Title of Course: The Human Environment
Catalog Number, Section, Term: Bio1105.53 Lecture  Bio1115.53  (Lab/Field) Fall 08
Prerequisites: None
Class Room: DH 5529 (Lecture); DH 5529 (Lab)
Meeting Times and Dates: (Lecture: Monday, 5:25-7:05)  (Lab/Field: Wednesday, 7:15-8:55)
Instructor: John Ruppert
Office Location: Room 4467 Dickinson Hall
Office Hours: By appointment (Please e-mail for an appointment at least 5 days before an exam)
Email Address: jrupp@eden.rutgers.edu
Course description:
In this course, we will explore a number of issues that are both scientific and social dimensions of the human environment. As this course is intended for non-science majors, we will specifically focus on general scientific literacy, ‘big picture’ human ecology, environmental economics, and developing personal and business environmental impact statements. There is also a laboratory component to this course immediately following lecture. Some labs may be field trips and weather dependent; therefore, the course schedule is subject to change as issues emerge. Some field trips may be scheduled for weekends or off campus in lieu of a normally scheduled class.

Course goals:
Though we will focus on ‘big ideas’, this is first and foremost a science class. As such, you will be expected to develop a degree of scientific literacy that will help you make informed environmental decisions. You should walk out of this class having attained the following inquiry-related goals:
1) Be able to distinguish scientific and non-scientific arguments
2) Be able to evaluate the quality of environmental research projects.
3) Be able to support your own arguments with sound scientific research.

You should also walk out having completed the following content goals:
1) Complete both a personal and business environmental impact assessments taking into account all of the major components of ecosystems discussed in class.
2) Be able to analyze how the environment and the economy are tightly linked.
3) Discuss the short-term and long-term consequences of environmentally conscious business decisions.
4) Be able to explain how environmental differences in habitat can explain the current inequities in human populations.
5) Discuss the history of human civilizations in relation to resource availability and exploitation.
6) Identify the major food and service ecosystems that we depend upon for life.
7) Predict the ecological outcomes of different human activities.
8) Identify major nutrient cycles and draw connections of human activities to nutrient cycles.
9) Discuss the advantages and tradeoffs of all energy systems.
10) Identify areas of your personal life where energy use can be comfortably cut.

Texts and Materials:
• Excerpts of Guns, Germs and Steel – the Fate of Human Societies by Jared Diamond
• Chapter 12 of Consilience by E. O. Wilson and other articles that may be posted on the library reserves.

RULES, REGULATIONS, GRADES:
Attendance and Lateness: Students are expected to attend all classes and to be on time. Late arrivals may be refused entry. A student who is late for a quiz will not be permitted to take it. Anyone late for an exam will not be given extra time to finish. A student arriving after any person has left after seeing the exam will not be permitted to take the exam.

Makeup and Missed Work Policy: There are no makeup exams and laboratory work cannot be made up. The grade for projects submitted late will be lowered by one letter grade for every day late.

Academic Integrity Policy: Students are obliged to review and abide by this FDU academic policy published at http://www.fdu.edu/studentlife/metro/academicintegrity.html
Grading policies:

Grade breakdown:
  30%  Personal and Business Environmental Impact Assessments (15% each)
  30%  Final Exam
  20%  Mid-Term Exam
  20%  Class Participation

Extra-credit or substitute-credit assignments are never allowed. Primary responsibility for students is knowing the course material addressed in lecture, lab and field, and for performing assignments that may be given.

Exams will consist of questions based on both the lecture and laboratory/field portion of the course and will be designed using the goals listed above.

I will use the following rubric to assess your class participation.

<table>
<thead>
<tr>
<th>Scoring Rubric for Class Participation</th>
<th>– for each class. Total of 70 possible points</th>
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<tbody>
<tr>
<td>2 points</td>
<td>Present throughout class from start to finish</td>
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<td></td>
<td>Paying attention</td>
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<td></td>
<td>Response to oral quiz questions or discussion shows that reading done and understood</td>
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<td></td>
<td>Responds thoughtfully and constructively to others during class discussion</td>
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<tr>
<td></td>
<td>Volunteers relevant and interesting ideas during class discussion</td>
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<tr>
<td></td>
<td>Classwork completed and thoughtful</td>
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<tr>
<td>1 point</td>
<td>Responses suggest that reading not completed or understood</td>
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<tr>
<td></td>
<td>Doesn’t participate in class discussion</td>
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<tr>
<td></td>
<td>Points raised are not relevant</td>
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<tr>
<td></td>
<td>Classwork completed but not thoughtful</td>
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<tr>
<td>0 point</td>
<td>Fails to come to class</td>
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<td></td>
<td>Not paying attention</td>
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<td></td>
<td>Arrives late or leaves early without good reason</td>
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<tr>
<td></td>
<td>Fails to respect others in class</td>
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<td></td>
<td>Classwork not completed</td>
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</table>

Report Descriptions and Expectations:

Environmental Impact Assessments: An Environmental Impact Assessment (EIA) is a procedure used by agencies and businesses that identifies, predicts and evaluates the biological, social, and economic effects that proposed developments will have before final decisions to proceed with a project. The purpose of the assessment is to ensure that decision-makers are provided with information to consider before deciding whether to proceed with new projects (Senécal, et al, 1999).

Personal: For this paper, you will be expected to log your daily activities for one week including what you ate, how many times you flushed the toilet, what you threw away, what you purchased and its packaging, how long you watched TV and the size and type of TV, ever liter, etc. Using this log, you will use what we have learned in class and through your
readings to assess the environmental impact of your actions. I will expect you to probe deeply into the ecosystem-level effects emerging from your actions. This paper has no specific length requirements, but I would predict it to take at least 4 pages of text and an appendix of your actual activity log and balance sheet. Please use the rubric at the back of the syllabus to guide you in writing your paper.

**Business:** For this paper, you will either make a hypothetical or real (from your own work) assessment of a proposed expansion to your business. You will use Senécal, et al (1999) as a guide for writing your report. You are free to choose any topic or project to write an assessment about—be as creative as you like. Again, this paper has no specific length requirements; however, I would expect an average of 5-10 pages. Please use the rubric at the back of the syllabus to guide you in writing your paper.
OTHER IMPORTANT RULES / REGULATIONS:

Electronic Equipment:
1. **During instruction**: The use of cell phones and/or electronic equipment capable of recording and/or transmitting lectures or any instructional modality is prohibited unless written permission is obtained from the instructor.

2. **When quizzes/exams are in use**: Cell phones and/or any electronic device capable of displaying, recording, or transmitting information must not be used or even accessed for any purpose when exams are also in use. The use, display of, or convenient access to such equipment may result in a failing grade for the exam.

Safety and comfort in the Field and Lab
- Students must operate in **buddy pairs/triplets** at all times when in the field. -Caution appropriate to particular field conditions must be exercised at all times. -It is important to dress appropriately for weather conditions -For day long field work students must bring the food and water they intend to consume. -In the laboratory students must wear long lab coats and safety glasses. Open toed shoes, food, & drink are prohibited.

COURSE OUTLINE: Appended. The date each topic will be addressed is approximate.
Weekly Assignments: Study lecture material prior to the next class meeting and be prepared for discussions.

EXAMS and QUIZZES: **Bring a #2 pencil**. Students must know and understand all lecture, lab, and field work, which are the basis of the exams. Therefore it is important to take good notes.

COURSE GRADE:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Value</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>4.00</td>
<td>93-100%</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
<td>90-92%</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
<td>87-89%</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
<td>83%-86%</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
<td>80-82%</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
<td>77-79%</td>
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<tr>
<td>C</td>
<td>2.00</td>
<td>73-76%</td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
<td>70-72%</td>
</tr>
<tr>
<td>D</td>
<td>1.00</td>
<td>60-69%</td>
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<tr>
<td>F</td>
<td>0.00</td>
<td>0.00&lt;60%</td>
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Field and Laboratory The schedule of lab/field experiences, some of which occupy an entire class session may change to adjust to conditions of weather, and unique learning opportunities that may arise. The needed flexibility is accommodated by the field experience done on a weekend and by “field exercise follow-up”. Follow-up also provides time for lectures missed because of full session field trips.

The School of Natural Sciences (SoNS) POLICY REQUIRES STUDENTS TO ARRANGE THEIR OWN TRANSPORTATION AND ARRIVE ON TIME AT FIELD SITES.
## Tentative Schedule:

<table>
<thead>
<tr>
<th>Day</th>
<th>Topic</th>
<th>Chapters/Readings</th>
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</thead>
</table>
| 1   | Introduction, Staging the Big Picture Ideas, and Scientific Investigations of the Environment  
  *Lab*: Modeling The Unseen – The Black Box | Wright 1  
  Salles Modeling Paper |
| 2   | Staging the Big Picture Ideas- Consilience, the unification of disciplines for the future of human sustainability  
  *Lab*: Data Analysis: Practicing Scientific Inquiry – setting up an intermediate disturbance hypothesis experiment. | Wilson 12 |
| 3   | Human History intro- using ecological approach to reconstruct human history based on environmental conditions.  
  *Lab*: Mark Recapture | Diamond – excerpt 1  
  Wright 9 |
| 4   | Ecology of Populations (Growth and Crashes)  
  *Lab*: **Field Trip (9/27)** Liberty State Park  
  *Lab*: Processing Liberty Samples | Wright 4.1-3 |
| 5   | Ecology of Ecosystems (Interactions, Fluxes, Cycling, & Energy)  
  *Lab*: **No Lab** | Wright 2.1-3  
  Hodder paper |
| 6   | Human Population  
  *Lab*: **Tentative Field Trip (10/11-10/12)** Survey of NJ Ecosystems- Highlands, Pine Barrens, Piedmont and Coastal Wetland. Modeling physiological morphisms within species across ecosystems. | Wright 5 and 6 |
| 7   | The Human Ecosystem (Top resources and ecosystems we rely on)  
  *Lab*: Analysis of physiological morphisms from field trip and presentations of findings | Wright 7.1, 8.1, 10.1, 11.1-3 |
| 8   | Modeling Ecosystem interactions - Shifting the balance in ecosystems (local and global effects)  
  *Lab*: Hubbard Brook Streamflow Responses to Deforestation | Wright 3 and 4 |
| 9   | Environmental Economics  
  *Lab*: **Midterm Exam** on materials Covered in Weeks 1-8 | Wright 22  
  Harte paper |
| 10  | Environmental Justice and Ethics  
  *Lab*: Wealth and Location Data Lab/Cancer Clustering, Garbage dumps, etc. | EJ Fact Sheet |
| 11  | Writing an Environmental Impact Statement  
  *Lab*: Designing a Restoration Project | Senécal Paper |
| 12  | Evaluating Energy Systems – Non-renewable  
  *Lab*: Independent Research Time for Impact Statement | Wright 12,13,14 |
| 13  | Evaluating Energy Systems – Renewable  
  *Lab*: GIS Lab – solar, wind, and biofuel | |
| 14  | Human History – Past, Present and Future  
  What can I do anyway? Can’t technology fix it?- The synergistic effect  
  *Lab*: No Lab – Review for exam – optional attendance | Chapter 23  
  Diamond excerpt 2 |