

# SYLLABUS

**Course Title:** Introduction to Environmental Economics (IKT3620)

**Academic Year / Semester:** 2020 Spring

**Instructor:** Asst. Prof. Tunç Durmaz

**Office:** G2-101 **Office hours:** To be announced

**Lecture Time / Room:** Fri @ 9am / 107

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**URL:**

## Objective

Economics is a key instrument that can help us to understand and solve many environmental problems that we face today. Although it is true that economics is often associated with financial and commercial issues, it significantly goes beyond them. We can use economics to protect the environment, rather than harm it. Thus, in this class, we set out the key insights that economics has to offer when finding a balance between economic gains and environmental losses. We take a range of environmental problems and show how these insights can help address them using various economic instruments (and mathematical tools). Environmental policies which disregard consumers' and firms' economic behaviors/incentives will not be successful in achieving their goals. In other words, economic and environmental systems are interlinked and if we do not consider economic insights, we will not be able to produce cost-effective outcomes for either system. On the other hand, economic policies that ignore environmental resources will not be in the best interest of the society, particularly, in the long run. Therefore, there is a tradeoff between the economic gains today and environmental losses (accompanied by economics losses) in the long run.

## Schedule (tentative)

- Week 1. Basic tools from calculus and mathematics & A look at regression analysis
- Week 2. Introduction: The economy and environment
- Week 3. Markets and the Environment (I)
  - Market failure; externalities; the inefficiency of competition with externalities; cost-benefit analysis of pollution
- Week 4. Markets and the Environment (II) & Allocating Property Rights To Reduce Externalities – a Coasian approach
  - Public goods; open-access common property; tragedy of commons; Coase Theorem
- Week 5. Regulating Externalities (addressing market failures associated with the environment)
  - Marginal abatement cost curve; emissions standard; emissions fee (Pigovian tax); emissions fees vs. standards under uncertainty; monopoly vs. competitive welfare with externalities [Perloff (2017) Ch.17]
- Week 6. Markets And Welfare
  - Efficiency; Equity; Pareto criterion; Pareto optimality; Pareto improvement; efficiency and competitive markets; efficiency in exchange
- Week 7. Environmental valuation
  - Direct and indirect benefits from environment; willingness-to-pay (accept)
- Week 8. Renewable and nonrenewable (exhaustible) resources
- Week 9. Midterm I
- Week 10. Economic Growth, the Environment, and Sustainable Development
  - Growth vs. Development; environmental Kuznets curve; economics of sustainable development; different forms of capital; Hartwick's rule; Adjusted net savings
- Week 11. Strategic Interaction and the Environment & International Environmental Problems

- Game theory analysis; cooperative and non-cooperative solutions; chicken game; stag hunt
- Week 12. Midterm II
- Week 13. The Economics of Carbon Capture and Sequestration (CCS)
- What is CCS?; methods for capturing CO<sub>2</sub>; why CCS is important?; economic drivers of CCS
- Week 14. The Economics of Climate Change
- Climate change; why is addressing climate change so difficult?; the role of economics in guiding and fostering radical and rapid change; decoupling economic growth and GHG emissions is possible; Sustainable infrastructure

### Course Material

- Lecture notes & slides
- Hanley, Nick, Jason Shogren, and Ben White. Introduction to Environmental Economics (3<sup>rd</sup> Edition). Oxford University Press, 2019.
- Perloff, J., M.. Microeconomics: Theory and Applications with Calculus (4<sup>th</sup> Edition), Pearson, 2017
- Kolstad, Charles D. Environmental Economics (2<sup>nd</sup> edition). Oxford University Pres, 2010.

### Grading

Attendance is not obligatory. The grading consists of two mid-terms (~30% each) and a final exam (~40%). There will be no make-ups for quizzes under any circumstances.

### Important

Please, refrain from bringing up your personal misfortunes and problems regarding your planned graduation under any circumstances. For example, that *you started working, you need to pass this course in order to graduate, your GPA is below 2.00, or any family problems etc.* must not be addressed to me. Therefore, do not expect any response to your emails in this regard.

Lastly, in case you need to use your phone, please use it outside the class, not inside!.. You are welcome to come back to the class when you are done. Though, do not overdo this please.