"I have been trying to think of the earth as a kind of organism, but it is no go. I cannot think of it this way. It is too big, too complex, with too many working parts lacking visible connections. The other night, driving through a hilly, wooded part of southern New England, I wondered about this. If not like an organism, what is it like, what is it most like? Then, satisfactorily for that moment, it came to me: it is most like a single cell!"  

- Lewis Thomas

In The Lives of a Cell

Bantam Books, 1974

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Instructor: Dr. Diane Husic  
E-mail address: dhusic@moravian.edu

Office: 311B Collier Science Building  
Office phone: 610-625-7100

Office hours:  
Mondays: 9:30 – 10:30 a.m.  
Wednesdays: 9:30 – 10:30 a.m. and 1:00 – 2:00 p.m.  
Fridays: 9:30 – 10:30 a.m. 

I can meet with you at other times, but please schedule these appointments with me ahead of time.

Class meeting times:  
Mondays, Wednesdays, & Fridays @ 11:30 a.m. – 12:20 p.m.  
Thursdays (lab): 12:45 – 3:45 p.m.  (Please note that a separate lab syllabus will be distributed during the first lab session.)

Course online site: Blackboard:  
Course ID: BIOL193.FA05  
Access Code: 193

Course text/required books:  
Pearson/Prentice Hall (New Jersey)

You will also have a number of readings from media and internet sources throughout the semester.

Introductory comments:  
I realize that most of you may not be interested in a career in science. However, science and technology so greatly impact our lives that I strongly believe everyone should have at least a basic understanding of key scientific principles and their applications in the real world. To this end, in this course, you will be introduced to the science of living organisms from single cells to complex entities such as humans. We will examine the differences in composition and properties of the various spheres of the world we live in: the biosphere, atmosphere, geosphere and hydrosphere; and we will discuss the natural cycles that interconnect these spheres. More than any other living organism, humans have the ability to impact the environment and disrupt these natural cycles through population growth, industry, policy decisions, and applications of technology which can sometimes have unforeseen consequences.

I have attempted to design a course that will introduce you to some relevant aspects of science
and contemporary global environmental issues. You will quickly see that I favor an interdisciplinary approach to science and learning, so not only will we consider biological and chemical topics, but also the interplay between science, technology, and society. Besides analyzing the scientific aspects of contemporary environmental issues, we will also consider risk, the concept of an environmental ethic, the role of the media in influencing public opinion, and public policy related to science and the environment.

Individuals can profoundly affect change through public sentiment and voting, and, in turn, impact public funding and policy decisions. Thus, you have the power to affect the direction of science research, the applications and regulation of technology, and the status of our environment. I strongly believe that every individual should be a responsible, informed, and active participant in the governing processes, and as noted above, have some fundamental appreciation for the science that impacts us daily. I hope that you will find the applications and topics relevant to your life and that you enjoy this course.

Laboratory exercises will serve to help further illustrate concepts discussed in lecture and are designed to introduce you to the “process” of scientific inquiry and experimentation. I will distribute a separate syllabus for the laboratory during our first meeting.

Some of the major environmental issues that I plan to cover in this course include:

- Ecosystem alterations and diminishing biodiversity
- Atmospheric issues: air pollution, ozone layer destruction, and global warming
- Energy issues: fossil fuels, alternative energy sources, and radiation exposure
- Water and soil quality issues
- Solid and hazardous waste (and the consequences of all that trash!)
- Chemical pollutants and toxicology
- Environmental applications and implications of genetic engineering

We will examine relevant fundamental scientific principles to help you better understand each of these complex issues. We will review and evaluate examples of scientific data used by technical experts and policy makers to determine both the extent of the problems and the degree of risk posed to humans and environmental quality. In addition, we will look at how economic and political factors and media coverage can impact policy and the public perception of the issues. Several of the issues have important historical aspects, have provided an impetus for the environmental movement in this country and worldwide, and have impacted the development of federal legislation affecting public health and safety and environmental quality.

I provide lecture outlines typically on a weekly basis to help keep us all organized and on track. These outlines will be posted on the Blackboard site for the course and will highlight key topics covered in lecture and our discussions, list the assigned readings, and include suggested study problems and assignments. I expect each of you to complete these assigned readings and assignments, and be willing to participate in class discussions. You should get in the habit of checking this site a couple times each week as I routinely post announcements, reminders, schedule changes, etc.

**Course objectives:** By the end of the semester, students should:

- Have an understanding both of some fundamental scientific concepts that are important in understanding contemporary environmental issues and of the environmental challenges facing us today;
- Have an understanding of the cell (the basic unit of life), and the key differences between living and non-living matter;
- Begin to have a sense of how diversity within the biosphere is achieved (despite common molecular “building blocks” and similar cellular components and functions in most living
organisms);
• Be familiar with the four main spheres of our world and the interconnections between them (via the natural chemical cycles);
• Have an appreciation for the complexity and value of ecosystems, biodiversity and the relationship between humans and their environment;
• Realize the wide range of values and social, economic, historical, and political factors that influence the development of public policy and in risk assessment – especially as they pertain to the support of science, regulation and applications of technology, and environmental stewardship;
• Gain practical, hands-on experience with scientific approaches to studying the environment and living things;
• Be able to assess scientific data and other information found in the literature for validity and relevance to environmental issues being considered; and
• Gain further experience in critical thinking, oral and written communication skills, and using technology to access important information.

Course policies, procedures, and expectations:

**Academic integrity:** In my opinion, academic integrity is of utmost importance and cheating or plagiarism will not be tolerated. Please read the Academic Honesty Policy that is included in the student handbook (page 52 – 57) and the policy that I will distribute in class. I have attached a cover sheet to my policy that each of you will sign indicating that you have read and understand the policy and implications of violating it. If you have any questions about plagiarism or other forms of academic dishonesty, please ask. Several assignments in this class will involve the use of internet resources, and it is my experience that students often do not realize that copyright violations and plagiarism policies still apply.

**Attendance policy:** As noted in the student handbook (page 43), students are expected to attend classes regularly. Due to emphasis on discussions in this course, regular attendance from each of you is essential. Frequent unexcused absences will have a negative impact on your grade for the course. I will recognize legitimate excused absences such as when students are representing the university in an official capacity (e.g. for intercollegiate athletic competition, but not practice, off-campus music performances, etc.). Such activities are scheduled ahead of time; thus, I expect you to make arrangements with me ahead of time as well. In the event of an extended absence due to illness or other legitimate reasons, please notify me and a representative in the Learning Services Center as soon as possible. In the case of severe illness, accidents, etc., we will work out arrangements (e.g. for making up work, obtaining an incomplete or withdrawing from the course) on a case-by-case basis.

Please note that during the class periods, I will intersperse lectures, whole class and small group discussions and assignments, hands-on activities, and problem solving. The topics discussed in class can not be learned simply by reading the text without coming to class and being an active participant. I am fond of spontaneous in-class assignments that are turned in before the end of the class period, and these can not be made up if you are absent. In other words, if you miss class, you miss out.

As will be discussed in a separate syllabus, lab exercises can not be rescheduled due to the nature of activities planned.

Students who arrive late to class disrupt the flow of the session and distract their peers. Please be prompt!

**Assignments:** I utilize a variety of types of assignments including group projects (in and out of class), short writing assignments, journals, internet-based assignments, etc. Timely completion of the work is expected; late submissions will not be accepted (i.e. not graded).

Throughout the course, it is a good idea to be aware of stories in the media that relate to scientific
and environmental topics. The internet can be a valuable resource as well, but you have to critically evaluate the content and source of the information that you find there. Often, timely stories break in the news that warrant out consideration in class and your familiarity with media coverage of science and environmental issues can provide the basis for class discussions. Active participation in these discussions will be noted and will have a positive effect on your final grade for the course. For certain class assignments, I will ask you to find an article or internet site on a specific topic. **To this end, I would like each of you to keep a journal throughout the semester.**

I like students to determine the format and style of this journal. What I do require is that you date your entries and include the source of your information (e.g. which newspaper and what date, what magazine, edition and page number, the URL of a website, etc.). The idea is to follow trends throughout the semester, so I would like to see at least a few entries from each week. Prior to submission, I ask students to summarize what they learned from keeping such a journal and what trends or major issues they noticed. I will discuss this more in more detail in class.

**Exams:** Exams will cover material from lectures, class discussions, and the assigned readings and sample problems from the text or other assignments. A review sheet will be distributed approximately one week prior to each exam. You should expect at least a portion of these exams to be essay format. **No make-up exams** will be administered without an official medical or university excuse.

**Grading:**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>% of Total Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments including participation in class discussions and activities</td>
<td>20</td>
</tr>
<tr>
<td>Exam #1 <strong>(September 28th)</strong></td>
<td>10</td>
</tr>
<tr>
<td>Exam #2 <strong>(November 2nd)</strong></td>
<td>10</td>
</tr>
<tr>
<td>Final Exam <strong>(to be scheduled)</strong></td>
<td>15</td>
</tr>
<tr>
<td>Journal <strong>(Due Monday, December 5th at the beginning of class)</strong></td>
<td>5</td>
</tr>
<tr>
<td>Laboratory component of the course</td>
<td>25</td>
</tr>
</tbody>
</table>

I do look at trends in grades over the semester; improvement in test grades over the duration of the course will be favorably noticed! Participation in class discussions, review periods, etc. is expected and will be a factor in the determination of final grades. Please note that it is within the instructor’s purview to apply qualitative judgment in determining grades for an assignment or for a course.
**Optional Extra Credit Project:** I routinely get asked if there is any possibility of an extra credit project. For this semester, I have decided to provide such an option to students.

Read the book entitled *State of Fear* by Michael Crichton. After reading about the book, I will ask you to summarize what you thought of the book and I ask you to write two short position papers (approximately two typed pages each):

1) After reading this book and learning about the topic of global warming in class, what is your personal opinion on whether or not this is something we should be concerned with? Is there sufficient data to support the provisions of the Kyoto Protocol? Explain.

2) What is your opinion of environmental groups? Do you think that terrorist-like plots by such groups as described in the story really occur or might be carried out? Explain. Can you find evidence to support your answer if it is positive? If you don’t believe that such activities would occur, why do you feel this way?
**Academic Integrity:** Absolute academic integrity and honesty is expected in all of my courses. Penalties for copying, plagiarism, data fabrication, or other types of cheating will not be tolerated and students caught violating the attached policy provisions will be dealt with severely. This can include failure for a test or assignment or a failing grade for the entire course. I have the right to report any and all violations of academic integrity to the appropriate campus administrators.

Each student enrolled in my classes is required to read and sign off on the attached academic integrity policy. This document was developed by a former colleague of mine (Dr. Jones-Wilson at East Stroudsburg University) who gave me permission to use the document.

Please read the policy and return the signed form (below) before the end of the week. I will keep these signed forms on file in my office.

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I have read the “Academic Honesty Policy” for Professor Husic’s BIOL 193 and 193L Cells to Spheres course (fall semester, 2005). I understand the policy and the consequences of engaging in academic dishonesty.

Name: ____________________________________

Date: _____________________________________

*(Actual policy distributed in class on 8/29/05)*