



Course Outline

EE475 Natural Resource Economics

Semester 2/2025 (January 5 - May 2, 2026)

Lecture Time: Wednesday, 13.00-16.00 hours

Lecture Venue: Room 203, Faculty of Economics

Teaching Materials Platform: Microsoft Teams

Instructor:

Name: Pit Jongwattanakul, Ph.D.

Office Hours: by appointment

Email: pit@econ.tu.ac.th

Number of Credit: 3 Credits (3-0-6)

Prerequisite: EE311

Course Description:

Economic theories and tools used for natural resource allocation. Concepts of scarcity and economic rent of natural resources. Allocation of natural resource among current users as well as intertemporal allocation. Market failure due to deficiencies in the property rights system. Government policies and tools for natural resource management and their impacts.

Course Objectives:

- Explain how economic activity and human welfare depend upon and affect the natural environment.
- Describe how economists define and measure scarcity and sustainability.
- Explain under which conditions markets are efficient and identify instances of "market failure" as they relate to the management and use of natural resources.
- Determine the efficient allocation and use of natural resources in an economic framework with applications to exhaustible resources, fisheries and wildlife populations, and forests.
- Identify and classify available public policy approaches to improve natural resource management.
- Apply a benefit-cost analysis valuation framework to selected examples.

Main Text:

Field, B. (2023). Natural Resource Economics. Fourth Edition.

(More technical) Bergstrom, J. and A. Randall (2016). Resource Economics: An Economic Approach to Natural Resource and Environmental Policy. 4th Edition.

Dasgupta, P. (2021) The Economics of Biodiversity: The Dasgupta Review. Available online at <https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review>

Older versions of the textbooks work. You are responsible for checking in which chapters the materials covered in class appear in your editions. Copies of the textbooks are available in the Main Library.

Grading Criteria:

The grade for this class will be based on the curve system.

Evaluation:

Assignments	10%
Participations	10%
Group Project	10%
Midterm Exam	30%
Final Exam	40%

Academic Calendar & Holiday

Semester 2/2025 (January 5 - May 2, 2026)

January 5 – 18, 2026 Add-drop period

January 19 – March 15, 2026 Withdrawal period with “W” on record

Mid-term Examination Period February 22 – 28, 2026

Mid-term Examination: Wednesday, February 25, 2026, 12.00-14.00 hrs.

March 16 – April 20, 2026 Special Withdrawal with “W” on record

April 13 – 18, 2026 Songkran Festival Day*

Last day of class for Semester 2/2025 May 2, 2026

Final exam period May 5 – 19, 2026

Final Examination: Monday, May 18, 2026, 09.00-12.00 hrs.

Submitting Forms for Degree Conferral (ID.64-65) January 5 – 18, 2026

* Holiday, No classes during this period

Tentative Class Schedule:

This course schedule is subject to change if necessary. But I try to closely follow this table. Any change in class scheduling (class cancellation/ makeup classes/ switching to online learning mode due to my health condition) will be announced either in class or by the BE program staff.

Week	Topic
1	Introduction
2	Basic Economic Concepts
3	Economic efficiency (Static and intertemporal)
4	Market Failures
5	Fundamentals of Benefit-Cost Analysis
6 - 7	Application for Benefit-Cost Analysis
Midterm Exam (Wednesday, February 25, 2026, 12.00-14.00 hrs.)	
8 - 15	Applied Natural Resource Problems • Mineral Economics • Energy • Forest Economics • Fisheries and Marine Resource Economics • Land, Wildlife, and Recreation (If we have time)
Final Exam (Monday, May 18, 2026, 09.00-12.00 hrs.)	

Learning Management and Evaluation

CLO	PLO	Learning Management	Evaluation
CLO1 Explain the relationship between economic activity, natural resources, and human welfare	K1, K2	Lectures on core theories; guided discussion using real-world natural resource cases	Midterm exam, Final exam
CLO2 Describe and measure scarcity and sustainability in natural resource use	K1, S1	Lecture on scarcity, rents, and sustainability indicators; problem-solving exercises	Assignments, Midterm exam
CLO3 Identify market failures and property-rights issues in natural resource management	K2, S1	Case-based learning; in-class discussion on common-pool resources and externalities	Participation, Midterm exam
CLO4 Determine efficient static and intertemporal allocation of natural resources	K1, K2, S1	Analytical lectures; graphical and numerical problem-solving; applied examples (minerals, fisheries, forests)	Midterm exam, Final exam
CLO5 Identify and evaluate public policy instruments for natural resource management	K2, S2, E1	Lectures on policy tools; applied discussions on energy, forestry, and fisheries policies	Participation, Group project (presentation), Final exam
CLO6 Apply benefit-cost analysis to natural resource and environmental problems	S1, S3, C1	Applied lectures; step-by-step BCA exercises; selected case applications	Assignments, Group project (presentation), Final exam

Learning Assessment Plan

CLO	Methods of Learning Assessment	Assessment Week	Proportion of Assessment
CLO1	In-class participation; short discussion questions; Midterm exam	Weeks 1–4; Midterm Week	10% (Participation) + included in Midterm (30%)
CLO2	Problem-solving assignments on scarcity, rents, and sustainability indicators; Midterm exam	Weeks 2–4; Midterm Week	10% (Assignments) + included in Midterm (30%)
CLO3	Case discussion participation; short written responses; Midterm exam	Weeks 3–4; Midterm Week	10% (Participation) + included in Midterm (30%)
CLO4	Analytical problems in class and exams (minerals, fisheries, forests); Midterm and Final exams	Weeks 3–15; Midterm & Final	included in Midterm (30%) + Final (40%)
CLO5	Group project (case study presentation on applied resource policy); class participation; Final exam	Weeks 8–14 (project); Final Week	10% (Group Project) + included in Final (40%)
CLO6	BCA assignments; applied exercises; Group project application; Final exam	Weeks 5–7; project Weeks 8–14; Final Week	10% (Assignments) + 10% (Group Project) + included in Final (40%)