

Three Rivers Community/Technical College
SYLLABUS: Spring 2007

- Courses :** **CRN:** 10237 BIO* K180 **SEC:** M03 - Prin of Env Science &
CRN: 10558 ENV* K101 **SEC:** M03 - Environmental Studies
(cross register; 3 credit hours)
Thursday evenings: 6:30 PM – 9:30 PM
- Location:** Room 210, Mohegan Campus, Mahan Drive, Norwich, CT 06360
- Required Text:** Environmental Science, ninth Ed., Richard T. Wright,
Prentice Hall, Inc., ISBN 0-13-147541-X
- Instructor:** Daryl M. Simmons 715-2065 (work) daryl.m.simmons@pfizer.com
- Office Hours:** By appointment. Call the instructor for extra help if needed.
- Special Notice:** If you have a visible or hidden disability, or a physical condition that may require classroom or test taking modifications, please see me as soon as possible. If you have not registered with the learning specialist at (860) 823-2985 or seen the Counselor at the Student Services Development Center, you must do so early in the semester. This syllabus may be revised at the instructor's discretion at any time.

I. Course Description:

BIO K180 (*from the 2006-2007 catalog*): This is a basic course in environmental studies that introduces ecological principles and a global perspective on environmental problems such as deforestation, droughts, floods, soil erosion, overpopulation, food shortages and pollutants. Some field work will be included. This course is equivalent to ENV* K101 Environmental Studies.

ENV K101 (*from the 2006-2007 catalog*): This is a course that describes the study of the biological and physical aspects of the environment and environment-related issues, including procedures for lessening or controlling environmental pollution and related damage. Some field work will be included. This course is equivalent to BIO* K180 Environmental Science.

II. General Course Objectives:

Students will learn:

- A. basic scientific principles, the cyclic nature of the environment, and the interrelationships between humans and ecosystems.
- B. the importance of sustainability and stewardship, and environmental ethics and responsibility.
- C. to recognize issues that are of environmental importance and be able to make informed opinions with regard to those issues.
- D. environmental responsibility, ethical behavior toward the environment, and sustainable use of the natural resources.
- E. the global nature of ecosystems, human impact, and the effects of populations of species across the world's ecosystems.
- F. the current environmental events in the news along with public policy, economics, and societal issues.

- G. mechanisms of environmental management, conservation, and preservation, and use those principles with published cases.

III. Class Attendance Policy:

Attendance will be taken at each class. Students are required to attend each class and to be on time in accordance with the college attendance policy. *If a class is missed due to circumstances beyond your control, notify the instructor* to make arrangements for obtaining lecture notes either by email or at the next class. You are responsible for obtaining and learning the material.

Students with 4 consecutive or 6 non-consecutive absences will receive an "F" grade in this course. An explanation of the cause of all absences should be given to your instructor.

IV. Grade Evaluation:

Your course grade is based on an accumulation of up to a total of 400 points by the end of the semester. There is no grade curve. (See below V. Tests and Assignments and attached Course Outline)

Perfect Attendance will earn you 10 bonus points added on to your course total. This means being on time (6:30 PM) from beginning to end (9:30 PM) and not leaving early. There are no exceptions for bonus points.

The table below shows the corresponding letter grade for the accumulated points and the equivalent percentages that the final course letter grade is based on.

Letter Grade	Total Accumulated Points (Possible Total of 400 Points)		Approximated Percentages for each Letter Grade	
	A	400	368	100%
A-	367.9999999999...	360	91.9999999999...%	90%
B+	359.9999999999...	348	89.9999999999...%	87%
B	347.9999999999...	328	86.9999999999...%	82%
B-	327.9999999999...	320	81.9999999999...%	80%
C+	319.9999999999...	308	79.9999999999...%	77%
C	307.9999999999...	288	76.9999999999...%	72%
C-	287.9999999999...	280	71.9999999999...%	70%
D+	279.9999999999...	260	69.9999999999...%	65%
D	259.9999999999...	240	64.9999999999...%	60%
F	239.9999999999...	0	59.9999999999...%	0%

V. Tests and Assignments:

- A. There will be 5 tests, worth 100 points each. All test dates are shown on the Course Outline. Every test must be taken on the dates scheduled in the course outline. The best 4 test scores count and the lowest test score is dropped. A missed test is a zero and will count as the dropped lowest score. If you miss two tests, a test for one of those units will be made up at the time of the final exam. A student who misses three or more tests will receive a grade of "F" for the course. *If you are having any problems with the course, please see the instructor as soon as possible.*

B. Test questions are based on the lectures, assigned readings, and various news articles. There are some take home assignments that will be graded. The grade of the take home assignment constitutes a portion of the test grade for that section.

C. Test Schedule

Test 1	Test 2	Test 3	Test 4	Test 5
Feb 15	Mar 1	Mar 29	Apr 19	May 10

D. Field Study Report is worth 50 points of Test 4: There will be a field trip on a Saturday morning to Rocky Neck State Park to conduct a Field Study. The field notebook worth 50 points will be turned in for a grade that is one half of the point value of test #4. The field study is a cooperative effort of several teams of 3 to 4 people. The teams assist each other in collecting data, and share information. The exercise objective is to learn scientific methods that are used to assess the status of an ecosystem. Students have 2 weeks to complete their notebook and turn it in. Field study details are in appendix A.

Any student who is not able to participate in the field study must notify the instructor 3 weeks in advance and will be given an alternate research assignment.

E. Exemption Policy:

The instructor will determine who is to be exempted from taking the final exam. Exemption is an earned privilege not an inherited right. Any student that is exempted from taking the final exam will be notified in writing. Students being considered for exemption MUST meet all of the following requirements: (No exceptions for any reason!):

- 1) Good classroom conduct.
- 2) No absence (excused or unexcused)
- 3) No tardies or leaving early during course of semester.
- 4) All tests must be taken when scheduled (no make-ups).
- 5) No test score lower than 80.
- 6) Must have an overall semester's average of 95 or higher. (No rounding off).
- 7) Intangibles.

VI. Procedures for Dropping the Course (College Withdrawal Policy)

See the College Catalog or the Registrar's office for the withdrawal policy and calendar. Any student who finds it necessary to withdraw from this course MUST complete a withdrawal form in the Registrar's Office. There is no verbal withdrawal.

Students may withdraw from the course any time during the first ten weeks of class without the instructor's signature. After that time, students MUST obtain written authorization from the instructor or their academic advisor, in order to receive a "W" grade for the course.

Students who do not withdraw, but who stop attending, will be assigned an "F" grade for this course.

VII. Special Notices

- A. For Weather-Related Closing Information, Please Call 886-0177.
- B. "Cellular phones and beepers are only allowed in class or lab if they are turned off or in silent mode. **Under no circumstances are phones to be answered in class.** When there are extenuating circumstances that requires a student to be available by phone or beeper, that student must speak to the instructor prior to class, so that together they can arrive at an agreement."
- C. Military personnel who are ordered to mobilize or whose units are activated should mention this to the instructor, their adviser, and the Registrar's Office, and bring orders or other verification.

VII. Academic and Classroom Misconduct

- A. The instructor has primary responsibility for control over classroom and/or laboratory behavior and maintenance of academic integrity, and can request temporary removal or exclusion from the classroom or laboratory, of any student engaged in conduct that violates the general rules and regulations of the institution or any student engaged in conduct deemed hazardous in the laboratory. Extended or permanent exclusion from lecture or laboratory activities or further disciplinary action can only be effected through appropriate procedures of the institution.
- B. Plagiarism, cheating on quizzes or tests, or any form of academic dishonesty is strictly prohibited. Students guilty of academic dishonesty directly or indirectly will receive a zero for the exercise or quiz or test, and will receive an "F" grade for the course in addition to other possible disciplinary sanctions which may be imposed through regular institutional procedures. Any student that believes that he or she has been erroneously accused may appeal the case through the appropriate institutional procedures if their grade was affected. (*We will work through an **HONORS CODE***).

VIII. Revisions to the Syllabus

Students are responsible for learning all of the objectives and all of the items in the course outline whether they are discussed in lecture or not. The instructor reserves the right to revise the objectives, topical outline, or academic schedule contained in this syllabus without notice. However, if revisions affect the scheduled unit tests, a 48-hour notice will be given for the new test date.

Three Rivers Community/Technical College
Detailed Course Outline, Spring Semester, 2007

BIO K180 Principles of Environmental Science & ENV K101 Environmental Studies

NOTE: This outline may be revised at the instructor's discretion at any time.

Class	Date	Class Topics, Reading Assignments, and Test Dates
1	Jan 25	<p>Section 1- Introduction to Environmental Science and Historical Background</p> <p>I. Science and the Scientific Method</p> <p>II. Environmental Science</p> <p>III. Analysis of the Environment</p> <p>READ – pp. 1-3, <i>Easter Island</i>, pp. 8-10, <i>Sustainability</i>, pp. 10-12, <i>Justice and Equity</i>, p. 11, <i>Ethics: What is the Stewardship Ethic?</i></p>
2	Feb 1	<p>Section 2 – Ecosystems: What they are</p> <p>I. Ecosystem structure and relationships.</p> <p>II. Global biomes.</p> <p>III. Human Factor.</p> <p>IV. Major types of ecosystems and their characteristics: terrestrial and aquatic</p> <p>READ – p. 28, <i>Earth Watch: Taking Stock</i> p. 50, <i>Can Ecosystems Be Restored?</i> p. 52, <i>Revisiting the Themes</i></p>
3	Feb 8	<p>Section 3 – Ecosystems: How they work</p> <p>I. Matter and energy; conservation.</p> <p>II. Energy sources and flow, and the laws of thermodynamics.</p> <p>III. Cycling of matter</p> <p>IV. Trophic structure, food chains, and ecosystem stability.</p> <p>V. Nutrient cycling and essential elements</p> <p>VI. Habitats and niches</p> <p>VII. Species interactions</p> <p>READ – p. 70, <i>Global Perspective; Light and Nutrients: the Controlling Factors in Marine Ecosystems</i> p. 79, <i>Value of Ecosystem Capital</i> p. 81, <i>Biosphere 2</i> p. 82, <i>Revisiting the Themes</i></p>
4	Feb 15 Test 1	<p>Test 1: Sections 1, 2, & 3;</p> <p>Section 4 – Ecosystems: How they change</p> <p>I. Population Dynamics.</p> <p>II. Mechanisms of population equilibrium.</p> <p>III. Mechanisms of species adaptation.</p> <p>IV. Ecosystem response to disturbance</p> <p>READ – p. 96, <i>Guest Essay; The Village Weaverbird: Marvel or Menace?</i> p. 115, <i>The Dilemma of Advocacy</i> pp. 116-117 <i>Revisiting the Themes</i></p>
5	Feb 22	<p>Sections 5 & 6 – Human Populations: Dimensions</p> <p>I. Human population expansion and its cause.</p> <p>II. Different worlds .</p> <p>III. Consequences of population growth and affluence</p> <p>IV. Dynamics of population growth.</p> <p>V. Reassessing the Demographic Transition</p> <p>VI. Promoting Development</p> <p>VII. A New Direction: Social Modernization</p> <p>READ – p. 135, <i>Ethics: The Dilemma of Immigration</i></p>

		<p><i>p. 140, Are We Living Longer?</i> <i>pp. 157-159, Guest Essay; Poverty Traps and Natural Resources Management</i> <i>173-175 Revisiting the Themes</i></p>
6	Mar 1	<p>Test 2: Sections 4, 5 & 6 Section 7 – Water, The Hydrologic Cycle I. Water resources and conservation. II. Managing water resources. III. Stewardship, public-policy challenges, human impact. IV. Overuse, droughts, pollution, and water treatment. READ – <i>p. 192, Water Purification</i> <i>p. 203, Global Perspective; The Third World Water Forum</i></p>
7	Mar 8	<p>Section 8 – Soil I. Uses, formation, and profiles. II. Losses, erosion, and degradation. III. Conservation, uses, and management. IV. Agricultural impact. READ – <i>p. 223, Ethics; Erosion by Equation</i> <i>p. 228, Global Perspective; Three-Strata Forage System for Mountainous Drylands</i> <i>pp. 229-230, Revisiting the Themes</i></p>
8	Mar 15	<p>Section 9 – Production and Distribution of Food I. Modern and subsistence agriculture. II. Genetically modified organisms. III. Food production, distribution, and trade. IV. Hunger, malnutrition, and famine. V. Aquaculture Field Study Techniques – Preparation for Saturday field trip. READ – <i>p. 251, Global Perspective; World Food Summit</i> <i>p. 256, Ethics; The Lifeboat Ethic of Garret Hardin</i> <i>pp. 257-258; Sound Science and Ecosystem Capital</i></p>
	Mar 17	March 17 - Field Trip
9	Mar 29	<p>Test 3: Sections 7, 8 & 9. followed by <i>Field trip sample evaluations, questions, information exchanges,</i> OR Section 10 - Wild Species – Biodiversity & Protection I. Value of wild species. II. Saving wild species. III. Biodiversity and its decline. IV. Protecting biodiversity. READ – <i>p. 281, Global Perspective; Biodiversity: Essential or Not?</i> <i>p. 285-286, Revisiting the Themes</i></p>
10	Apr 5	<p><i>Field trip sample evaluations, questions, information exchanges, (~ 1 hour)</i> Section 11 - Ecosystem Capital: Goods and Services I. Global perspective on biological systems. II. Conservation, Preservation, and Restoration. III. Biomes and ecosystems under pressure. IV. Public and Private lands in the U.S. V. Environmental resource management, sustainable use READ – <i>p. 302, Earth Watch: Nature's Corporations</i> <i>p. 306, Earth Watch: Will Aquaculture be able to fill the Gap?</i> <i>p. 312, Global Perspective: The Mangrove Man</i> <i>p. 316 Revisiting the Themes</i></p>

11	Apr 12	<p><i>Final Field trip sample evaluations, questions, information exchanges, (~ 1 hour)</i></p> <p>Section 12 - Energy from Fossil Fuels</p> <ul style="list-style-type: none"> I. Energy sources and uses. II. Formation of fossil fuels. III. Exploiting fossil fuels. IV. Environmental cost of fossil fuel. V. Energy security. <p>READ – p. 323-324 p. 345, <i>Revisiting the Themes</i></p>
12	Apr 19 Test 4	<p>Test 4: Sections 10, 11 & 12</p> <p><i>Field notebook due and Team evaluations due</i></p> <p>Section 13 - Nuclear Power, Policies, Radon</p> <ul style="list-style-type: none"> I. Radiation and nuclear power. II. How nuclear power works. III. Hazards and costs of nuclear power. IV. Future of nuclear power. V. Nuclear power vs. power from fossil fuels VI. Radon in soil and water. VII. Radon mitigation <p>READ – p. 363 - 365, <i>Chernobyl</i> p. 364, <i>Ethics; Showdown in the New West</i></p>
13	Apr 26	<p>Section 14 - Renewable Energy and Resources</p> <ul style="list-style-type: none"> I. Solar Energy II. Wind energy III. Hydroelectric power. IV. Biofuels for energy V. Other alternative energy sources: geothermal, tidal, ocean thermal. VI. Renewable energy for transportation VII. Clean energy <p>READ – p. 386, <i>Earth Watch; Economics Payoff of Solar Energy</i> p. 387, <i>Ethics; /transfer of Energy Technology to the Developing World</i></p>
14	May 3	<p>Natural Environment as Stakeholder, and a Case Study of GE Dumping PCBs in the Hudson River: legal issues, responsibility, ethics, community impact, ecosystem impact.</p>
15	May 10	<p>Test 5: Sections 13, 14, Natural Environment as Stakeholder, and GE & Hudson River</p>

Appendix A: Environmental Science Field Study Exercise
 Three Rivers Community College
 Daryl Simmons, Instructor
 September 2006

A field study is an assessment of an ecosystem, what affects it, what influence it has on other ecosystems, and how it changes over time. Such a study is usually conducted with repeated visits for many data collections over an extended time so that scientists can understand how a particular ecosystem functions. Factors of influence are numerous. They include but are not limited to weather, soil type, available water, soil and water pH, plant and animal activities, and more abiotic and biotic factors.

Purpose:

This is a field exercise designed for students to have some of the experiences of the scientists who evaluate ecosystems. It is a team building experience, wherein individual teams with designated responsibilities coordinate their own team efforts with other teams for successful completion of the project.

The field exercise is an initial assessment the location of a study area, collection of data, and documentation.

Student Responsibilities:

Students are required to work as part of team of three to four people and decide their responsibilities. Each team is to coordinate with other teams, and share information to avoid repeating other teams' work. Information that is not shared in the field is to be written up as it would be in the notebook and given to each of the other teams so that they can add it to their notebooks.

A team contact will be chosen. The team contacts will compile a list of the team members and their contact information. The team contact will provide a phone number to the instructor along with a list of names of their teammates. Each team member must work with the team to collect data and assist in completion of the team's notebook.

Grading:

Each team member will be graded on the team notebook and their effort in the team's accomplishments. On the day that the notebook is turned in, each team member will turn in the participation evaluations of each of the members of his/her team. The evaluations are based on a scale of 1 (no effort) to 5 (worked hard). An average of the evaluations is calculated and converted to a percentage which is used to calculate a team member's grade from the notebook.

e.g., From a team of four people, one team member is evaluated and receives the following:

5, 5, and 4. The average is 4.67.

The percentage is $100(4.67/5) = 93.33\%$

If the notebook is worth 50 points but only receives 45 points, then 93.33% of 45 points is 42 so that team member's grade is 42.

Each team member does not receive the same grade.

Students will learn:

- Scientific methods used by scientists in the field
- How to set-up and control a study area
- How to record scientifically in a notebook
- Sample collection for representative data
- Various measuring techniques for abiotic and biological components of the ecosystem
- How to organize in teams for efficient use of human and material resources

Field trip Postponement:

In the event of a field trip cancellation due to weather, each team contact will provide his/her name and phone number to the instructor. The team contact will collect the names of each member and a phone number contact. If the field trip is cancelled, the instructor will telephone each team contact by 6:30 AM, and the contact will then call each member of his/her team.

Team structure and duties

The team captain has contact information for each member and facilitates the team's accomplishing their duties. One team-mate is a scribe. The others construct the transect plots, take measurements, collect samples, etc. The scribe writes field data, weather conditions, information collected by the team, and shares notes with the team-mates and other teams.

Before leaving, each Team goes over their information, ensures completion of their job, and assists other teams that have not completed their tasks. All teams and their members will share any and all information and data so that there is not a duplication of efforts. Each team's members collaborate in writing of the notes and maps and assisting each other. The more you share and assist each other, the better of your chances for better quality notebook. USE PENCILS NOT INK!

NOTE: Each team is to prepare all of their data as it would be entered into their notebook and make photocopies to give to each of the other teams by next class.

Each team (3 to 4 members) must turn in their own Field Notebook for a grade. The Field Notebook is due three weeks after the field study.

Appendix B: Key Dates From the College Catalog

SPRING 2007 – Key dates

Jan. 19	Classes Begin/Late Registration Begins
Jan. 26	Instructor Signature Required to Add Classes
Feb. 2	Last Day of Add/Drop and Partial Tuition Refund
Feb. 16	Last Day to Select Audit Option
Feb. 19	President's Day Observed - Classes Not In Session
Mar. 18 – 25	Spring Break - Classes Not in Session
Mar. 30	Last Day to Withdraw from Classes without Instructor's signature Last Day to Select Pass/Fail Option Last Day to Submit Incomplete Work from Fall '07 Semester
Apr. 6-8	Spring Recess - College Closed / Classes Not in Session
Apr. 23	Last Day to Withdraw from Classes with Instructor or Advisor signature
May 7	Last Day of Classes Second 7-Week Mods End
May 8-16	Class/lab, makeup/supplemental sessions or Final Exam week
May 18	Final Grades Due
May 20	Commencement
May 25	Student grades available on Web