

OSTIM TECHNICAL UNIVERSITY FACULTY OF ECONOMICS AND ADMINISTRATIVE SCIENCES ECONOMICS DEPARTMENT COURSE SYLLABUS FORM 2022-2023 SPRING

| ECON 435 Energy, Environment Sustainable Development | | | | | | | | | | |
|--|----------|-------|---|---|---|---|---|--|--|--|
| Course Name Course Code Period Hours Application Laboratory Credit | | | | | | | | | | |
| Energy, Environment Sustainable Development | ECON 435 | 5,6,7 | 3 | 0 | 0 | 3 | 5 | | | |

| Language of Instruction | English |
|--|---|
| Course Status | Elective |
| Course Level | Bachelor |
| Learning and Teaching Techniques of the Course | Lecture, Research Topics, Question- Answer |
| Class Time/Classroom | |
| Instructor | Dr. Busra Agan |
| Office | |
| E-mail | |
| Office Hours | |
| Teaching Assistants | |

Course Objective

This course aims to ensure that the students learn environmental and natural resource economics and reflects an updated perspective on modern environmental topics. To concepts of energy and economic development, pollution, climate change, renewable energy, global environmental trends, green economy, and sustainable developments required are discussed in this course with theoretical emphasis and examples of current states.

Learning Outcomes

The students who become successful in this course will be able;

- 1. to examine energy and environmental issues from an economic perspective
- 2. to apply economic reasoning and methods effectively to study fundamental concepts in energy economics and environmental issues
- 3. to use economic theories and provide insight into the relationship between the economy and energy and also the environment.
- 4. to identify major current energy and environmental problems and their economic components.
- 5. to identify major current policies to remedy energy and environmental problems.
- 6. to describe climate policies proposed and implemented at local, national, and global levels.
- 7. to evaluate the impact of environmental policies on individual and social welfare.



Course Outline

This course covers both conceptual perspectives and draws on both to help clarify the major issues of population, food supply, energy use, natural resource management, pollution, and climate change. The combination of these concepts can help to discuss policies that can address specific energy and environmental problems as well as promote a broader vision of environmentally sustainable development.

| | Weekly Topics and Related Preparation Studies | | | | | | | | | | |
|-------|--|---|--|--|--|--|--|--|--|--|--|
| Weeks | Topics | Preparation Studies | | | | | | | | | |
| 1 | Introduction to the Economy and the Environment (Jonathan M. and Roach, Brian: Chapter: 1) | An Overview of Environmental Issues Economic Approaches to the Environment Principles of Ecological Economics The definition of the Sustainability Differences between Environmental and Ecological Economics | | | | | | | | | |
| 2 | Resources, Environment, and Economic Development (Jonathan M. and Roach, Brian: Chapter: 2, Tietenberg T. and Lewis L.: Chapter: 2) | An Overview of Economic Growth Economic Growth in Recent Decades Environmental Trends in Recent Decades Sustainable Development | | | | | | | | | |
| 3 | Pollution: Analysis and Policy (Jonathan M. and Roach, B.: Chapter: 8, Tietenberg T. and Lewis L.: Chapter: 14) | The Economics of Pollution Control Policies for Pollution Control The Scale of Pollution Impacts | | | | | | | | | |
| 4-5 | Energy: The Great Transition (Jonathan M. and Roach, B.: Chapter: 11, Tietenberg T. and Lewis L.: Chapter: 7) | Energy and Economic Systems Evaluation of Energy Sources Energy Trends and Projection Energy Supplies: Fossil Fuels Renewable Energy Sources The Economics of Alternative Energy Futures Policies for the Great Energy Transition | | | | | | | | | |
| 6-7 | Comprehensive Analysis of Energy Sustainability (Jaan S. Islam, M. R. Islam, Meltem Islam, M. A. H. Mughal: Chapter: 5) | Sustainability in the Information Age and Environmental Insult The Energy Crisis Are Natural Resources Finite and Human Needs Infinite? The Peak Oil Theory and its Connections to Population and Lifestyle | | | | | | | | | |



| | | Evidence in Favor of the Peak Oil | | | | | |
|-------|--|---|--|--|--|--|--|
| | | Theory | | | | | |
| | | Historical Background: Foundations of Peak Oil Theory | | | | | |
| | | | | | | | |
| | Role of Government in Assuring Energy | – The U.S. Government | | | | | |
| 8 | Sustainability | The Wealth Paradigm | | | | | |
| | (Jaan S. Islam, M. R. Islam, Meltem Islam, M. A. | Zero Interest Zero-Waste Economics | | | | | |
| | H. Mughal: Chapter: 9) | | | | | | |
| 9 | MIDTERM | EXAM | | | | | |
| | | Adaptation and Mitigation | | | | | |
| | Global Climate Change: Policy Responses | Climate Change Mitigation: Economic Policy Options | | | | | |
| 10 | (Jonathan M. and Roach, B.: Chapter: 13, | - Climate Change: The Technical | | | | | |
| | Tietenberg T. and Lewis L.: Chapter: 17) | Challenge Climate Change Policy in Practice | | | | | |
| | | | | | | | |
| | | The Green Economy: Introduction | | | | | |
| | Greening the Economy | Economy and the Environment | | | | | |
| 11 | (Jonathan M. and Roach, B.: Chapter: 14) | Industrial Ecology | | | | | |
| | | Does Protecting the Environment Harm the Economy? | | | | | |
| | | Creating a Green Economy | | | | | |
| | World Trade and the Environment | Environmental Impacts of Trade | | | | | |
| 12 | | Trade and Environment: Policy and Practice | | | | | |
| | (Jonathan M. and Roach, B.: Chapter: 21) | Strategies for Sustainable Trade | | | | | |
| | | The Concept of Sustainable | | | | | |
| | Institutions and Policies for Sustainable | Development The Economics of Sustainable | | | | | |
| | Development | Development | | | | | |
| 13-14 | (Jonathan M. and Roach, B.: Chanter: 22) | Reforming Global Institutions New Goals and New Production | | | | | |
| | | Methods | | | | | |
| | | Conclusion: Policies for Sustainable Development | | | | | |
| | | | | | | | |
| 15 | Review Lecture | — | | | | | |
| 16 | FINAL E | XAM | | | | | |
| | | | | | | | |

Textbook(s)/References/Materials:Textbook: Harris, Jonathan M. and Roach, B. Environmental and Natural Resource Economics: A
Contemporary Approach. 4th edition. Routledge, 2018.



Jaan S. Islam, M. R. Islam, Meltem Islam, M. A. H. Mughal. Economics of Sustainable Energy. John Wiley & Sons, 2018.

Supplementary References: Tietenberg T. and Lewis L. Environmental & natural resource economics. 11th edition. Pearson, 2018.

Other Materials: Laurent, É. The New Environmental Economics: Sustainability and Justice, Polity Press, 2020.

Nersesian, R.L. Energy Economics: Markets, History and Policy, Routledge, 2016.

| Assessment | | | | | | | | | |
|---|--------|-------------------------|--|--|--|--|--|--|--|
| Studies | Number | Contribution margin (%) | | | | | | | |
| Attendance | | | | | | | | | |
| Lab | | | | | | | | | |
| Class participation and performance | 1 | 10 | | | | | | | |
| Field Study | | | | | | | | | |
| Course-Specific Internship (if any) | | | | | | | | | |
| Quizzes / Studio / Critical | | | | | | | | | |
| Homework | 1 | 15 | | | | | | | |
| Presentation | | | | | | | | | |
| Projects | | | | | | | | | |
| Report | | | | | | | | | |
| Seminar | | | | | | | | | |
| Midterm Exam/Midterm Jury | 1 | 25 | | | | | | | |
| General Exam / Final Jury | 1 | 50 | | | | | | | |
| Total | | 100 | | | | | | | |
| Success Grade Contribution of Semester Studies | | 50 | | | | | | | |
| Success Grade Contribution of End of Term | | 50 | | | | | | | |
| Total | | 100 | | | | | | | |

| ECTS / Workload Table | | | | | | | | |
|--|--------|---------------------|-------------------|--|--|--|--|--|
| Activities | Number | Duration (Hours) | Total Workload | | | | | |
| Course hours (Including the exam week): 16 x total course hours) | 16 | 3 | 48 | | | | | |
| Laboratory | | | | | | | | |
| Application | | | | | | | | |
| Course-Specific Internship (if any) | | | | | | | | |
| Field Study | | | | | | | | |
| Study Time Out of Class | 16 | 3 | 48 | | | | | |
| Presentation / Seminar Preparation | | | | | | | | |
| Projects | | | | | | | | |
| Reports | | | | | | | | |
| Homework | 2 | 8 | 16 | | | | | |
| Quizzes / Studio Review | | | | | | | | |
| Preparation Time for Midterm Exams / Midterm Jury | 1 | 25 | 25 | | | | | |
| Preparation Period for the Final Exam / General Jury | 1 | 25 | 25 | | | | | |
| Total Workload | (162/3 | 30 = 5.4) | 162 | | | | | |



| | Course' Contribution Level to Learning Outcomes | | | | | | | | | |
|-----|---|---|---|---|-----------------------|---|--|--|--|--|
| Nu | Learning Outcomes | | | | Contribution Level | | | | | |
| | | 1 | 2 | 3 | 4 | 5 | | | | |
| L01 | to examine energy and environmental issues from an economic perspective. | | | | | Х | | | | |
| L02 | to apply economic reasoning and methods effectively to study fundamental concepts in energy economics and environmental issues. | | | | | Х | | | | |
| L03 | to use economic theories and provide insight into the relationship between the economy and energy and also the environment. | | | | | Х | | | | |
| L04 | to identify major current energy and environmental problems and their economic components. | | | | | Х | | | | |
| L05 | to identify major current policies to remedy energy and environmental problems. | | | | | Х | | | | |
| L06 | to describe climate policies proposed and implemented at local, national, and global levels. | | | | | Х | | | | |
| L07 | to evaluate the impact of environmental policies on individual and social welfare. | | | | | Х | | | | |

| | Relationship Between Course Learning Outcomes and Program Competencies | | | | | | | | | |
|----|---|-----|-----|---------|-------|------|-----|-----|-----------------|--|
| | (Department of Economics) | | | | | | | | | |
| Nu | Program Competencies | | l | Learnii | ng Ou | tcom | es | | Total | |
| Nu | Program competencies | L01 | LO2 | LO3 | L04 | L05 | L06 | L07 | Effect (1-5) | |
| 1 | Know the basic concepts used in economics, the relations between concepts, economic theories, the functioning mechanisms of the economy and the development processes of economies over time. | x | x | | | | | | 4 | |
| 2 | Know how to obtain economic data and the research methods for processing and evaluating the obtained data by using various computer programs when necessary. | | | | | | | | | |
| 3 | Follow current developments in national and international macroeconomic conjuncture and world economic relations and can suggest economic policies to be used in case of economic problems. | | | | | x | | x | 4 | |
| 4 | Acquire the capacity to conduct individual research on the field, interpret the results, and compare them with theoretical propositions. | | | x | | | | | 4 | |
| 5 | Scrutinize and interpret all kinds of knowledge in the field of economics, including theoretical and statistical information, through analysis within the framework of cause-effect | | | | | | | | | |



| | relationships. | | | | | | | | |
|--------------|--|--|--|--|---|--|----|--|----|
| 6 | Present solutions and opinions about the problems analyzed by supporting them with qualitative and quantitative data, use an analytical language, and support the used approach with visual and graphical materials. | | | | | | | | |
| 7 | Gain advanced skills in software and programming languages that assist analysis in the econometric field and can adapt to new software and programming languages | | | | | | | | |
| 8 | Support the acquired theoretical knowledge of economics with econometric and statistical calculations, analyze and evaluate phenomenon using software and programming languages within the framework of analytical thinking. | | | | | | | | |
| 9 | Develop the ability to analyze unexpected and complex problems to be encountered during professional practice, can take responsibility as an individual or team member for solving the problem, and take initiative when necessary. | | | | | | | | |
| 10 | Develop critical thinking and produce solutions on policy issues by adapting the theoretical and analytical knowledge to different conceptual frameworks. | | | | x | | | | 4 |
| 11 | Exhibit approaches that will adapt to the speed of globalization, innovations and technological developments. | | | | | | x | | 4 |
| 12 | Having an entrepreneurial spirit, develop original and innovative ideas, solution proposals and assume responsibility. | | | | | | | | |
| 13 | Pay maximum attention to social responsibilities, ethical sensitivities and legal framework in theoretical and practical studies. | | | | | | | | |
| 14 | Communicate with peers, colleagues, co-workers, employees and managers with common sense, empathy and situational awareness. | | | | | | | | |
| 15 | Communicate effectively with colleagues, senior managers and the market, both in mother tongue and in at least one foreign language (English). | | | | | | | | 20 |
| Total Effect | | | | | | | 20 | | |



Policies and Procedures

Web page:

Exams: The exams aim at assessing various dimensions of learning: knowledge of concepts and approaches and the ability to apply this knowledge to real world phenomenon, through analyzing the situation, distinguishing problems and by suggesting solutions.

The written exams can be of two types, ie. open-ended questions, which can also be in the form of problems or multiple-choice questions.

Exams are composed of a final exam comprising 50% of the student's grade and a mid-term exam, with less weight. The rest of the grade comes from other assessment methods, shown in the assessment table included in this syllabus.

The Department of Economics does not tolerate any act of academic dishonesty. Examinations are individual and must be completed without any outside assistance. Students who attempt to cheat during exams will receive a failing grade from that exam. The case could also be carried to the Dean's Office for additional disciplinary action.

Assignments: The assignments could be in the form of homeworks or paper writing. Scientific Research Ethic Rules are very important while preparing assignments. The students should be careful about citing any material used from outside sources and reference them appropriately. The students must not adopt "cut-copy-paste" behavior from the sources in the internet or use the contents of any type of previous work in their assignments. Plagiarism is unethical behavior and is subject to disciplinary action.

Missed exams: Any student missing an exam needs to bring an official medical report to be able to take a make-up exam.

Projects: The projects (if are a part of the course requirements) could be performed either individually or in groups, without engaging in plagiarism.

Attendance: Attendance requirements are announced at the beginning of the term. Students are usually expected to attend at least 70% of the classes during each term.

Objections: If the student observes a material error in his/her grade, he/she has the right to place an objection to the Faculty or the Department. The claim is examined and the student is notified about its outcome.