Natural Resource Economics
EconS 581

Class Time: 12:00 – 13:15pm T, Th
Class Room: Hulbert Hall 23
Professor: Gregmar I. Galinato
Office: Hulbert Hall 203C
Email: ggalinato@wsu.edu
Hours: 1:20 – 2:30pm T, Th
Phone: 509-335-6382
or by appointment

Course Overview
This course applies economic principles to natural resource issues. Economic theory will provide a framework to analyze questions of natural resource use and misuse, natural resource policy and law, scarcity and sustainability. Each topical section is chosen to allow application of a modeling approach distinct from other sections.

Administrative details
Prerequisites: Prereq EconS 502; EconS 503; EconS 511
Credits: 3

Lectures and Attendance Policy:
Lectures will be held in Hulbert Hall 23 from 12:00-13:15pm every Tuesday and Thursday. Attendance is very important for your success in this class. Attendance is not monitored but it is well documented to be highly correlated with academic performance.

Learning Goals
This course aims at providing students a framework to try to understand issues related to natural resource and environmental economics. Students will be able to apply the models that you have learned to understand and appreciate a wide range of natural resource and environmental issues. By the end of the course, students should be able to:
• understand and criticize related natural resource and environmental economics journal articles.
• conduct and write a study on natural resource and environmental economics.

Course Outline:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>Introduction and Review of Optimal Control</td>
</tr>
<tr>
<td>3-4</td>
<td>Nonrenewable Resources; Scarcity and depletion</td>
</tr>
<tr>
<td>5-6</td>
<td>Renewable Resources</td>
</tr>
<tr>
<td>7</td>
<td>Forestry Economics</td>
</tr>
<tr>
<td>8</td>
<td>Trade, Natural Resources and the Environment</td>
</tr>
<tr>
<td>9</td>
<td>Spring Break</td>
</tr>
<tr>
<td>10</td>
<td>Trade, Natural Resources and the Environment</td>
</tr>
<tr>
<td>11-12</td>
<td>Economic growth and natural resources</td>
</tr>
<tr>
<td>13</td>
<td>Natural Resources and the Economics of National Income Accounts</td>
</tr>
<tr>
<td>14</td>
<td>Noncooperative Resource allocation</td>
</tr>
<tr>
<td>15-16</td>
<td>Research Presentations</td>
</tr>
</tbody>
</table>
Requirements

Exam: A midterm and final exam will be given.

Research Proposal: A research proposal will be due in the middle of the semester. The research proposal should be new and not something that has already been written for other classes.

Research Paper: The project will involve an analysis of an economic development problem. The choice of the topic is not limited to the topic outline in class. The project may be theoretical modeling or empirical (econometric) analysis with a solid theoretical framework. A full paper is not the main output. By the end of the semester you should have a solid research question, a set up of the theoretical model and preliminary results. If it is an empirical model, you need to have the data and conducted some preliminary estimation.

Presentation: You will present your paper in class and you will be assigned one reviewer to make constructive criticisms of your research.

Referee Report: You will be required to write a review of the research paper of one of your colleagues and present your comments.

Grading: The breakdown of weights are as follows:
Final Exam – 20%, Midterm Exam – 20% Research paper – 30%, Research presentation – 15%, Referee report – 10%, Research proposal – 5%

Note: Missed exams: zero credit unless arrangements are prior to the exam or in the case of an emergency, in which case arrangements for makeups may be negotiated but are not guaranteed.

Important Dates:

Final Exam: Please see Registrar’s webpage.
   Note: Covers everything after Forestry Economics.
Final Research Paper due: April 28, 2017
Presentations and referee report deadline: Second half of April, 2017
First Draft of Research Paper due on: April 6, 2017
Research Proposal due: March 2, 2017
Midterm Exam: February 24, 2017
   Note: Covers everything from Introduction to Forestry Economics.
Guidelines for writing the paper and criteria for grading

Paper proposal:

Needs to contain two paragraphs:
The first paragraph contains the research question (objective of the study) and its significance. The second paragraph is a literature review which verifies that the study fills a gap in the literature.

Criteria for grading:
Clarity – 30%
Significance of the study – 35%
Literature review – 35%

Final Paper:
Needs to contain the following:
1) Revised version of the first two paragraphs highlighting the research question, significance and literature review.
2) Model – set up
   Note: remember to define all your variables
3) Model – solution
4) Model – results
   Note: all proofs need to be completely done step by step! Please do not make me have to work through each proof. Each step should be clearly outlined.
   Note: discussion does not need to be in complete paragraphs. I actually prefer bullet points.

If you plan to do something empirical, aside from including 1-4, you also need
5) Data – description of data
   Note: again bullet points are fine
6) Empirical model – this will need to connect clearly with the theoretical model
7) Preliminary estimation results
   Note: discussion does not need to be in complete paragraphs. I actually prefer bullet points.

Criteria for grading:
Clarity, Significance, Literature review – 30%
Appropriateness of model in answering research question – 35%
Accuracy of solution and results – 35%
Topic Outline

("*" indicates required reading. They will be covered in class and part of the exams.)

1. Introduction and Tools for Analysis.


2. Nonrenewable Resources; Scarcity and depletion

2.1 Theory of the mine
2.2 Comparative dynamics
2.3 Market structure
2.4 Backstop technology
2.5 Regulation
2.6 Defining and measuring Scarcity
2.7 Evidence relating to resource scarcity


3. Renewable Resources

3.1 Static Model of Open Access
3.2 Dynamic Model of Open Access
3.3 Market structure
3.4 Comparative Dynamics
3.5 Fishery Regulation


4. Forestry Economics
   4.1 Single Rotation
   4.2 Multiple Rotation
   4.3 Regulation of Forests


5. Trade, Natural Resources and the Environment


6. Economic growth and natural resources


7. Natural Resources and the Economics of National Income Accounts


8. Noncooperative Resource allocation


**Student Disabilities Statement**
Reasonable accommodations are available for students with documented disabilities or chronic medical conditions. If you have a disability and need accommodations to fully participate in this class, please visit the Access Center website to follow published procedures to request accommodations: http://www.accesscenter.wsu.edu. Students may also either call or visit the Access Center in person to schedule an appointment with an Access Advisor. Location: Washington Building 217; Phone: 509-335-3417. All disability related accommodations MUST be approved through the Access Center. Students with approved accommodations are strongly encouraged to visit with instructors early in the semester during office hours to discuss logistics.

**WSU Academic Honesty Statement:**
As an institution of higher education, Washington State University is committed to principles of truth and academic honesty. All members of the University community share the responsibility for maintaining and supporting these principles. When a student enrolls in Washington State University, the student assumes an obligation to pursue academic endeavors in a manner consistent with the standards of academic integrity adopted by the University. To maintain the academic integrity of the community, the University cannot tolerate acts of academic dishonesty including any forms of cheating, plagiarism, or fabrication.

Academic integrity is the cornerstone of the university and will be strongly enforced in this course. Each student must turn in original work; no copying will be accepted. Students found responsible for academic integrity violations may receive an F on the particular assignment or exam, as well as an F for the course. Repeated and/or serious offenses may result in referral to the Office of Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that every student read and understand these definitions: http://conduct.wsu.edu/default.asp?PageID=338. The Academic Integrity Statement and link to WSU’s policy at this website: www.conduct.wsu.edu/default.asp?PageID=343, and an explanation of plagiarism at this one: www.wsulibs.wsu.edu/plagiarism/main.html.

**WSU Safety:**
WSU is committed to maintaining a safe environment for its faculty, staff, and students. Safety is the responsibility of every member of the campus community and individuals should know the appropriate actions to take when an emergency arises. In support of our commitment to the safety of the campus community the University has developed a Campus Safety Plan, http://safetyplan.wsu.edu. It is highly recommended that you visit this web site as well as the University emergency management web site at http://oem.wsu.edu/emergencies to become familiar with the information provided.

**Disclaimer:** The instructor reserves the right to change the course content and number of problem sets assigned as the class proceeds through the semester. This syllabus is subject to change to facilitate instructional and/or student needs.