SPRING 2016

ECONOMICS OF COASTAL AND MARINE ECOSYSTEMS

ENS339/ENV339/MAR 539

Stony Brook University, School of Marine and Atmospheric Sciences

PROFESSOR

Name: Anthony C. Dvarskas
Office Location: Endeavour Hall 167A
Office Hours: Th (1-2) or by appointment
Phone: 631-632-9674
Email: anthony.dvarskas@stonybrook.edu

REQUIRED TEXTS

- Supplementary readings (as assigned).

COURSE DESCRIPTION

Consideration of the socioeconomic implications of policy decisions involving environmental and natural resources has become increasingly important for ecosystem management. This course will view human interactions with coastal and marine ecosystems through the lens of economics. Topics will include the basics of welfare analysis, the concept of ecosystem services, the challenges associated with public goods, methods for economic valuation of non-market goods and services, and strategies for sustainable use of coastal and marine resources. In addition to exploring the fundamental principles of environmental economics, the course will also evaluate their real-world application through national and international policy examples.

LEARNING OBJECTIVES

- Analyze the nature of the economics underlying environmental policy decisions.
- Develop an understanding of the concept of consumer surplus and its role in environmental valuation techniques.
- Explore the requirements for static and dynamic economic efficiency and how to evaluate policy decisions using these criteria.
• Evaluate various definitions of sustainability and the approaches designed to quantitatively analyze sustainability.
• Cultivate an understanding of the application of economic principles to coastal management decisions.
• Evaluate differing economic approaches for resolving environmental externalities and effectively managing coastal and marine ecosystems.

TEACHING PHILOSOPHY

I am here to help. My job is to foster a positive and productive learning environment for every student. Please feel free to come to me with your questions and concerns. Unless there is a privacy issue at stake, in-class is best as your peers likely have the same question. Ultimately, the quality of this course rests in your hands. Your motivation, attitudes, and behaviors shape your experience in this class. If you are investing the necessary amount time and energy I will go out of my way to help you succeed.

RESPONSIBILITIES

Attendance. Attendance at all classes is critical. Being absent will deprive you of valuable class discussions and will prevent you from fulfilling certain graded in-class assignments that cannot be made up. Also, a great deal of questions on the exams will be based on material only covered in class. Excessive absences (including late arrivals/early departures) will negatively impact your participation grade. If you are absent, you are responsible for securing all materials distributed in class.

Participation. This will not be a strictly lecture-based course. You are expected to come to class prepared to engage in discussions about the readings. The quality of your participation will greatly influence the quality of your learning outcomes. Your participation grade will be based on:

1. Attending class. Physical presence is necessary, but not sufficient.
2. Demonstrating that you have fully prepared for each class and read the assigned materials.
3. Asking thoughtful questions that extend the thinking of the class and instructor.
4. Contributing “real life” examples when possible to close the gap between theory and practice.
5. Expressing respect for your classmates and instructor.

Deadlines. Defy Murphy’s Law: “What can go wrong, will.” Start assignments early. Keep back-up copies of everything. Also, anticipate problems (e.g., running out of paper/ink, losing a computer file, not having enough time). All assignments (including exams) must be completed by their due dates (see schedule). If you are unprepared to deliver a presentation on the assigned day or do not come to class on your presentation date, you will receive a zero. No make-ups or extensions will be permitted unless permission has been granted from the instructor prior to the due date. One letter grade
will be deducted for each day any assignment is late. Like most instructors, I am more understanding if you keep me informed of problems/challenges in a timely manner.

**Professionalism.** Being professional means respecting others’ opinions, not interrupting others, being respectful and courteous to those who are speaking, and working with others in a spirit of cooperation. I expect you to demonstrate these behaviors at all times. With that in mind, sleeping, texting, reading materials irrelevant to class purposes, and disrupting the class in any way will not be tolerated and will result in the student being considered absent during that class period.

**Presentations.** On presentation days, you will have dual responsibilities as speaker and audience member. As a speaker, you must present on your scheduled date and deliver your presentation even if there is a technical problem with your slides. As an audience member, you will be attentive and supportive as well as be ready to pose questions on the presentation topic. Because most people are nervous when they speak, be encouraging both verbally and nonverbally as an audience member. Also, never enter or leave the classroom if another student is presenting.

**Assignments**

Blackboard will be used for the posting of assignments, supplemental readings, and other course announcements. Students should therefore regularly check Blackboard.

The following assignments are designed to measure your understanding of academic concepts/theories as well as your ability to effectively communicate regarding the application of these concepts to real-world policies.

**Problem Sets.** There will be 3 problem sets assigned throughout the semester. These problem sets are designed to assess your understanding of the course material and provide you with an awareness of areas where you might need to devote additional study time. These problems sets are due at the start of class on the assigned dates (see course schedule).

**Participation and Discussion.** As indicated above, participation in class discussions is an important component of this course. Also, part of the participation and discussion grade for graduate students will include leading discussion on assigned academic journal articles throughout the semester. This would include giving a short summary of the article and key points you gained from your reading. The participation and discussion grade is also based on how each student (both undergraduates and graduate students) contribute to discussions regarding assigned readings and course material, so it is important to complete the readings prior to attending class.

**Exams.** There will be two exams that will test your knowledge of the material gained through readings, class discussion, and problem sets.
**Policy Presentation** You will develop an annotated PowerPoint presentation discussing the economics surrounding a coastal/marine environmental policy topic of your choice (so make sure you pick a topic that can be linked to the economy). This presentation will highlight the economics of an environmental topic of your choosing, including an overview of existing research from the environmental economics literature, and how it is being addressed (if applicable) in the United States and internationally (select one country for comparison). The questions that should be answered in this presentation include: (1) In general, why is the environmental topic you selected an important area for policy development/what is the problem? (2) What economic arguments have been used to support environmental policy decisions in this area/how has economics been applied to this environmental issue? (3) Compare/contrast the policies pursued in the United States with the policies pursued in the other country. (4) What further research could be done/is needed to support policy in your selected area? Length: UNDERGRADUATE STUDENTS: 10 minutes with a 3 min Q & A session. Sources: at least 4 (only 1 may be a direct website citation); GRADUATE STUDENTS: 15 minutes with a 3 min Q&A session. Sources: at least 6 (only 1 may be a direct website citation).

**GRADING**

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Problem Sets (3 x 5 pts)</td>
<td>15 pts</td>
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<tr>
<td>Class Participation and Discussion</td>
<td>15 pts</td>
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<tr>
<td>Exam 1</td>
<td>20 pts</td>
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<tr>
<td>Exam 2</td>
<td>20 pts</td>
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<tr>
<td>Annotated policy presentation</td>
<td>30 pts</td>
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**Inquiries.** If you believe a grading error occurred, you can, *within one week* of the date the assignment is returned to you, request via memo that I re-evaluate the assignment. After one week has expired no grading discrepancies will be considered. Your memo should carefully justify why the assignment should be re-graded. Also, your original graded assignment should accompany your memo. It is important to realize that re-evaluation can result in three outcomes: a higher grade change, no grade change, or a lower grade change.

**Final Grades.** Final course grades will be calculated using the following scale:

- A = 100-95%
- A- = 94-91%
- B+ = 90-88%
- B = 87-84%
- B- = 83-81%
- C+ = 80-78%
- C = 77-74%
- C- = 73-71%
- D+ = 70-68%
- D = 67-61%
- F = 60-0%

Because of privacy laws, I am not permitted to publicly post or disclose grades (including email). To preserve the integrity of this course, and to be fair to your classmates, final grade negotiations are prohibited. All unclaimed graded assignments will be discarded four weeks after final grades are posted.
The relevant chapter from Tietenberg and Lewis is shown in the schedule below and should be read prior to class. Additional supplementary readings for discussion will be provided during the semester via Blackboard so it is important to check Blackboard often during the semester.

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<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
<th>CHAP.</th>
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<tbody>
<tr>
<td>1</td>
<td>Introductions / Overview of Ecosystem Services/Millennium Ecosystem Assessment/FEGS-CS/Economic Concepts Review</td>
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<tr>
<td>2</td>
<td>Welfare Analysis</td>
<td>2 (pp.15-26)</td>
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<td>3</td>
<td>Static Efficiency; Public Goods, Property Rights and Externalities, Discounting and Cost-Benefit Analysis</td>
<td>2 (pp. 27-45), 3</td>
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<tr>
<td>4</td>
<td>Dynamic Efficiency, Extraction of Non-Renewable Resources <strong>Problem Set #1 Due</strong></td>
<td>5, 6</td>
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<tr>
<td>5</td>
<td>Extraction of Non-Renewable Resources (cont’d), Water</td>
<td>9</td>
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<td>6</td>
<td>Fisheries Economics and Fisheries Management/ <strong>Problem Set #2 Due</strong></td>
<td>12</td>
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<tr>
<td>7</td>
<td><strong>Exam 1</strong>/Economics of Pollution Control and Water Pollution</td>
<td>14, 18</td>
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<tr>
<td>8</td>
<td>No Class – Spring Break</td>
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<td>9</td>
<td>Guest Lecture – Nature Conservancy (TBC)</td>
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<td>10</td>
<td>Climate Change Economics/Economic Valuation Methods</td>
<td>15-16, 4</td>
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<td>11</td>
<td>Economic Valuation Methods (cont’d)/ <strong>Problem Set #3 Due</strong></td>
<td>4</td>
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<tr>
<td>12</td>
<td>Natural Resource Damage Assessment: US and International Approaches</td>
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<td>13</td>
<td><strong>Exam 2</strong>/Natural Capital Accounting and Inclusive Wealth: Strategies for Measuring Well-being across Countries</td>
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<td>14</td>
<td>Sustainable Development and Resilience <strong>Policy Presentations and Discussions</strong></td>
<td>20</td>
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Americans with Disabilities Act:

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Academic Integrity:

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at http://www.stonybrook.edu/uaa/academicjudiciary/

Critical Incident Management:

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.