COURSE DESCRIPTION. The course will apply the tools of microeconomic theory to analyze a variety of environmental and natural resource problems. Knowledge of microeconomic theory at the intermediate, undergraduate level (e.g., PPPA 6007) is essential for the course. Problems will be analyzed using a combination of graphical and mathematical techniques as well as classroom exercises. Although calculus is not required, some concepts from calculus will be employed; these will be explained in class and in handouts as appropriate.

TEXTBOOKS and READINGS.

Readings are divided into two categories: required and optional. All required readings will be on available via Blackboard’s electronic reserves. Students will be expected to have completed the readings before the class for the relevant topic related to the reading.

- Readings from Alan Randall, Resource Economics, 2nd ed., John Wiley, 1987 are denoted with AR. These readings are on Bb.

REQUIREMENTS AND GRADING.

Math/Excel Assignments. Five assignments using Excel (or statistical software of your choosing) are required. The math review assignment is designed to review relevant math concepts and will not be graded. The excel assignments and datasets will be posted on Blackboard in the “projects” area. These assignments may be done in groups of 3 or less. Please turn in hard copies of your assignment on the due date. Late assignments will only be accepted with the permission of the instructor.

Benefit-cost presentation. Additional details will be provided on this assignment.

Turning in assignments. Excel assignments are due in hard copy in class unless I indicate otherwise.

Submission of Written Work Products Outside of the Classroom. It is your responsibility to ensure that I receive your assignment on time. It is not permissible to submit assignments on the digital dropbox of Blackboard unless I tell you so.

Collaboration on Assignments. You are welcome to work in groups; however, you are expected to write up your answers individually.

Late work will not be graded (unless an exception has been granted prior to the due date).
Tests. There is a midterm and a final exam. The midterm exam will be a take home exam that will be distributed on a date to be determined. The time and place of the final exam will be announced later in the semester.

Class participation. Classroom participation is strongly encouraged.

Grading. The course grade will be calculated using the following weights: midterm exam -- 25%; final exam -- 30%; Excel assignments – 30%; benefit-cost presentation -- 10%; class participation -- 5%. I expect that you will come to class having read the assigned readings and prepared to engage with me and other students in discussing the material we are covering; class participation is more than just attendance.

Graphing. I highly recommend Desmos (https://www.desmos.com/calculator) for graphing equations. While not a substitute for your ability to draw graphs by yourself or for using Excel, it is a highly useful tool for checking your work and understanding how changes in an equation change the graph.

Late or Missed Class. If you are late or absent from class, it is your responsibility to obtain all announcements, assignments, and handouts from Blackboard or from your classmates.

Exam Dates. Please notify me in the first two weeks of class if you are aware of a pre-existing conflict, such as a religious holiday you observe, that will preclude you from taking either the midterm or final at the assigned time. To the extent possible, we will work together to reschedule the exam as close to the original date as possible.

Incompletes. You must consult with me to obtain an incomplete no later than the last day of classes in the semester. At that time, we will both sign the CCAS contract for incompletes and submit a copy to the School Director.

Changing Grades After Completion of Course. No changes can be made in grades after the conclusion of the semester, other than in cases of clerical error.

Accommodation for Students with Disabilities. If you need extra time on exams or assignments due to a disability, let me know in the first week of class. In order to receive accommodations on the basis of disability, you'll need to provide proper documentation to the Office of Disability Support Services, Marvin Center 436, 202-994-8250. Accommodations will be made based upon the recommendations of the DSS Office.

University Counseling Center. The University Counseling Center (UCC), 202-994-5300, offers 24/7 assistance and referral to address students' personal, social, career, and study skills problems. Services for students include: crisis and emergency mental health consultations; confidential assessment, counseling services (individual and small group), and referrals

Religious Holidays. If you need to miss a class to observe a religious holiday, please notify me the first week of classes about any conflict; we will arrange an absence without penalty.

Academic Integrity. The George Washington University is guided by the standards of academic integrity. Students are reminded to honor the Code of Academic Integrity, which can be viewed at:

http://www.gwu.edu/~ntegrity/code.html

If you are not familiar with the Code, you should read through it carefully.
# Topics, Readings, and Assignment Due Dates

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<tr>
<th>Class</th>
<th>Topic</th>
<th>Assignment or test</th>
<th>Reading</th>
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| 8/30   | Micro review/Welfare econ                   | Math review (this assignment will not be graded)       | 1. AR, Chapter 5.  
| 9/6    | Property rights/mkt failure, government    | Excel 1 – supply and demand; negative externalities   | 1. Tietenberg and Lewis, Chapter 2  
| 9/13   | Property rights/mkt failure, government    |                                                         |                                                                                                                                          |
| 9/20   | Property rights/mkt failure, government    |                                                         |                                                                                                                                          |
| 9/27   | Benefit cost analysis                      | Excel 2 –M&I water demand                               | 1. Tietenberg and Lewis, Chapters 3, 4  
5. Stated Preference readings:  
4. Stated Preference readings:  
| 10/11  | Benefit cost analysis                      | Mid-term due; time during class to work on benefit-cost exercise | 1. Tietenberg and Lewis, Chapters 3, 4  
5. Stated Preference readings:  
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<td>Practical Alternative when Prices Aren’t Available. Journal of Economic Perspectives, Volume 26, Number 4, Fall, Pages 27–42.</td>
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<td>10/18</td>
<td>Instruments for pollution control</td>
<td>Benefit-cost exercise presentations</td>
<td>1. Tietenberg and Lewis, Chapters 14, 15, and 16</td>
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<tr>
<td>10/25</td>
<td>Instruments for pollution control</td>
<td>Excel exercise 3: Hedonics</td>
<td>1. Tietenberg and Lewis, Chapter 13</td>
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| 11/8  | Exhaustible resources  |                    | 1. Tietenberg and Lewis, Chapters 5 and 6  

**Thanksgiving break 11/21 – 11/24**

| 11/29 | Renewable resources   | Excel 4 – Benefit transfer | 1. Tietenberg and Lewis, Chapters 9 and 11  

| 12/6  | Climate change        | Excel 5 – Exhaustible resources | 1. Tietenberg and Lewis, Chapter 17  

| 12/?  | Final Exam            |                    |                                                                                                                                          |