Ecological Evaluation of Environmental Problems
MWF 8:00 – 11:00 a.m.       Appleby Hall 226

Instructor
Randy Moore. Come and see me in 374 Appleby Hall on MWF 7:30 a.m. – 8:00 a.m. and 11:00 a.m. – 11:30 a.m., and by appointment. If you need more time, please make an appointment to see me. You can call me at 612-626-4458, and e-mail me at RMoore@umn.edu.

Required Course Textbook

What’s this course about?
GC 1112 is an introductory environmental science course that counts for three semester credits in the Diversified Core Curriculum. This course is approved as both a Designated Theme course in the category of Environment and as a Writing Intensive course. GC 1112 is transferable to all other colleges at the University of Minnesota upon satisfactory completion (for most colleges this means a grade of C or better).

GC 1112 is designed to help you develop your own understanding and appreciation of several major concepts of environmental science, including resources, matter and energy, ecosystems, populations, hazardous materials, air and water pollution, soil and agriculture, biodiversity and conservation biology, ecosystems, and the management of public lands. We will discuss a variety of issues related to the environment, but not all that we discuss will be theoretical; we’ll also talk about information and skills that you can use in your life. For example, an understanding of how we interact with other organisms and the environment can help you make decisions about your lifestyle, as well as inform you about a variety of science-related issues. For example, should we protect environmental habitats from commercialization by industry? If so, which habitats? At what cost? Although science cannot answer all questions we have about the environment, it can help give us an informed basis for making decisions and predicting their consequences.

GC 1112 is designed to help you appreciate the environment and how we affect it. Thus, helping you construct your own understanding of the various aspects of environmental science is a major part of this course. However, I also want to help you develop your own understanding of what environmental science is, what science can (and cannot) do, and how science has been used. When most people think of environmental science, they think of its many triumphs; indeed, these triumphs (e.g., an understanding of the environment) have greatly improved the quality of life for millions of people. These triumphs have also often resulted in science -- and anything described as “scientific” -- being held in high regard, and being viewed as “objective” and “value-free.” But is science really value-free? Is it really objective? Throughout the course we’ll discuss how science has been influenced by historical, societal, personal, and cultural biases. You’ll be interested in, and probably surprised by, what you learn.
Although the “facts” produced by environmental science are often fascinating, I want you to see that science is a process -- a process based on observations leading to testable questions and predictions; data gathered from observations and experiments designed to answer these questions help us understand the environment while simultaneously leading us to new observations, questions, and hypotheses. Along the way, this process helps us accumulate knowledge that we use to understand our world. However, this knowledge remains open to testing, confirmation, modification, or rejection. In science, all testable ideas are open to question. Understanding the process of science is as important as understanding the “facts” produced by the process.

My approach to GC 1112
GC 1112 will focus on concepts of environmental science as well as how environmental science has been applied to various scientific and societal issues. However, I also want to help you appreciate the framework of science -- that is, the perspective, excitement, possibilities, and limitations of science. In my view, if one perceives the framework of an interesting puzzle, the individual pieces (or factual details) of the puzzle will slip logically into place. This perspective on learning differs significantly from that of memorizing individual pieces of a puzzle with the hope that sometime later the meaning will become evident.

I’ll use a variety of teaching techniques and styles to help you construct your own understanding the environment. Some of these techniques will involve the entire class, whereas others will be designed for individuals or small groups. Much of our time together in class will include activities such as group-based problem-solving, discussions of assignments, short writing-assignments, and assessments of (and possible challenges to) preconceptions.

Major Writing Assignments
You must complete two major writing-assignments: 1) a “letter to a public official” written in response to an environmental science issue that’s been described recently in a local newspaper, and 2) a research paper that thoroughly describes and analyzes an issue or problem in environmental science.

Letter to a Public Official - Your letter 1) should be 1-2 pages long, 2) need not include any citations of literature (however, you may include citations if you feel they will improve your letter), 3) must address a story related to an environmental science issue that appeared in a local newspaper after summer classes started, and 4) will be graded on its persuasiveness, accuracy, and quality. When you submit your letter, you must also submit the original copy (i.e., not a photocopy) of the newspaper article to which you are responding. If you do not attach a copy of article, your grade will be lowered by one letter-grade. If your assignment is turned in late, you’ll lose one letter-grade per day. This assignment will comprise 5% of your final grade.

Research Paper - Your research paper 1) should be ~8 pages long (not including references, tables, or figures), 2) should include at least 8 citations of literature, at least four of which must be journal articles (e.g., journals such as Science, Nature, or Ecology) and at least two of which must be web-sites, 3) should be written for a scientist, 4) should be a thorough analysis of an issue, not a statement of your opinion, and 5) will be graded on its organization, thoroughness, documentation (e.g., citations), and quality. When you submit the final draft of your paper, you must also submit 1)
a disk containing a copy of your complete paper, and 2) copies of all articles and web-sites that you’ve cited in your paper. If you do not attach copies of the articles and web-sites, your grade will be lowered by two letter-grades. If your assignment is turned in late, you’ll lose one letter-grade per day. This assignment will comprise 15% of your final grade.

All assignments must be typed with a word-processing program (e.g., Microsoft Word) and submitted as hard-copy. You cannot submit the assignments electronically. We will discuss these projects in class, but feel free to talk with me during office hours about them also.

Outcomes of GC 1112
GC 1112 will 1) introduce you to the key concepts governing nature and how humans interact with nature, 2) introduce you to the scientific principles underlying environmental problems, 3) engage you in environmental research, 4) prepare you for writing about science, 5) explore the roles of individuals in sustaining the earth, 6) discuss how science produces knowledge, and 7) help you understand how science (and the “facts” produced by science) is often influenced by cultural and societal issues.

Where You Can Get Help
Individual and small-group help with course-specific topics
Randy Moore - 374 Appleby Hall (see above for availability)

Individual help with writing: GC’s Academic Resource Center
(http://www.gen.umn.edu/resources/arc/writing_center.html)
GC’s Academic Resource Center (11 Appleby Hall, phone 626-1328) is a clearinghouse for GC’s many tutorial services. The Center includes writing and math tutors, computers (equipped with programs for word processing, spreadsheets, internet access, and e-mail) for use by GC students, and a few study-areas. For more information about the Center, visit http://www.gen.umn.edu/resources/arc/

Grades
To be eligible to receive credit for this course, you must 1) take at least two of the three lecture tests, 2) take the final exam, 3) attend at least 75% of the class sessions (see “Attendance” below), and 4) meet the minimum writing-standards for the major writing-assignments. You must make a grade of at least C on the writing assignments to be eligible to receive a C or better in the course.

Your grade in GC 1112 will be based on the following:

Lecture exams: 30%
Each of three lecture exams will count 10% of your final grade. These exams will be multiple-choice. Any adjustments in exam grades will be announced and explained in class. You cannot retake or drop any exams.

Final exam: 25%
The final exam will be a comprehensive, multiple-choice exam given on the last day of classes.
Homework and in-class assignments: 25%

There will be two types of homework assignments:

Environmental Science in the News – Every Monday and Friday you must submit a summary of a newspaper article related to environmental science that has been published since the previous class. These assignments 1) must be typed, 2) must be no longer than one page, 3) must be turned in at the beginning of class, and 4) must be accompanied by an original copy of the article. These articles must come from the newspaper itself, not a website. The first of these assignments is due the first Friday of the course. These assignments will comprise 15% of your final grade. Every Friday I will ask some student(s) to discuss an environmental issue that they’ve read about in a newspaper the previous week. You’ll receive no credit for these assignments if they are submitted late, if they are not typed, or if they are not accompanied by the original copy of the article that you’re writing about.

Writing for Understanding – These assignments and their due-dates will be announced in class. Some assignments will be completed in the class in which they are assigned. If you don't turn in an assignment by its due-date, you'll receive a grade of zero for that assignment. If you miss class on a day in which an in-class assignment is completed, you'll receive a grade of zero; you’ll not be able to “make up” the assignment. Assignments will not be accepted late or via e-mail. These assignments will comprise 10% of your final grade.

Major writing-assignments: 20%

Details about these assignments will be discussed in class and are summarized above.

Percentages will be rounded up to the nearest whole number, and final grades will be assigned according to the following scale: A: 90-100%; A-: 89%; B+: 85-88%; B: 80-84%; B-: 79%; C+: 75-78%; C: 70-74%; C-: 69%; D+: 65-68%; D: 59-64%; F: 0-58%. Incompletes (I) are assigned only to students who have completed almost the entire course and will probably pass; they are not assigned to students who have missed many classes or to students who have failed to turn in several assignments. A contract for an incomplete must be completed and signed before the final day of classes. When the student completes the course, I’ll submit a Grade Change Form to change the incomplete to a letter grade.

Faculty in General College will not post grades, nor will we release your grades to anyone who contacts us via telephone or email. However, if you’ll give me a stamped, self-addressed envelope or postcard, I’ll mail your grade to you as soon as it’s been calculated.

University Grading Standards
A - achievement that is outstanding relative to the level necessary to meet course requirements.
B - achievement that is significantly above the level necessary to meet course requirements.
C - achievement that meets the course requirements in every respect.
D - achievement that is worthy of credit even though it fails to meet fully the course requirements.
S - achievement that is satisfactory, which is equivalent to a C- or better.
F (or N) - Represents failure (or no credit) and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an I (see also I).
I - (Incomplete) Assigned at the discretion of the instructor when, due to extraordinary circumstances, e.g., hospitalization, a student is prevented from completing the work of the course on time. Requires a written agreement between instructor and student.

Credits and Workload Expectations
For undergraduate courses, one credit is defined as equivalent to an average of three hours of learning effort per week (over a full semester) necessary for an average student to achieve an average grade in the course. For example, a student taking a three-credit course that meets for three hours per week should expect to spend an additional six hours per week on coursework outside the classroom.

Exams
Exams in GC 1112 will occur on the dates listed on the attached schedule. You are responsible for all material presented, distributed, discussed, and assigned in class (e.g., lectures, group discussions, handouts, web sites). All exams will be multiple-choice. Bring a #2 pencil, your student identification card, and a good eraser with you to each exam.

Missed Exams and Quizzes
You will not be allowed to make up quizzes or any other work that is completed and handed in during a class period that you missed. If you miss a class, it is your responsibility to obtain missed assignments. If you miss an exam because of an illness, family emergency, or legitimate University activity (e.g., intercollegiate athletic event), you will have 48 hours (or until the next class period, whichever period is longer) to take the exam. It is your responsibility to contact me and arrange for that exam. No make-up exams will be given after the grades for an exam have been released. I reserve the right to reasonably and fairly adjust grade-calculations when make-up exams were not possible because of documentable, extenuating circumstances.

Homework and In-Class Assignments
Homework and in-class assignments are accepted only during the class period at which they're due. Some assignments will be due in the same class period in which the assignment is announced. If you miss class those days, you can’t turn in the assignment late. You must be in class to turn in the assignments; they are not accepted late or via e-mail.

Extra credit
There are no “extra credit” projects available in this course. You have many ways of documenting your accomplishments in this course; use the time you would have spent on “extra credit” assignments to excel at those activities.

Attendance
You must attend at least 75% of the class sessions to be eligible to pass this course. I will record attendance by passing around a sign-up sheet at the beginning of each class. If you’re not present to sign the sheet, you’ll be counted as absent (regardless of whether you arrive later in the morning). I expect you to prepare for and attend every class. This is important because class attendance is usually a strong indicator of course performance. If you miss class, it is your responsibility to find out and learn what was covered. Feel free to record my lectures or use a computer in class.

**Other Important Information**

**Accommodations for Disabilities**

Reasonable accommodations will be provided for students with physical, sensory, learning, and psychiatric disabilities. If you have a disability that may affect your performance in this course, you may wish to contact your instructor and/or Disability Services, Suite 180, University Gateway, 200 Oak Street SE, 612-626-1333. If you provide proper documentation from Disability Services at the beginning of the course (or as soon as the disability is diagnosed), your instructor may try to provide reasonable accommodations to suit your needs.

**Absence for Religious Holidays**

The University of Minnesota permits absences from class for participation in religious observances. Students who plan to miss class 1) must inform instructors of anticipated absences at the beginning of the semester, 2) must meet with instructors to reschedule any missed labs or examinations, and 3) are responsible for all information covered in the missed classes. Instructors are required to assist students in obtaining course materials and assignments distributed during class sessions and to make arrangements for taking missed examinations.

**E-Mail**

University-assigned student e-mail accounts (x.500) are the University’s official means of communication with all students. You are responsible for all information sent to you via your University-assigned e-mail account. If you choose to forward your University e-mail account, you are responsible for all the information, including all attachments, sent to your University e-mail account.

**Academic Honesty and Scholastic Misconduct**

Scholastic dishonesty is the submission of false records of academic achievement; cheating on assignments or examinations; plagiarizing, altering, forging, or misusing a University academic record; taking, acquiring, or using test materials without faculty permission; acting alone or in cooperation with another person to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement. Students who have read this far in the syllabus will receive one point added to their final average if they e-mail the word bonus to the instructor before the start of the second class. There can be serious consequences for academic misconduct; for example, academic dishonesty in any portion of the academic work for a course shall be grounds for awarding a grade of F or N for the entire course. Don’t cheat.

**Privacy**
Federal law, state law, and regents’ policy govern access to students’ records. You can view these laws and policies at the Office of the Registrar. Note that a spouse, parent, or employer is not necessarily entitled to any more information than is anyone else. Guidelines that I’ll follow to ensure your privacy (e.g., of your grades, enrollment) are available at http://onestop.umn.edu/registrar/Grades/gradereporting/privacy.html.

Retention of Assignments and Papers
Your writing assignments, exams, etc. will be kept until the middle of next semester. If you’ve not picked up the materials by then, they’ll be thrown out.

Plagiarism
Academic dishonesty occurs when students turn in work that is not their own as well as in the case of plagiarism. Plagiarism occurs when written work 1) fails to cite quotations and borrowed ideas from outside sources, including the World Wide Web and other student work, 2) fails to enclose borrowed language in quotation marks, and 3) fails to put summaries and paraphrases in the writer's own words. The definition of plagiarism was derived from Diana Hacker's A Writer's Reference, 4th Edition. Boston: Bedford/St. Martin's, 1999. All of the writing assignments must be written in your own words. Don’t plagiarize.

CLE Distribution Requirements
GC 1112 is an approved part of the Diversified Core Curriculum and is writing intensive.

Harassment
The University of Minnesota is committed to providing a safe climate for all students, faculty, and staff. All persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation. Reports of harassment are taken seriously, and there are individuals and offices available for help. Contact the GC Dean’s Office, 109 Appleby Hall, 625-0300 or the Office of Equal Opportunity and Affirmative Action, 419 Morrill Hall, 624-9547.

Complaints Regarding Teaching/Grading
Students with complaints about teaching or grading should first try to resolve the problem with the professor or teaching assistant involved. If no satisfactory resolution is reached, students may then discuss the matter with the Director of Academic Affairs and Curriculum, 240 Appleby (phone 625-2880), who will attempt to mediate. Failing an informal resolution, the Office of Academic Affairs and Curriculum will facilitate the filing of a formal grievance.

Complaints Regarding Advising
Students with complaints about advising should first try to resolve the problem with the advisor or counselor involved. If no satisfactory resolution is reached, students may then discuss the matter with the GC Associate Dean, who will attempt to mediate. Appointments with the GC Associate Dean can be made in 109 Appleby (phone 625-0300). Failing an informal resolution, the Deans Office will facilitate the filing of a formal grievance.
Welcome to GC 1112. I look forward to an enjoyable summer with you.

_Ecological Evaluation of Environmental Problems_

**Tentative Lecture and Discussion Schedule**

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<th><strong>Day</strong></th>
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<th><strong>Topic(s)</strong></th>
<th><strong>Textbook Reading</strong></th>
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<td>June 16</td>
<td>Introduction to GC 1112 Resources</td>
<td>Chapters 1, 14</td>
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<td>W</td>
<td>June 18</td>
<td>Matter and Energy</td>
<td>Chapters 3, 20</td>
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<td>F</td>
<td>June 20</td>
<td>Ecosystems</td>
<td>Chapters 4, 5</td>
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<td>News Summary Due</td>
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<td>M</td>
<td>June 23</td>
<td>Ecosystems</td>
<td>Chapters 4, 5</td>
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<td>W</td>
<td>June 25</td>
<td>Populations</td>
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<td>F</td>
<td>June 27</td>
<td>Hazardous Materials</td>
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<td>Water Pollution</td>
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<td>M</td>
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<td>Air Pollution</td>
<td>Chapter 10</td>
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<td>W</td>
<td>July 2</td>
<td>Global Warming</td>
<td>Chapter 11</td>
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<td>Soils and Agriculture</td>
<td>Chapters 13, 15, 16</td>
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<td>Letter to Public Official Due</td>
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<td>F</td>
<td>July 4</td>
<td>Holiday – No Class</td>
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<td>M</td>
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<td>Soils and Agriculture</td>
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<td>Conservation Biology</td>
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<td>F</td>
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<td>Comprehensive Final Exam</td>
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