus for details). Note due dates and requirements and plan your semester accordingly.

Assignment #1 (Due 1/23 or 1/24 for section -01 and -03, respectively)
1. List five environmental issues that are most important to you and explain (one-two sentences) why they are on your list.
2. Name three people who were/are important scientists and describe (two-three sentences) their scientific contributions. Also state what makes them scientists (as opposed to politicians, philosophers, theologians, pundits, etc.).

Assignment #2 (Due 1/30 or 1/31 for section -01 and -03, respectively)
1. List three systems governed by negative feedback that were not discussed in class. Choose two and describe how they are examples of negative feedback. Use two or so sentences for each.
2. List three systems governed by positive feedback that were not discussed in class. Choose two and describe how they are examples of positive feedback. Use two or so sentences for each.

Assignment #3 (Due 2/27 or 2/28 for section -01 and -03, respectively)
Read:
1. Textbook, pp. 152–153 (“Our food choices are also energy choices”) AND p. 68–71 (incl. fig. 4.8)
2. Web link to “Food webs, food choices, energy considerations”

Write:
1. Given what you know about the inefficient transfer of energy through ecosystems, do you think humans should become vegetarians? Only use scientific arguments.
2. Describe two non-scientific arguments that could be a response to the question in #1.
Assignment #4 (Due 3/27 or 3/28 for section -01 and -03, respectively)
1. Describe five products that depend on oil to produce (one-two sentences each).
2. Name three products that DO NOT depend, in ANY way, on oil to produce (one-two sentences each).
   This is harder than you think—consider all requirements for production.

Assignment #5 (Due 4/10 or 4/11 for section -01 and -03, respectively)
Write a paragraph that includes answers to the following questions.
• Do you think global climate change is occurring?
• If yes, are humans responsible?
• Why or why not?
• What information informs your opinion?

SPECIAL NEEDS AND ACCOMMODATIONS
Students with disabilities requesting classroom or course accommodations must complete a multi-faceted application/approval process through the Office of Disability Services prior to the development and implementation of an Accommodation Plan. Each Accommodation Plan is individually and collaboratively developed with the Directors or staff of the following Departments, as appropriate: Academic Resource Center, Office of Counseling Services, Student Health Services, and the Office of Disability Services. If you have not already done so, please contact the appropriate Department to have a dialogue regarding your academic needs and the recommended accommodations, auxiliary aides, and services.

POLICY ON ACADEMIC DISHONESTY
Introduction. Students will be held to the highest standards of ethical behavior. Plagiarism, cheating, lying and other dishonest behavior will not be tolerated. Muhlenberg has established a strict Academic Behavior Code (A.B.C.), and students will be expected to abide by it. All students should read the entire code, which can be obtained through the Dean of The College for Academic Life or accessed through the Muhlenberg web site (click on ‘Policies and procedures’ from the main page).

A.B.C. summary. Students may NOT, under any circumstances, cooperate with each other on exams or homework assignments (unless explicitly authorized by the instructor). Sources consulted for papers, talks, and other assignments must be properly cited. Specific guidelines for citation of references will be distributed as needed, but, in general terms, follow this rule: if you did not write the words or come up with the idea on your own, you MUST give credit to the person who did write the words or came up with the idea. If you do not follow that rule, you have committed plagiarism.

Consequences of violations. Students who violate the A.B.C. will be in danger of failing the course. A grade of 0 will be assigned to the assignment in question (exam, paper, report, etc.), and the matter will be turned over to the dean for further action (suspension, dismissal, etc.). No warnings or exceptions will be given.

Students will write and sign the following pledge on all exams, papers, and reports handed in for grading:
   I pledge that I have complied with the Academic Behavior Code in this work.