

University of Florida  
Food and Resource Economics Department

## **AEB2451 Economics of Natural Resource Use**

Updated: November 20, 2025

**Spring Term 2026**  
Class Number: ONLINE  
3 Credit Hours

Online 100% asynchronous course delivery via Canvas

### **Instructor and Contact Information**

**Instructor:** Dr. Mikael Sandberg  
(*Faculty member and Associate Department Chair in the Department of Economics at the University of South Florida in Tampa*)

**Office Hours:** Tuesday and Thursday 9:30 – 11:00am. Other times by appointment. Virtual Office Hours using Zoom – use Canvas for access.

**E-mail:** [sandberg1@usf.edu](mailto:sandberg1@usf.edu)

E-mail is an efficient and fast way to ask questions! When e-mailing me, please indicate in which class you are enrolled (e.g., AEB2451, Economics of Natural Resource Use, UF class, or something similar) so that I can more effectively address your concerns. Courteous and professional e-mails can expect a *prompt* reply (usually within 24 hours – often times in considerably less time). Please do NOT use my old UF Gatorlink account (it is still accessible in some e-mail directories). **For quickest response use my USF e-mail: [sandberg1@usf.edu](mailto:sandberg1@usf.edu).**

**FRE Undergraduate Advisor:** Ms. Michelle Baldwin; 1170B McCarty Hall A; (352) 294-7640;  
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**E-Learning Canvas:** There is a Canvas page for this course that can be accessed via <http://elearning.ufl.edu>. If you are having difficulties accessing E-Learning, please contact the UF Computing Help Desk by calling (352) 392-HELP or e-mail [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu), or visit <https://helpdesk.ufl.edu/>. You will need your UFID/Gatorlink information when contacting them.



## General Course Information

**Course Description (from UF Catalog):** Introduces how economists value the environment and regulations designed to protect our natural resources from overuse and degradation. (S)

This course meets the General Education Student Learning Outcomes for the Social Science (S) Designation. You must earn a C or better to get General Education Credit. See General Education Learning Outcomes here:

<https://undergrad.ua.ufl.edu/general-education/gen-ed-courses/structure-of-gen-ed-courses/slos-and-performance-indicators/student-learning-outcomes/>

This is a course that applies economic tools and methods to the analysis of environmental and natural resource related problems.

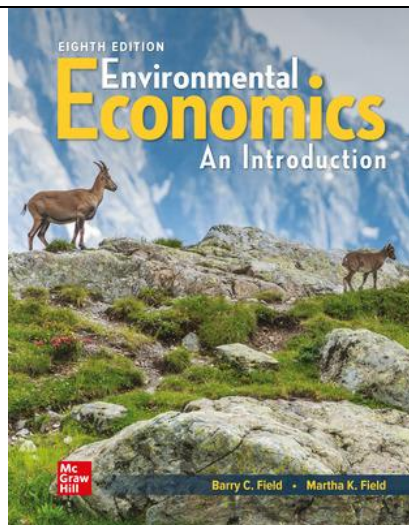
<b>General Education Course Objectives</b>	
<b>Content:</b> <i>Identify, describe and explain key themes, principles, and terminology; the history, theory and/or methodologies used; and social institutions, structures, and processes.</i>	
<ul style="list-style-type: none"> <li>Define the economic terminology used in environmental and natural resource economics</li> <li>Identify the causes of environmental and natural resource related societal problems</li> <li>Explore various public policy approaches available to deal with aforementioned environmental and natural resource related societal problems</li> <li>Discuss global issues pertaining to the discipline</li> </ul> <p>Mastery will be achieved through lectures, readings, homework assignments, and quizzes.</p>	
<b>Critical Thinking:</b> <i>Apply formal and informal qualitative or quantitative analysis effectively to examine the processes and means by which individuals make personal and group decisions. Assess and analyze ethical perspectives in individual and societal decisions.</i>	
<ul style="list-style-type: none"> <li>Apply economic theory in explaining environmental problems resulting from consumption and private business activity</li> <li>Use economic tools and methods in analyzing the use (and overuse) of natural resources</li> <li>Examine the role of externalities and public goods and resulting market failure</li> <li>Debate the impact of globalization on our environment and natural resource use</li> </ul> <p>Objectives will be accomplished via lectures, readings, homework assignments, quizzes, and End-of-Semester Project</p>	
<b>Communication:</b> <i>Students communicate knowledge, ideas and reasoning clearly and effectively in written and oral forms appropriate to the discipline(s).</i>	
<ul style="list-style-type: none"> <li>Communicate in written form the analysis of environmental and natural resource related problems</li> <li>Evaluate various policy approaches in dealing with these societal issues</li> <li>Conclude educational experience in the course by combining the theories and methods in a written report</li> </ul> <p>Assessed through homework assignments and end-of-semester assignment</p>	

**Required Text and Materials:**

*Environmental Economics: An Introduction*, 8th Edition, by Barry Field and Martha K Field. McGraw Hill. 2021.

The following options are available:

- Hardcover. ISBN: 9781260243062.
- Loose-leaf. ISBN: 9781260993172.
- Electronic Access: ISBN: 9781264383979.
- Rental book. ISBN: 9781260243062.



Content is identical across options. Students are encouraged to acquire the book in the format that best suits their needs, learning style, and budget. All students will need access to the textbook.

**Prerequisites:** None

## **Course Delivery and Semester Schedule**

**Class Delivery:** AEB2451 is taught as *on-line 100% asynchronous course*. **All required class activities and assessments take place online using Canvas.** Thus, there are no physical in-class activities or specific times when you must be logged on for lectures – there are timed quizzes, however, that do require you to log on before a certain deadline (more about this later). I am available via e-mail or virtual office hours if you ever have any questions or concerns about the course.

**Module Structure:** AEB2451 will be delivered by the use of modules in Canvas. There are a total of seven (7) *Academic Modules* throughout the term (*Module 1 through 7*), please see the Semester schedule on the next page. You can also find a copy of this schedule posted on Canvas.

Each module roughly corresponds to two weeks of work. In addition, there is an *Introductory Module (Module 0)* pertaining the course syllabus, course delivery, and technical information about the course. There is also a final concluding module at the end of the semester (*Final Module*) that wraps up the course. It is strongly recommended that you read the assigned chapter in the textbook prior to each module. This course will follow the textbook pretty closely.

At the end of each regular *Academic Module (Module 1 through 7)* there is a Homework Assignment and a graded quiz. The homework and the quiz are pertaining to the material covered in that particular module. Consequently, there are seven (7) graded homeworks and seven (7) graded quizzes.

Homeworks are always due on the *Wednesday during the second week of the module* no later than 11:59pm EST. All homeworks are to be uploaded in Canvas. Quizzes are due on the *Sunday during the second week of the module* on the second week of the at 11:59pm EST. (Please note that Quiz 7 is due on the following Monday, instead of Sunday, so for that quiz you get an extra day). These deadlines are firm and you should make a note of these for ready access. Canvas also provides detailed information about when each Homework Assignment is released. On the following page you find a week-by-week semester schedule along with due dates.

Week	Dates	Chapters and Topics
<b>Module 0: Introduction Module</b>		
0	No later than January 12	Syllabus and Introduction to the Course <b>Syllabus Quiz (ungraded) due before you can proceed to Module 1</b>
<b>Module 1: Economic Tools and Methods</b>		
1	Jan 12 – Jan 16	Ch 1: What is Environmental Economics? Ch 2: The Economy and the Environment
2	Jan 19 – Jan 23	Ch 3: Benefits and Cost, Supply and Demand  <b>Homework 1: Due Wednesday January 21 11:59pm EST</b> <b>Quiz 1: Due Sunday January 25 11:59pm EST</b>
<b>Module 2: Markets, Externalities, and Environmental Quality</b>		
3	Jan 26 – Jan 30	Ch 4: Markets, Externalities, and Public Goods
4	Feb 2 – Feb 6	Ch 5: The Economics of Environmental Quality  <b>Homework 2: Due Wednesday February 4 11:59pm EST</b> <b>Quiz 2: Due Sunday February 8 11:59pm EST</b>
<b>Module 3: Framework of Benefit Cost Analysis</b>		
5	Feb 9 – Feb 13	Ch 6: Framework of Analysis
6	Feb 16 – Feb 20	Ch 7: Benefit-Cost Analysis: Benefits  <b>Homework 3: Due Wednesday February 18 11:59pm EST</b> <b>Quiz 3: Due Sunday February 22 11:59pm EST</b>
<b>Module 4: Costs, Evaluation, and Decentralized Policies</b>		
7	Feb 23 – Feb 27	Ch 8: Benefit-Cost Analysis: Costs Ch 9: Criteria for Evaluating Environmental Policies
8	Mar 2 – Mar 6	Ch 10: Decentralized Policies: Liability Laws, Property Rights, and Voluntary Action  <b>Homework 4: Due Wednesday March 4 11:59pm EST</b> <b>Quiz 4: Due Sunday March 8 11:59pm EST</b>
<b>Module 5: Command and Control and Incentive-based Policies</b>		
9	Mar 9 – Mar 13	Ch 11: Command-and-Control Policies: The Case of Standards
10	Mar 17 – Mar 20	<b>SPRING BREAK</b>
11	Mar 23 – Mar 27	Ch 12: Incentive-Based Strategies: Emission Charges and Subsidies  <b>Homework 5: Due Wednesday March 25 11:59pm EST</b> <b>Quiz 5: Due Sunday March 29 11:59pm EST</b>
<b>Module 6: Market Trading Systems and Climate Change</b>		
12	Mar 30 – April 3	Ch 13: Incentive-Based Strategies: Market Trading Systems
13	April 6 – April 10	Ch 18: Global Climate Change  <b>Homework 6: Due Wednesday April 8 11:59pm EST</b> <b>Quiz 6: Due Sunday April 12 11:59pm EST</b>
<b>Module 7: International Issues</b>		
14	April 13 – April 17	Ch 19: International Environmental Agreements
15	April 20 – April 24	Ch 20: Globalization  <b>Homework 7: Due Wednesday April 22 11:59pm EST</b> <b>Quiz 7: Due Sunday April 26 11:59pm EST</b>
<b>Concluding Module: Final Remarks</b>		
16	April 27 – May 1	Wrapping up the semester <b>End-of-Semester Assignment: Due Wednesday April 29 11:59pm EST</b>

Each *Academic Module* will have four primary lecture components:

1. **A guided discussion and overview** about the material in Canvas;
2. **Lecture Notes** (outline format, PDF);
3. **Lecture notes** (in PowerPoint format, PDF);
4. **An mp4 video file of the PowerPoint slides with my lecture accompanying them.**

Each module will also have a brief video introduction where I explain what we will cover. The material in a module is often divided into several shorter lectures or lessons. Please note that the posted mp4 video files are significantly shorter than the traditional lecture time. There are several reasons for this. First, the lectures are delivered via PowerPoint so there is less time devoted to writing things down on the board or in your own notes. Second, during a traditional lecture, students often ask clarifying questions which usually leads interesting in-class discussions. In pre-recorded lectures, this feature will naturally be absent. Consequently, the material will be covered in a much shorter period of time than traditional lectures. Third, students are also expected have read the textbook prior to reviewing the material in the module. Therefore, the discussion will embark at a brisk pace. You can, of course, pause the lecture and rewind and rewatch portions that you feel need additional explanations and coverage. Past students have told me that the optimal way to approach and study for this course is the following workflow:

- I. **READ** the posted lecture notes (in outline format);
  - This gives you a preliminary overview of the material and the main concepts covered in the lecture;
- II. **READ** the assigned chapter in the textbook or the assigned portion of a chapter;
  - This provides a more in-depth discussion of the concepts with applications and implications discussed in the text;
- III. **VIEW** the lecture videos.
  - a. This helps to reinforce the concepts introduced. During lectures, you will also frequently get helpful pointers and tips from your instructor;
- IV. If anything seems to be unclear, feel free to **REACH OUT** to me with questions or simply go back and review the material further;
- V. Make sure to get homework assignments and quizzes **COMPLETED** well ahead of deadlines.

**Introductory Module:** Before you can proceed to *Module 1*, you must have completed an ungraded syllabus quiz in the *Introductory Module*. This is to ensure that you have read the course syllabus and that you understand the course delivery and grading policies.

## **Evaluation of Performance and Grading**

**Quizzes:** There will be seven (7) quizzes offered during the semester – one quiz for each academic module (*Module 1* through 7). Each quiz is worth 100 points. Your lowest quiz grade is automatically dropped, so only your six (6) highest quiz grades count (for a total of 600 points towards your final course grade, or 60%). The quizzes will consist of multiple-choice questions. **The quizzes will open at 10:00am EST on the Friday before the due date.** Once you start your quiz, you will have *20 minutes* to finish. **The quiz must be completed by 11:59pm EST on due dates (Sundays).** Thus, you have a two-day window to complete the quiz. This will give you a cushion in case something unforeseen happens or if your internet service is temporarily interrupted. The quizzes will only cover the material from associated Academic Module. Quizzes are not cumulative.

The quiz dates (also available in the *semester schedule* on page 4 of this syllabus) are:

Quiz 1:	Sunday January 25 (due 11:59pm EST)
Quiz 2:	Sunday February 8 (due 11:59pm EST)
Quiz 3:	Sunday February 22 (due 11:59pm EST)
Quiz 4:	Sunday March 8 (due 11:59pm EST)
Quiz 5:	Sunday March 29 (due 11:59pm EST)
Quiz 6:	Sunday April 12 (due 11:59pm EST)
Quiz 7:	Sunday April 26 (due 11:59pm EST)

The instructor reserves the right to change these dates as appropriate. Any changes will be communicated via Canvas. **There is no formal Final Exam for this course.**

**Make-Up Quizzes:** Early or late quizzes are usually not given. Minor illnesses, work, or family obligations are not acceptable excuses for a make-up quiz nor are internet services outages – quizzes are online and you are generously allowed until 11:59pm on quiz days to complete the quiz. Remember, your lowest quiz grade is dropped. Use this drop wisely.

**Homeworks:** There will be seven (7) homeworks assigned during the semester – one assignment for each academic module (*Module 1* through 7). Each homework is worth 50 points. Please note that there are no assignments for *Module 0*. There are no make-up assignments and late submissions are not entertained. Completed assignments are to be uploaded in Canvas before the designated deadline. In calculating your final course grade, your lowest Homework grade is dropped and only your highest six (6) grades count. The Homeworks combined count for 30% of your final course grade. **The homeworks are posted at 10:00am EST on the Thursday before the due date** – thus you have a full six days to complete each homework. Homeworks are due not later than 11:59pm EST on the assigned dates below (also found in the *semester schedule* on page 4 of this syllabus):

Homework 1:	Wednesday January 21 (due no later than 11:59pm EST)
Homework 2:	Wednesday February 4 (due no later than 11:59pm EST)
Homework 3:	Wednesday February 18 (due no later than 11:59pm EST)
Homework 4:	Wednesday March 4 (due no later than 11:59pm EST)
Homework 5:	Wednesday March 25 (due no later than 11:59pm EST)
Homework 6:	Wednesday April 8 (due no later than 11:59pm EST)
Homework 7:	Wednesday April 22 (due no later than 11:59pm EST)

**End-of-Semester Assignment:** An End-of-Semester Assignment will be posted in the final, concluding module on Canvas. More detail will be provided in the module itself. Completed assignments are to be uploaded in Canvas no later than **11:59pm EST Wednesday April 29**. The project will be released on Canvas Monday April 13. The project is intended to help you apply the concepts we have covered during the semester. The project is an individual assignment. Students submitting projects that are too similar for comfort to that of another student will be considered cheating and will be treated as such. More information about the project will be provided in class. The project is worth 100 points (or 10%) towards your final course grade.

**Grades:** Your final grade for AEB2451 will be based on the following:

Course Assignments	Total Points	% of Total
Quizzes (best 6 out of 7)	600 points (100 points each)	60%
Homeworks (best 6 out of 7)	300 points (50 points each)	30%
End-of-Semester Assignment	100 points	10%
<b>Total</b>	<b>1000 points</b>	<b>100%</b>

The grade scale is presented below. Please note that UF does not have an A+ option.

Grade	Percentage	Total points	Grade Points	Information on current UF grading policies for assigning grade points can be found here:  <a href="https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/">https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/</a>
A	93% or more	≥ 930	4.00	
A-	90.0 – 92.9%	900 – 929	3.67	
B+	86.0 – 89.9%	860 – 899	3.33	
B	83.0 – 85.9%	830 – 859	3.00	
B-	80.0 – 82.9%	800 – 829	2.67	
C+	76.0 – 79.9%	760 – 799	2.33	
C	73.0 – 75.9%	730 – 759	2.00	
C-	70.0 – 72.9%	700 – 729	1.67	
D+	66.0 – 69.9%	660 – 699	1.33	
D	63.0 – 65.9%	630 – 659	1.00	
D-	60.0 – 62.9%	600 – 629	0.67	
E	59.9% or less	≤ 599	0.00	

Students should be aware that grades are not ‘rounded’ or in any way ‘adjusted’ at the end of the term. Grading is not a negotiation process and arguing over grades at the end of the semester is NOT entertained. However, if you believe that your quiz or assignment is incorrectly graded or that your grade is incorrectly posted, please contact me via e-mail (i.e., in writing) as soon as possible. If I have made an error, I will be happy to adjust your grade.

### **Other Important Information**

Students are responsible for all deadlines/critical dates and policies set forth by the University of Florida. Deadlines/critical dates are published on the University of Florida Office of the University Registrar’s website, <http://www.registrar.ufl.edu/>. Academic policies for this course are consistent with university policies. See <https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/>

**Grades and Grade Points:** For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

**Academic Honesty:** As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: “*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*” You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: “*On my honor, I have neither given nor received unauthorized aid in doing this assignment.*” It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <https://sccr.dso.ufl.edu/process/student-conduct-code/>

**Students Requiring Accommodations:** Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the [Disability Resource Center](#). It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester. <https://disability.ufl.edu/>.

**Software Use:** All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

**Campus Resources:** Visit <https://one.ufl.edu/whole-gator/topics> for resources that are designed to help you thrive physically, mentally, and emotionally at UF. Please contact [UMatterWeCare](#) <https://umatter.ufl.edu/> for additional and immediate support.

**Privacy and Accessibility Policies:**

- Instructure (Canvas) (used for Course Delivery)
  - [Instructure Privacy Policy https://www.instructure.com/policies/product-privacy-policy](https://www.instructure.com/policies/product-privacy-policy)
  - [Instructure Accessibility https://trust.instructure.com/](https://trust.instructure.com/)
- Zoom (used for Office Hours)
  - [Zoom Privacy Policy https://www.zoom.com/en/trust/privacy/privacy-statement/](https://www.zoom.com/en/trust/privacy/privacy-statement/)
  - [Zoom Accessibility https://www.zoom.com/en/accessibility/](https://www.zoom.com/en/accessibility/)

**By enrolling in this course you are agreeing to the term and policies outlined in this syllabus.**

**Let us have a great semester!**

**GO GATORS!**