

ST. FRANCIS XAVIER UNIVERSITY  
Department of Economics

ECONOMICS 381: Natural Resource Economics

**Instructor:** Dr. Patrick Withey

Fall 2024

**Lectures:** 1:00 PM–2:15 PM Monday and 11:30 – 12:45 Thursday **SCHW 190**

Office: MULH 3067

Office Hours: Monday 9:00 – 10:00; Wednesday 3:30-5:30; Thursday 1:00-2:00 PM; or  
by appointment

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Course web page: Moodle

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**Course Description:**

Examines the role of natural resource industries in the Canadian and world economies, including minerals, fossil fuels, forest resources, fisheries and endangered species, and water resources. The course introduces students to the use of economic tools in analyzing problems of renewable and nonrenewable resource management. Topics include: welfare and inter-temporal analysis of resource exploitation; ownership and property rights issues in resource use and management; the nature of resource markets; biodiversity conservation and sustainability.

**Required Textbook: None**

I will provide lecture slides and any other material needed. Much of this material will come from the following two textbooks, which you can borrow from me directly:

- Natural Resource Economics, 2<sup>nd</sup> Edition, 2008. Barry C. Field. Waveland Press.
- Environmental and Natural Resource Economics. Tietenberg and Lewis, 9<sup>th</sup> Edition. Pearson.

**Prerequisites:** Econ 201, Math 106 (recommended)

**Grading:**

Your final grade will be determined as follows:

Assignments	15%	Tentative due dates: Oct 3; Nov 7
Midterms	30 or 40%	Dates: Oct 10 and Nov 18
Term paper	10 or 20%	Due on the last class
Final examination	<u>35%</u>	TBA

You will write two midterm tests during the term, which will be based on material from the lectures, textbook and any supplemental reading that may be assigned. You must also complete two assignments, which will give you an indication of what to expect on the exams. Assignments will be given out one week in advance of the due date. You must write the final exam in order to pass the course.

Note that you will have some choice regarding percentages. You can have your two midterms worth 20% each, and a term paper worth 10%. In this case, the term paper can be a short literature review (2 or 3 articles) on a topic that I provide. If you prefer, you can have the midterms worth 15% each, and the term paper worth 20%. In this case, the paper would be a longer analysis on a topic of your choosing. I will provide more information on what is required as the term progresses. It is my expectation that the longer paper will be more work, but you are likely to achieve a higher grade if you choose that option, especially if you prefer writing papers to exams. You can choose which option you wish to pursue after the first midterm.

## **SYLLABUS**

The following topics are tentative and changes may be made as the course progresses. The readings refer to Field, but similar topics are found in Tietenberg and Lewis.

- 1. Introduction and issues in Natural Resource Economics**– Chapter's 1 and 2
  - a. Economists view of Natural Resources
  - b. Issues in NR Econ
  - c. Resource rents and ownership structures
  - d. National accounting
- 2. Building Blocks – Review from Econ 281** -Chapter's 3-7
  - a. Property rights and resource rents around the world
  - b. Supply and demand; dynamic efficiency; role of discounting
  - c. Externalities and Public policy
- 3. Economics of non-renewable natural resources**
  - a. Math Overview – my notes
  - b. Mining Economics– Ch. 10
    - i. Optimal extraction and Hotelling's Rule
    - ii. Tests of Hotelling
- 4. Energy economics – Ch11**
  - a. Oil – international markets and prices, theory of the dominant firm, regional impacts, pipelines, etc.
  - b. Electricity, climate change and renewable energy
- 5. Economics of renewable natural resources**
  - a. Forest Economics – Ch12
    - i. Optimal forest rotations
    - ii. Non-timber values; climate change
    - iii. Forest policy: SWL, log exports, deforestation, etc.
  - b. Fisheries Economics- Ch13

- i. Optimal fisheries: biology vs. economics
    - ii. Policy examples: NS Lobster, Alaska fishery, etc.
  - c. Water Resources – Ch15
  - d. Bioeconomics and wildlife – Ch18
- 6. **Growth and Natural Resources – Ch 20 (if time permits)**
  - a. Sustainable development; Kuznets Curve; Dutch Disease
- 7. **Land use – Biodiversity, Agriculture (if time permits)**

Approach to the course and class participation: Students are expected to attend all classes and be present in class on time. The course will be primarily lecture based and lectures will be based on the course slides (and the reserve textbooks). Lecture slides will be posted online but may be incomplete. Students are responsible for all material presented in class. While lectures will be mostly theoretical, we will introduce real world examples and the concepts and theory introduced in class will be reinforced through assignments, which also give you an indication of what to expect on the examinations.

Missed midterm exams: There will be no make-up midterm exams. If you miss a mid-term exam, then the weight of that midterm will be placed on the final. Students may not miss both midterms.

Drop Date (set by the registrar): Students may drop a course, online in Banner, on or before October 30.

Equitable Learning: Everyone learns more effectively in a respectful, safe, and equitable learning environment, free from discrimination and harassment. I invite you to work with me to create a classroom space – both real and virtual – that fosters and promotes values of human dignity, equity, non-discrimination, and respect for diversity