

**Syllabus**  
**Environmental Economics**  
**Fall 2021**  
**Professor A. Ronald Gallant**

## **Course Summary**

The course will focus on the economic tools used to study environmental issues. The objective is to provide students with the economic tools needed to study environmental issues in order to guide government regulation, firm decision making, and individual choices.

Environmental issues are mainly due to externalities, which are damages to the environment that are not paid for by those who cause the damage. We will cover the ways in which markets fail to efficiently allocate resources in the presence of externalities along with mechanisms that can be used to correct those failures, including tax-based solutions, such as emissions taxes, and solutions based on the creation and design of missing markets, such as tradeable emission permits.

We will examine the incentives for firms to choose to produce “green goods” and for individuals to choose to consume them.

We will consider two perspectives: That of a firm that wants to be environmentally responsible without destroying shareholder value, and that of society. You, as an individual, will have to take both perspectives into account in your various roles in the community. These include your decisions at work, your vote at the polls, and your personal consumption decisions.

## **Logistics**

Class meets Tuesdays and Thursdays from 10:35 a.m. to 11:50 a.m. in Mueller Lab 008. Professor Gallant’s office hours are Wednesdays from 1:30 p.m. to 3:30 p.m.; his office is 511 Kern Graduate Building; his email is aronaldg@gmail.com; his cell phone is (919) 428-1130. The TA is Manuel Rojas Echeverri, his office hours are Thursdays from 3:00 p.m. to 5:00 p.m. on Thursdays in 511 Kern Graduate Building; his email is mxr1137@psu.edu.

## **Textbook – Recommended, not required**

Nathaniel O. Keohane and Sheila M. Olmstead (2007), *Markets and the Environment*, Island Press, ISBN 1-59726-047-9 (paperback) or 1-59726-046-6 (cloth).

## **Grading**

Course grades will be based on the following components: attendance (10%), homework (25%), a mid-term exam (25%), and a final (40%). Whole-letter final grades are used in this course; plus or minus grades are not used.

All grades in this course since 2016 are posted at the course website. Examination of those files provides the best guidance to how I assign grades. Note particularly how the policy changed due to remote instruction using Zoom and the attendant use of open book exams that students have at least 24 hours to work.

## **Extra Credit**

An extra credit of 10% can be earned by preparing a 15 minute slide presentation (at least 15 slides) on one of the following topics. The slides must be submitted by email to aronaldg@gmail.com as an attachment in PDF format on or before midnight Sunday, April 18, 2021. Do not submit as a Google Drive link, Box link, or DropBox link. Students will be expected to present in class if asked.

- Describe how the Ambri Liquid Metal Battery works. Describe how a Lithium Ion Battery works. Make a rational prediction based on data, price, availability, etc. as to whether future, large scale, power grid batteries will be Liquid Metal or Lithium Ion.
- Are Electric Cars Worse For The Environment? Discuss the damage done producing batteries, the fact that power for electric cars often comes from fossil fuels, and all other aspects of production and operation of electric vs. gasoline powered automobiles.
- Discuss the environmental damage caused by green power. Include a discussion of the damage done to the desert habitat of tortoises and

other animals and plants caused by large desert solar farms. Also, discuss the damage to endangered bird species by wind farms. Are there sources of electrical energy that do less environmental damage?

- Use the tools in Yahoo! Finance to obtain a portfolio of ten stocks of environmentally responsible companies. List the filters you used to obtain these ten stocks and describe exactly how these filters screen. Compute the daily returns on your portfolio over the last two months and compare those returns to the returns on the S&P 500 over the same period.
- How are sea levels measured? By how much have sea levels changed over the past hundred years? Has the change in sea levels been the same for all oceans or has the change in levels differed by ocean?
- Examine the science relating extreme weather events and climate change. Focus on these three events: hurricanes, dry spells, wet spells. For each, address these three questions: How much more often will an event occur in a warmer world? How much more severe will any given event be? What is the science that supports the above two claims? The third question requires citation of scientific papers that have appeared in peer-reviewed journals. Mere claims are not enough.
- Discuss methods of fisheries protection to include assigning property rights to market participants and how these rights are enforced.
- Discuss the relative merits of wind generated power and solar generated power to include forecasts of the percent of total power generation by each over a twenty year horizon.
- Identify a green product other than Patagonia or Burts Bees that has been successful in the market, give its history, discuss its profitability, and discuss how the vendor convinces customers that the vendor's claims of greenness are not fraudulent.
- Discuss the science regarding the health risks and environmental risks of genetically modified grains, meat, fish, and vegetables.
- Discuss carbon offsets to include discussion of market size, largest suppliers, largest buyers, price of a carbon offset, and fraud prevention.

- A topic of your choosing. Get instructor's approval of the topic first.

## Miscellany

- Masks  
Penn State University requires everyone to wear a face mask in all university buildings, including classrooms, regardless of vaccination status. ALL STUDENTS MUST wear a mask appropriately (i.e., covering both your mouth and nose) while you are indoors on campus. This is to protect your health and safety as well as the health and safety of your classmates, instructor, and the university community. Anyone attending class without a mask will be asked to put one on or leave. Instructors may end class if anyone present refuses to appropriately wear a mask for the duration of class. Students who refuse to wear masks appropriately may face disciplinary action for Code of Conduct violations. If you feel you cannot wear a mask during class, please speak with your adviser immediately about your options for altering your schedule.
- Attendance  
Attendance is required. However, situations may arise that would result in your inability to attend class, attend exams, or perform at a minimally acceptable level during an examination. Illness or injury, family emergencies, certain University-approved curricular and extra-curricular activities, and religious holidays can be legitimate reasons to miss class or to be excused from a scheduled examination.
  - In the case of your own illness or injury, confirmation from a physician, physician's assistant, a nurse-practitioner, or a nurse is required. Be advised that University Health Services cannot provide such verification unless they have provided treatment and the student authorizes release of information to the instructor. Further, barring extraordinary circumstances, the confirmation must be available to the instructor prior to the missed course event.
  - With regard to family emergencies, you must provide verifiable documentation of the emergency. Given the vast array of family emergencies the instructor will provide precise guidance as to what

constitutes adequate documentation. Unless the emergency is critical you should notify the instructor in advance of your absence from the scheduled course event. In cases of critical emergencies, you must notify the instructor within one week of your absence.

- For University-approved curricular and extra-curricular activities, verifiable documentation is also required. The student should obtain from the unit or department sponsoring the activity a letter (or class absence form) indicating the anticipated absence(s). The letter must be presented to the instructor at least one week prior to the first absence.
- In the case of religious holidays, the student should notify the instructor by the third week of the course of any potential conflicts.

- Academic Integrity Statement

Academic integrity is the pursuit of scholarly activity in an open, honest and responsible manner. Academic integrity is a basic guiding principle for all academic activity at The Pennsylvania State University, and all members of the University community are expected to act in accordance with this principle. Consistent with this expectation, the Universitys Code of Conduct states that all students should act with personal integrity, respect other students dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts.

Academic integrity includes a commitment by all members of the University community not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others.

In particular, this course is governed by the Economics Department Policy on Academic Integrity, which can be found at:

[http://econ.la.psu.edu/undergraduate/academic integrity.html](http://econ.la.psu.edu/undergraduate/academic%20integrity.html)

- Disability Accommodation Statement

Penn State welcomes students with disabilities into the Universitys educational programs. Every Penn State campus has an office for students with disabilities. Student Disability Resources (SDR) website provides

contact information for every Penn State campus. For further information, please visit Student Disability Resources website.

In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: See documentation guidelines. If the documentation supports your request for reasonable accommodations, your campus disability services office will provide you with an accommodation letter. Please share this letter with your instructors and discuss the accommodations with them as early as possible. You must follow this process for every semester that you request accommodations.

- Counseling and Psychological Services Statement

Many students at Penn State face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional well being. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

- Counseling and Psychological Services at University Park (CAPS): 814-863-0395

- Counseling and Psychological Services at Commonwealth Campuses Penn State Crisis Line (24 hours/7 days/week): 877-229-6400 Crisis Text Line (24 hours/7 days/week): Text LIONS to 741741

- Educational Equity/Report Bias Statements

Penn State University has adopted a Protocol for Responding to Bias Motivated Incidents that is grounded in the policy that the University is committed to creating an educational environment which is free from intolerance directed toward individuals or groups and strives to create and maintain an environment that fosters respect for others. That policy is embedded within an institution traditionally committed

to academic freedom. Bias motivated incidents include conduct that is defined in University Policy AD 91: Discrimination and Harassment, and Related Inappropriate Conduct. Students, faculty, or staff who experience or witness a possible bias motivated incident are urged to report the incident immediately by doing one of the following:

- Submit a report via the Report Bias webpage
- Contact one of the following offices:
  - University Police Services, University Park: 814-863-1111
  - Multicultural Resource Center, Diversity Advocate for Students: 814-865-1773
  - Office of the Vice Provost for Educational Equity: 814-865-5906
  - Office of the Vice President for Student Affairs: 814-865-0909
  - Affirmative Action Office: 814-863-0471
- Dialing 911 in cases where physical injury has occurred or is imminent

- Extended Absences Statement

During your enrollment at Penn State, unforeseen challenges may arise. If you ever need to miss an extended amount of class in such a circumstance, please notify your professor so you can determine the best course of action to make up missed work. If your situation rises to a level of difficulty you cannot manage on your own with faculty support, reach out to the Student Care & Advocacy office by phone at (814-863-2020) or email them at StudentCarepsu.edu. Office hours are Monday-Friday, 8 a.m. to 5 p.m.