

Course Outline

EE475 Natural Resource Economics

Semester 2/2024 (January 20 – May 14, 2025)

Class Time and Logistic

Class day: Wednesday

Class time: 13.00 – 16.00 hrs.

Venue: Room 203, 2nd floor, Faculty of Economics

Teaching Materials Platform: [2024-2 EE475 \(046401\) | General | Microsoft Teams](#)

Instructor:

Name: Asst.Prof. Chol Bunnag

Office Hours: 16.00 – 17.00 hrs on Wednesday and Thursday

Email: cholb@econ.tu.ac.th

Phone: 0988267376

Number of Credit: 3 credits

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:

1. To provide students with economic theories for analyzing natural resource issues, especially scarcity and economic rents, intra- and inter- temporal allocation and utilization, market failures arising from resource characteristics and property rights system, and institutional arrangement for sustainable natural resource use
2. To study specific natural resource topics, in particular, depletable resources (minerals); recyclable resources (minerals, papers, bottles, e-waste); replenishable but depletable resources (water); a locationally fixed but multi-purpose resource (land), Storable, renewable resources (forests); Common-pool resources (fisheries)

Grading Criteria:

Group Assignments	30%
Midterm Examination	30% (Wednesday, March 12, 2025, 12.00-14.00 hrs.)
Final Examination	40% (Saturday, May 24, 2025, 09.00 – 12.00 hrs.)

*Group assignments are explained in a separate document.

Main Reading Lists:

Tietenberg, Tom, and Lewis, Lynne (2011). Environmental and Natural Resource Economics. 9th Edition, MA: Pearson [T]

Tisdell, Clement, A., (2010). Resource and Environmental Economics: Modern Issues and Applications. Singapore: World Scientific. [TD]

Recommended Readings

Harwick, John M. And Olewiler, Nancy D. (1998). The Economics of Natural Resource Use. 2nd Edition, MA: Addison-Wesley. [HO]

Field, Barry C. (2008). Natural Resource Economics. 2nd Edition, Illinois: Waveland Press. [F]

Ostrom, Elinor (1990). Governing the Commons. Cambridge University Press. [O]

Expected Learning Outcomes

o understand natural resource and environmental problems with the perspectives of an economist and be able to apply economic concepts and tools to analyze and solve the problems in the fields.

Expected learning outcomes	Evaluation Method
1. Moral & virtue 1.1 Students demonstrate integrity and ethics 1.2 Students recognizes social responsibility and accountability to the society and the environment 1.3 Students recognize the importance of sustainable development and natural resource allocation	Assignment and discussions in class
2. Knowledge 2.1 Students understand problems related to the fields 2.2 Students can apply economic principles to understand the causes of the problems in the fields 2.3 Students understand various economic instruments that can be used to solve the problems in the fields	Assignment, quiz and exam
3. Intellectual skills 3.1 Students improve critical thinking in analyzing the problems 3.2 Students are trained in research skills 3.3 Students demonstrate abilities to analyze and propose policy recommendations using economic concepts and tools	Group project's short paper
4. Interpersonal skills & responsibility 4.1 Students are responsible for the assigned tasks 4.2 Students work effectively as a team, demonstrating leadership and teamwork 4.3 Students respects other opinions and provide constructive comments	Assignment and group presentation
5. Numeral analytic, communication, and information technology skills 5.1 Students can apply mathematical methods in solving the problems in the fields 5.2 Students communicate effectively and select appropriate presentation approach to deliver discussion points and ideas to solve the problems 5.3 Students use information and communication technologies appropriately to analyze the problems and propose policy recommendations.	Exam and group presentation

The Course Policy on Generative AI :

The use of Generative AI in this course should be as a **co-pilot**, meaning it serves only as an assistant. Students must act as the **pilot** or the primary driver of the learning process and take full responsibility for producing outputs in group activities and related reports. To use Generative AI as a co-pilot, imagine it as another person assisting in the process, but not

someone who “does the work” in a way that deprives students of the intended learning experience.

Prohibited Uses of Generative AI:

- Writing reports or assignments that contribute to graded assessments.
- Reading primary texts required for the course.
- Generating references or citations (as Generative AI often produces non-existent references).

Permitted Uses of Generative AI:

- **Brainstorming ideas:** Students are encouraged to gather ideas from multiple Generative AI sources and/or iterations to aid decision-making, using classroom knowledge as a tool to evaluate AI-generated suggestions.
- **Summarizing key information** from sources used in reports (students must double-check the accuracy of the summaries).
- **Checking for errors** and verifying the correctness of written content.
- **Creating visual aids** (please specify that the visuals were generated by AI).

Course Schedule and Topics:

Week	Topics	Remarks
Week 1 Jan 22	- Relationship between Human and Environment - The Economic Approach to Natural Resource Management - Static Efficiency - Scarcity Rent	T*-Ch.2; HO*-Ch.1; TD*-Ch. 1-4
Week 2 Jan 29	- Market failures - Government Failure - Problem of Public Goods - Common-pool resource management, and community-based natural resource management.	T*-Ch.3, 5; TD*-Ch.6 O*-Ch.1
Week 3 Feb 5	- Dynamic Efficiency and Sustainable Development - Depletable resources allocation	T*-Ch. 3-4, 6; TD*-Ch.6, 7
Week 4 Feb 12 (Online)	- Energy use, global warming, and air pollution: Current Situation	Group Presentation
	Energy use, global warming, and air pollution: Application of economic theories to the resource problems	T*-Ch.7; TD*-Ch.11
Week 5 Feb 19	Energy use, global warming, and air pollution: Specific theories for Energy Resources	T*-Ch.7; TD*-Ch.11
	Energy use, global warming, and air pollution: Article Review Presentations	Group Presentation

Week	Topics	Remarks
Week 6 Feb 26 (Online)	Recyclable Resources and waste management: Current Situation	Group Presentation
	Recyclable Resources and waste management: Application of economic theories to the resource problems	T*-Ch.8; TD*-Ch.12 Additional readings
Week 7 Mar 5	Recyclable Resources and waste management: Specific theories for recyclable resources	T*-Ch.8; TD*-Ch.12 Additional readings
	Recyclable Resources and waste management: Article Review Presentations	#Quiz 2 Group Presentation
Week 8 Mar 12	Midterm Week Wednesday, March 12, 2025, 12.00-14.00 hrs.	
Week 9 Mar 19	Water Resource: Current Situation	Group Presentation
	Water Resource: Application of economic theories to the problems	T*-Ch.9; TD*-Ch.9 Additional readings
Week 10 Mar 26	Water Resource: Specific Theories for Water Resources Water Allocation Board Game	T*-Ch.9; TD*-Ch.9 Additional readings
	Water Resource: Article Review Presentations	Group Presentation
Week 11 April 2	Land: Current Situation	Group Presentation
	Land: Application of economic theories to the problems (April 6 is a public holiday. Make-up class is to be announced.)	T*-Ch.10; HO*-Ch.3 Additional readings
Week 12 Apr 9	Land Use, Agricultural Policies, and the Environment	T*-Ch.10; HO*-Ch.3 Additional readings
	Land: Article Review Presentations	Quiz 3 Group Presentation
Week 13 Apr 16	Songkran Week Apr 12-18, 2021	
Week 14 Apr 23	Forest and Biodiversity Conservation: Current Situation	Group Presentation
	Forest and Biodiversity Conservation: Application of economic theories to the problems	T*-Ch.12; TD*-Ch. 10 Additional readings
Week 15 Apr 30	Forest and Biodiversity Conservation: Specific Theories for Forest Resources	T*-Ch.12; TD*-Ch. 10 Additional readings
	Forest and Biodiversity Conservation: Article Review Presentations	Group Presentation
Week 16 May 7	Fishery resources: Current Situation	Group Presentation
	Fishery resource: Application of economic theories to the problems	T*-Ch.13 Additional reading

Week	Topics	Remarks
Week 17 May 14	Fishery resource: Specific theories for forest resources	T*-Ch.13 Additional reading
	Fishery resource: Article Review Presentations	Quiz 4 Group Presentation
	Final Examination Saturday, May 24, 2025, 09.00 – 12.00 hrs.	