MIDDLE EAST TECHNICAL UNIVERSITY SPRING 2025
DEPARTMENT OF BUSINESS ADMINISTRATION

BA4150/5150 – CLIMATE ISSUES IN BUSINESS
WEDNESDAY 12.40 – 16.15

Instructor:	Dr. Cankut Kaan Bolat
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Office Hours:	By appointment
Course Web Page	Link to ODTUClass Course Page

Course Description:

This course, designed for business school students, introduces the foundational elements of climate science, economics, and technology. The objective is to foster an interdisciplinary and informed understanding of the connections between the economy and the climate crisis, focusing on business implications and strategies. Students will learn to assess the strategic implications of climate change for businesses, including risk management, opportunity identification, and long-term planning.

Course Student Learning Objectives: (CSLOs)

Upon successful completion of this course, students should be able to:

Course Specific Skills:

1. Comprehend the interrelationships between climate, technology, energy, and economics.
2. Develop a basic literacy in climate policy and understand the historical development of environmental policies
3. Analyze interdisciplinary perspectives on climate issues and their impact on current business practices.
4. Understand and develop business strategies that respond to climate-related challenges and opportunities.
5. Integrate sustainability into core business strategies and operations.

Discipline Specific Skills:

6. Become familiar with a general knowledge of sustainable development and current developments within each of the research topics covered this semester.

Personal and Key Skills:

7. Actively engage in interactive discussions during lectures.
8. Enhance communication skills, including discussion, negotiation, argumentation, and presentation.
9. Develop critical reading and writing skills.
10. Apply theoretical knowledge to real-world business scenarios and case studies.

Learning and Teaching Methods:

The course will utilize a combination of formal lectures, in-class active discussions, case studies, teamwork, and presentation sessions. As much of this class will be in-class discussion driven, significant reading will be required.

Required Reading:

Textbook: The course will not follow a specific coursebook, it will rather use different reference books as resource materials for different topics.

Reference Books:

- Filho, W.L., & Surroop, D. (2018). The Nexus: Energy, Environment and Climate Change, first edition. Springer International Publishing.
- Tietenberg, T., & Lewis, L. (2018). Environmental and Natural Resource Economics, 11th edition.

Routledge. https://doi.org/10.4324/9781315208343

- Blanco, J., & Kheradmand, H. (2011). Climate Change: Research and Technology for Adaptation and Mitigation, first edition. Intech Open.

Reading Material:

The main reading list is given below:

1. Gasparini, Matteo, and Peter Tufano. "The evolving academic field of climate finance." https://ssrn.com/abstract=4354507
2. Heal, Geoffrey. "The Economics of the Climate." *Journal of Economic Literature* 55, no. 3 (2017): 1046-1063. https://doi.org/10.1257/jel.20151335
3. Becker, G. S., Murphy, K. M., & Topel, R. H. (2011). On the economics of climate policy. *The BE Journal of Economic Analysis & Policy*, *10*(2). https://doi.org/10.2202/1935-1682.2854
4. Common, M., & Stagl, S. (2005). *Ecological economics: an introduction*. Cambridge University Press.
5. Pindyck, Robert S. "The Social Cost of Carbon Revisited." *Journal of Environmental Economics and Management* 94 (2019): 140–160. https://doi.org/10.1016/j.jeem.2019.02.003
6. Hardin, Garrett. "The Tragedy of the Commons." *Science* 162, no. 3859 (1968): 1243-1248. https://www.jstor.org/stable/1724745
7. Pástor, Ľuboš, Robert F. Stambaugh, and Lucian A. Taylor. "Sustainable investing in equilibrium." *Journal of Financial Economics* 142, no. 2 (2021): 550-571. https://doi.org/10.1016/j.jfineco.2020.12.011
8. Inkpen, A. C., & Moffett, M. H. (2011). The global oil & gas industry: management, strategy & finance. Tulsa, Okla.: PennWell. ISBN: 9781593702397.
9. Tollefson, Jeff. "Climate pledges from top companies crumble under scrutiny." *Nature* (2022). https://doi.org/10.1038/d41586-022-00366-2
10. Ilhan, Emir, Philipp Krueger, Zacharias Sautner, and Laura T. Starks. "Climate Risk Disclosure and Institutional Investors." *Review of Financial Studies* 36 (2022): 2617-2650. https://doi.org/10.1093/rfs/hhad002
11. Bolton, Patrick, and Marcin Kacperczyk. "Do Investors Care About Carbon Risk?" *Journal of Financial Economics* 142, no. 2 (2021): 517-549. https://doi.org/10.1016/j.jfineco.2021.05.008
12. Martinsson, Gustav and Stromberg, Per and Sajtos, Laszlo and Thomann, Christian J. "Carbon Pricing and Firm-Level CO2 Abatement: Evidence from a Quarter of a Century-Long Panel." *European Corporate Governance Institute – Finance Working Paper* No. 842/2022 (2022). https://ssrn.com/abstract=4206508
13. Allen, Franklin, Adelina Barbalau, and Federica Zeni. "Reducing Carbon using Regulatory and Financial Market Tools." Working Paper (2023). https://ssrn.com/abstract=4357160
14. Fan, Grace, and Xi Wu. "Going Green: The Governance Role of Environmental Regulations on Firm Innovation and Value." *Singapore Management University School of Accountancy Research Paper* 2023-163 (2022). https://ssrn.com/abstract=4098403
15. Lanteri, Andrea, and Adriano A. Rampini. "Financing the Adoption of Clean Technology." (2023). https://people.duke.edu/~rampini/papers/cleantechnology.pdf
16. D'Orazio, Paola, and Lilit Popoyan. "Fostering green investments and tackling climate-related financial risks: Which role for macroprudential policies?." *Ecological Economics* 160 (2019): 25-37. https://doi.org/10.1016/j.ecolecon.2019.01.029
17. Pindyck, R. S. (2022). *Climate future: Averting and adapting to climate change.* Oxford University Press.
18. World Bank. (2010). World Development Report: Development and Climate Change. Retrieved from https://documents1.worldbank.org/curated/en/201001468159913657/pdf/530770WDR02010101Official0Use0Only1.pdf
19. Hoekstra, A. Y., & Chapagain, A. K. (2007). Water footprints of nations: water use by people as a function of their consumption pattern. *Integrated assessment of water resources and global change: A north-south analysis*, 35-48.
20. FAO, IFAD, UNICEF, WFP and WHO. 2023. The State of Food Security and Nutrition in the World 2023. Urbanization, agrifood systems transformation and healthy diets across the rural–urban continuum. Rome, FAO. https://doi.org/10.4060/cc3017en

Students will be provided with more scientific articles from the related literature on climate technologies,

energy economics, and climate policy during the semester.

Assessment and Grading:

Grades are not subject to change unless there is a miscalculation. No individual request for additional study for raising a grade will be accepted. No "extra" work other than those stated below will be accepted or credited. No non-academic criteria will be considered in grading. The percentages applying to the coursework are seen in the following table.

Form of Assessment	Contribution %	Size of the assessment	CSLOs covered by the assessments	Feedback Method
Final Exam	30%	Essay type questions	1, 2, 3, 6, 9	Grade announced and oral feedback
Term Project	25%	Students will form groups of three, and each group will be assigned with a term project. The groups will prepare a scientific report suggesting a solution to a climate related technology or innovation problem with a small literature survey, applied solutions, and interpretations of the results on the topic.	1, 2, 3, 4, 5, 6, 8, 9, 10	Grade announced and oral feedback
Presentation	15%	Students will be assigned with several articles. They will be expected to briefly present the research done on the article, purpose, methodology and how the articles are related with the climate – technology – energy – economy perspective.	1, 2, 3, 4, 5, 6, 8, 9, 10	Grade announced and oral feedback
In-Class Short Essay Writing	20%	Throughout the semester, students will complete four in-class short essays. Each session will involve writing a brief essay (around 30 minutes) on a topic related to climate issues. These topics will range from defining simple terms related to climate change to interpreting them into business strategies.	1, 2, 3, 4, 5, 6, 9, 10	Grade announced and oral feedback
Discussion, Attendance, and Participation	10%	Class participation during regular lectures.	7, 8, 10	Oral feedback (in person)

Bonus Points: 2 points

Interpretation of current news on climate, technology and policy.

Course Policies:

E-mail Announcements: You are required to check all e-mail announcements sent via METUCLASS daily. It is assumed that students have read and will act upon all announcements once they are sent.

Class Format: In class lectures and discussions.

Civility: Civility is mandatory. Developing and maintaining a course environment that is conducive to learning is the responsibility of both students and instructors. Inappropriate behavior in offline

or online course settings will result in at least a request to leave the setting. Students are required to use an impersonal, professional language in discussions and avoid offensive remarks.

Class Participation: A significant portion of the class will be dedicated to discussing the assigned readings. Please note that attendance does NOT equal participation. You are encouraged to demonstrate your knowledge of the assigned material and contribute to class discussions. You may also be called on randomly. In participation, quality is more important than quantity. In-class case discussions, group discussions and hands-on activities are important learning tools used in this course.

Homework: The lowest homework grade will be dropped. There will be no make-ups for missed homework.

Final Exam: There will be one exam in this class, scheduled during the finals period. This course does not have a midterm exam. The final exam will measure students' knowledge of the conceptual material covered in the course. The exam will include true/false questions, multiple choice questions, and short essay questions. All course materials, including the textbook, lectures, and class discussions, will be included in the examination. **The tentative date for the final exam is TBD.** If students miss the exam, they will receive no credit for that part of the course. If you must miss an exam, inform the instructors via e-mail before the exam starts and request a make-up exam.

> **Make-up Exams**: All make up exams will be in an "essay" format and will be provided upon submission of a report from METU Health Care Center (or equivalent) as soon as the student recovers! Make-up exams will be scheduled within the week following the missed exam. There will be no make-up for the make-up exams.

Student Disabilities: Any student who, due to a disabling condition, may require special arrangements to meet course requirements should contact the instructors as soon as possible. Students should present the appropriate documentation from the university's Disability Support Office *(Engelsiz ODTÜ Birimi, ODTÜ Kütüphanesi, Solmaz İzdemir Salonu, Tel: 2107196; engelsiz@metu.edu.tr)* verifying their disability and outlining the necessary arrangements. Please note that no accommodations will be provided prior to the completion of this approved University process.

Academic Regulations: For detailed regulations governing undergraduate studies, please refer to: http://oidb.metu.edu.tr/en/middle-east-technical-university-rules-and-regulations-governing-undergraduate-studies

Academic Dishonesty: The Department of Business Administration has zero tolerance for acts of academic dishonesty. Such acts damage the reputation of METU, the department, and the BA/MBA/MS degree, and they undermine the honest efforts of the majority of students. **The minimum penalty for an act of academic dishonesty is a zero for that assignment or exam.**

Cheating: All university, faculty/institute, and department principles on academic honesty will be strictly enforced. **The usual consequence for academic dishonesty is failure of the course and referral of the case to the Dean of the Faculty/Institute for additional disciplinary action.** Examinations are individual and must be completed without outside assistance of any sort. Students observed cheating during examinations will receive a failing grade in the course. Homework assignments are individual unless otherwise specified by the instructors and must be completed without outside assistance of any sort. Students observed cheating on homework assignments will receive a score of zero for that portion of the semester grade.

Plagiarism: The instructor assumes that students will complete their work independently. By placing their names on assignments (individual or team), students are affirming that the contents are their original work. **While previous work from past students or materials available on the internet may be consulted as a suggestive model, they should not be copied or used without proper attribution.** Using any unauthorized material will be regarded as unethical behavior and will be subject to disciplinary action. If you are unsure about the use of a specific resource, please consult the instructors in advance. All external sources must be appropriately referenced. Although various citation styles exist, such as APA, MLA, etc., any consistent and correctly applied format is acceptable for this course. For further guidance on citation

styles, please refer to the following resource: https://owl.purdue.edu/

METU Honor Code
Every member of METU community adopts the following honor code as one of the core principles of academic life and strives to develop an academic environment where continuous adherence to this code is promoted. **"The members of the METU community are reliable, responsible and honorable people who embrace only the success and recognition they deserve, and act with integrity in their use, evaluation and presentation of facts, data and documents."**

Tentative Course Schedule

The following table outlines the tentative schedule for the semester. Lectures will emphasize the most important and/or most difficult material. Given the breadth of topics, adjustments may be necessary based on our pace. The students are required to read the chapters **before** they are covered in class.

Week	Month	Day	Topic	Reading Assignment	CSLOs
1	Feb	19	Overview of the Course and Syllabus		-
2	Feb	26	Introduction: What is Climate Change? Adaptation and Mitigation Strategies and Their Importance for Businesses	1, 2, 17, 18	2, 6, 7, 9
3	Mar	5	Role of the Energy Sector in the Global Economy: Understanding Oil and Gas Markets and Energy Security	8	1, 3, 6, 7, 9
4	Mar	12	Innovation in Energy Technology: Business Opportunities and Challenges in Adopting New Energy Technologies *Ex: Renewables, Long Duration Electrochemical Energy Storage in Power Sector*	15	1, 3, 4, 5, 10
5	Mar	19	Green Transition: Impact of Hydrogen and Hydrogen Economy	15	1, 3, 4, 5, 10
6	Mar	26	Mitigation and Offsetting in Business: How to Utilize CCUS, CDR, and NBS[1]	4, 5, 17	3, 4, 5, 6, 9
7	**Apr**	**2**	**Business Cases: Investment Strategies for Climate Technologies**	**7, 9, 10**	**6, 7, 8, 9, 10**
8	Apr	9	Environmental Economics, Natural Resource Economics, and Ecological Economics	3, 18	3, 4, 5, 6, 9
9	Apr	16	Mitigation Efforts: Sustainable and Resilient Food Systems in Relation to the Food Industry	19, 20	1, 3, 6, 7, 9
10	Apr	23	Holiday	Holiday	Holiday
11	Apr	30	Adaptation Efforts: Managing Water as a Renewable and Depletable Resource	6, 19	1, 3, 6, 7, 9
12	May	7	Impact of Carbon Pricing in Business Decisions	5, 12, 17	3, 4, 5, 6, 9
13	May	14	Climate Change, Regulation, and Policy 1	16, 18	1, 3, 4, 5, 10
14	May	**21**	Climate Change, Regulation, and Policy 2	13, 14	3, 4, 5, 6, 9

[1] **CCUS:** Carbon Capture, Utilization, and Storage
CDR: Carbondioxide Removal
NBS: Nature Based Solutions

15	May	28	Business Cases: Regulation Formulation and Implementation in Response to Climate Change	11	6, 7, 8, 9, 10
-			Final Exam	All	All