

Contact Info: mwitte@northwestern.edu

Class meets: Tuesdays & Thursdays 11-12:20 in Harris L07 (I intend to record lectures)

Office hours: Mark: Tuesdays 2:00-3:30 in Kellogg Global Hub 3393, Thursdays 10-11:AM in Kresge 4410, both in-person and by Zoom. (Other times can work too. Ask!)

TA: Marie Decamps (mldecamps@u.northwestern.edu) will hold office hours Wednesdays 10:00-11:AM in Kellogg Global Hub 3411, and occasionally will hold sections from 11:00-11:50 Fridays in Tech LR4.

Readings: <https://sites.google.com/site/markwitteeconomics/home/economics-373-natural-resource-economics>

Textbooks: Larry Karp, *Natural Resources as Capital*, MIT Press, 2017

Nathaniel O. Keohane, Sheila M. Olmstead, *Markets and the Environment*, 2nd ed, 2016

Important dates		Share of Class Grade
Thursday, May 2	Exam 1 11-12:20	35% of class grade
Friday, May 3	Drop Deadline	
Friday, May 17	P/N Deadline	
Tuesday, May 28	Exam 2 11-12:20	45% of class grade
Various dates	Homework	20% of class grade

Week of March 28 - Introduction, Land
Hornbeck Barbed Wire , Human Impact on Earth's Surface , Cropland
Week of April 2 - Population, Sustainability
Joel Cohen video , Joel Cohen article , Ehrlich (Fine on 2x) Hans Rosling 1 video - Population and CO2 emissions, Hans Rosling 2 video - 200 countries, 200 years Landsburg - Inherit the Earth , Landsburg - Efficient Mortality Nonexistence , MacAskill Great info: Our World in Data - Population , Sustainability: Keohane & Olmstead (KO) Ch.11, Larry Karp (LK) Ch. 1
Week of April 9 - Hotelling's model of Non-Renewable Resources (mostly Oil)
KO Ch. 6 (Hotelling model of resource extraction), LK Ch. 4, 5 Discounting KO pp. 30-34, 59-60. LK Ch. 19. Strongly recommended: Daniel Yergin's The Prize , 8 part video series on oil
Week of April 16 - Hotelling and Backstop Technologies, The Green Paradox
LK 6, 7, 8
Week of April 23 - Renewable Resources: Forests
KO pp. 114-128, Jones , Immerwahr - Wood , Immerwahr - Fire , Forests Video 1 , Forests Video 2 ,

Great info: https://ourworldindata.org/global-forest-transition , https://ourworldindata.org/what-are-drivers-deforestation
Tues. April 30 - Review, Thurs. May 2, 11:00-12:30 IN CLASS - EXAM 1
Week of May 7 - Renewable Resources: Fisheries
KO pp. 128-138, LK Ch. 12, 13, 14, 15. Fisheries video 1 , Fisheries video 2 , Fisheries video 3 , Fisheries video 4 , Fisheries video 5 , Fisheries video 6 , Pacific , Ocean protection/profit Great info: https://ourworldindata.org/fish-and-overfishing , Aquaculture
Week of May 14 - Renewable Resources: Water
LK Ch. 16, 17. Visualization , Hornbeck Ogallala , California , San Francisco , Phoenix , Ranchers v. Fish , Water Consumption , Rain , John Oliver (NSFW), Pumps
Week of May 21 - Endangered Species, Extinction
Metrick & Weitzman , Gott , Biodiversity threats , Noah's Ark , Prometheus Great sources: https://ourworldindata.org/wild-mammal-decline , https://ourworldindata.org/living-planet-index-decline
TUESDAY, May 28, 11:00-12:30 PM: EXAM 2
Week of June 4 (on Panopto, not on the exam) - Renewable Resources: Recycling
Recycling Video , Taylor , NPR , Ocean plastic , Ocean cleaning is bad , China Recycling , Great info: https://ourworldindata.org/ocean-plastics , https://ourworldindata.org/plastic-waste-trade

The following are questions that many of you will have about the class.

Q: What are the learning objectives for this class?

A: How does the natural world affect our economic choices? What are the dynamic effects of our economic choices on what natural resources we will have in the future?

Q: Quarters are short and this one is ending a little early. Will we be able to fit everything in?

A: Yes...if we think outside the box...or rather the calendar. I will kick some very technical derivations that are useful for understanding but not going to appear on tests to recorded videos. Also stuff like re-explaining present value and discounting. And anything I don't finish, I'll record and make available after the last exam (and won't have questions about it on the exam). That will include Recycling.

Q: Where should I look for posted Zoom/Panopto recordings, slides, readings, and things like that?

A: The best place is on Canvas under "Pages." I'll try to put everything there in an organized way.

Q: I am not now nor have I ever taken the **prerequisites**. Am I in trouble in here?

A: Probably; this class uses the tools of Econ 310-1,2 Intermediate Microeconomics a lot, and Econ 281 Introduction to Econometrics some as well.

Q: What are the math requirements for this class?

A: You will need to be able to do basic calculus, graphing, and algebra. I expect you to be able to use economic tools like present values, expected values, noncompetitive market structures, and to understand regression analysis. I will do some more complicated math for the purposes of exposition but I will not ask you to reproduce it on the

exams although you should understand the underlying ideas. As a guide, I will try to preview any math or exposition you might need in the homework.

Q: What are the basic work expectations for the class?

A: I hope that you will do about two hours of study for every hour of lecture, and that you will read the material assigned for the lecture before class (and yes, you'll have to catch up on the first lecture assigned reading too). If you miss some lecture, section, or a recording is messed up, it is your responsibility to catch up on the material (like in office hours or from your classmates).

Q: What is the deal with these homeworks?

A: There will be a bunch of these over the course of the quarter and they will usually follow what we did in lecture, and have some predictive value for what will be on the exams. Also, when you are posting about specific homework or exam questions in the Canvas discussion board, it's very helpful if you **cut-and-paste** the actual text question into what you write.

Q: This syllabus is pretty long; do you think that anyone is still reading?

A: We're about to find out!

Q: What is the First Homework?

A: Your first Canvas Homework is to go on Canvas's discussion board and post a question about the class material. After you do that, explain in Canvas what you did (in the spot for Homework 1). The Second Homework will require you to answer one of the questions posted by one of your peers, and then describe what you did in the spot for Homework 2. Is it OK to collude with one of your peers to get this done? I don't see why not. (See...you're getting practice with the Canvas discussion board *and* the Canvas homework system!)

Q: What will the tests be like?

A: Some problem-solving, some graphing, some essays. The homeworks will give you examples of the sorts of problems I am apt to ask. Also, you are expected to *go to the bathroom before the exam and then hold it until the exam is over*. Interesting fact: On the tests, *we will give you points for leaving a question blank*. On any given problem or graded sub-problem, we will give you 20% of the points if you leave the question completely blank (or clearly cross out what you've written). This is intended to remove the incentive to pursue "pity points" on questions where you really don't know what I'm asking, and instead allow you to devote your time to doing the best you can on the material you know best. Of course...you'll probably just choose to write complete and perfect answers to every question on every test, but we wanted you to have the option.

Q: In studying for the tests, should I stress studying the notes, the book, or the readings?

A: All of the above, but particularly the notes. I'll make sure that I don't inflict any math problems on the exams that I haven't already given you in the homework. Note however, that not everything that is important for the class, or that I cover in lecture or the readings will make it onto the test. Some material is important for you to learn, but does not lend itself to good test questions. I'm also inclined to have you do math on the homework to build that level of understanding there, and then use graphs on exam questions so as to minimize the chance of algebra mistakes causing you to miss points on something where you had a good level of understanding.

Q: Can I expect any leniency if I'm caught cheating or engaging in any unethical behavior?

A: No. Weinberg's policy is that students who are suspected of cheating are reported *immediately*. In recent years, I've sent the names of students to the dean; some were expelled and those who were not did not enjoy the experience.

Q: Averaging my grades, I come out very close to a higher grade. How about if you give it to me?

A: No...unless you are deserving of special consideration.

Q: Am I deserving of special consideration?

A: That depends. I may feel you deserve a higher grade than you earn on the tests if I feel that your comments in class, on the discussion board, and office hours improve the education of your fellow students and show you are able to and have been thinking intelligently about the material.

Q: What is your electronic communication policy?

A: **(1)** I expect you to have your preferred e-mail address entered into Canvas so that I can send messages to the class, and I expect you to **check that e-mail on a daily basis.** **(2)** Use Canvas's discussion forum to post questions that would be of general use to your classmates. (Yes: "What does MR stand for?" No: "I got 11 points on the midterm; does that mean I'm going to flunk the class?") **(3)** Watch all the videos we record and get the work done. **(4)** When you are posting on the Canvas discussion forum about a question from the homework or an old exam, it's very helpful if you **cut-and-paste** the text of the actual question in what you are asking about. Also, it's fine if you take notes on your tablet or computer.

Q: What happens if I fall suddenly ill and am unable to make it to a test?

A: If you do not reach me or leave a message on my e-mail (mwitte@northwestern.edu), your misfortune will be doubled. You will get a zero on the test for a grade of F that cannot be made up. Any problem that causes you to be physically unable to take a test must be carefully documented by an independent source who can confirm that you were incapacitated. A missed midterm will have its weight put on the next exam.

Q: Will this class be recorded?

A: "Portions of this class will be recorded by the instructor for educational purposes. These recordings will be shared only with students enrolled in the course and will be deleted at the end of the Quarter." You are not allowed to make recordings of the class. For more information about this, look here: <https://www.registrar.northwestern.edu/faculty-staff/syllabi.html>

Q: What if I have concerns about accessibility for this class?

A: Any student with a documented disability needing accommodations is requested to set these up with AccessibleNU including taking the exams at ANU (accessiblenu@northwestern.edu, 847-467-5530). Please do this as early as possible in the quarter (preferably within the first two weeks of class). All discussions will remain confidential. For resources on safety and mental and physical health, please visit the [NUhelp](#) website or phone app.

Q: When the class is over, what will I wish that I had known at its start?

A: Beyond the obvious things, in the past some students wrote on their CTECs that they wish they had known my tests would be so hard. I agree that my tests tend to be a bit long and I try to make them hard. Also, I'll admit there's some reading so be careful not to fall too far behind. Now you've been warned.

Q: Anything else?

A: Yes. Academic integrity; Covid; Diversity, Equity, and Inclusion; and Wellness and Mental Health. <https://www.registrar.northwestern.edu/faculty-staff/syllabi.html>

Q: What is the most important thing?

A: Please be assured that I want students to learn and to receive the good grades they deserve. So please make an appointment with me should you have undue difficulty with your work in the course.