B8705 BUSINESS AND CLIMATE CHANGE

Spring 2023 (1.5 Credits)

Parinitha Sastry
Kravis (TBD)
E-mail: p.sastry@columbia.edu
Office Hours: TBD, Kravis 766

Communications from professor and teaching assistants about the course will take place through Canvas. Students should make sure they regularly check for announcements and messaging notifications.

COURSE DESCRIPTION

Climate science informs us that global emissions of greenhouse gas emissions must be rapidly and dramatically reduced if humanity is to avoid catastrophic climate change. After three centuries of rising emissions, the entire global economy must now decarbonize in the coming three decades. Fortunately, most of the technologies and investment capital necessary to reduce and eventually eliminate emissions exist or are in development, but the urgency to implement those solutions is critical.

This course provides an overview of climate change, its effects on business, and how businesses can (and should) respond. The course covers emissions sources and their impact on climate change, followed by an exploration of the policy landscape, including current legislation, carbon markets, and climate justice. The course then evaluates current and evolving mitigation technologies, reviews the tools of climate finance, and considers strategies for reducing emissions to net zero. Finally, the course introduces the role of businesses in addressing climate change, including net-zero goals, actions they can take to mitigate their impact, and the perspectives of shareholders.

Throughout the course, the business case for climate action is emphasized, highlighting the economic benefits of taking action to address climate change.

NOTE: Business and Climate Change is a pre-requisite course for several other elective courses, including Climate Finance (B8363), Climate Policy (B8212), and Climate Tech (B8320).

PRE & COREQUISITE COURSES

Core courses in Managerial Economics and Corporate Finance.
STUDENT LEARNING OUTCOMES

This course is designed for MBA students interested in the intersection of business and climate change. It is an introductory course, covering topics at a high level, and applicable to a wide range of career interests. Students interested in a deeper dive on the topics covered in this course are recommended to enroll subsequently in one or more of the elective climate change courses. The specific course objectives for Business and Climate Change are for students to:

- Understand the basic science of climate change, causes and consequences, and mitigation pathways.
- Consider the role that policy plays in addressing climate change.
- Analyze current and emerging technologies for addressing climate change.
- Evaluate investor strategies for financing climate change technologies.
- Understand the business case for the transition to net-zero emissions.

CONNECTION TO THE CORE

Climate change will affect every industry and every business, so this course, unsurprisingly, connects to every core course. Specifically, the sessions on Climate Risk and Climate Policy connect to the Managerial Economics and Global Economic Environment courses. Sessions two and three on Climate Tech connect to core courses in Business Analytics, Operations Management and Strategy Formulation. Session five on Climate Finance connects to the Foundations of Valuation and Corporate Finance courses. The final session – The Business Transition – connects to topics in the Financial Accounting, Marketing, Strategy Formulation, and LEAD courses.

COURSE SCHEDULE

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic(s)</th>
<th>Required Pre-Readings</th>
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<tbody>
<tr>
<td>1</td>
<td>Climate Risk</td>
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<tr>
<td></td>
<td>• Climate Science</td>
<td>o Investing in the Era of Climate Change (Ch. 1-3, 10)</td>
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<td></td>
<td>• Climate Impacts</td>
<td>o The Cost to Achieve Net-Zero (Caseworks 220310)</td>
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<td></td>
<td>• Emissions Sources</td>
<td>o Climate Economics Unpacked: It's late, and it's cheap</td>
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<td></td>
<td>• Mitigation and Adaptation</td>
<td></td>
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<td></td>
<td>Frameworks</td>
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<tr>
<td>2</td>
<td>Climate Policy</td>
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<td></td>
<td>• Carbon Prices &amp; Markets</td>
<td>o Nordhaus, “Why the global warming skeptics are wrong”</td>
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<td></td>
<td>• Prices vs Subsidies</td>
<td>o The True Price of Carbon</td>
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<td></td>
<td>• Climate Justice</td>
<td>o Recalculate the Social Cost of Carbon</td>
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<tr>
<td></td>
<td>• Policy Landscape</td>
<td>o What are Carbon Markets and Why are They Important?</td>
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</tbody>
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| 3 | Climate Tech  | McKinsey, “The Inflation Reduction Act: Here’s what’s in it”  
|   |   | “Brian Deese, John Podesta and Jake Sullivan on the Inflation Reduction Act” Economist By Invitation  
|   | Wind Power  | Investing in the Era of Climate Change (Ch. 4-6)  
|   | Solar Power  | Orsted’s Offshore Wind Farms (Caseworks 210304)  
|   | Energy Storage  | ELP Greenport Solar, pages 1-9 (Caseworks 210305)  
|   | Electric Vehicles  | Architects of the Future? Tesla, Inc. (Caseworks 170306)  
| 4 | Emerging Climate Tech  | Investing in the Era of Climate Change (Ch. 7-8)  
|   | Nuclear  | Is Nuclear Power Part of the Climate Solution?  
|   | Green Hydrogen  | Why we need green hydrogen  
|   | Cement/Steel  | Get tax credits right to make clean hydrogen a boon not a boondoggle  
|   | Carbon Removal  | Decarbonizing voestalpine High-Performance Metals (Caseworks tbd)  
| 5 | Climate Finance  | Investing in the Era of Climate Change (Ch. 11-15)  
|   | Equity Investments  | Green Bond Research Note (Caseworks 220304)  
|   | Fixed Income  | ELP Greenport Solar, pages 9-13 + model (Caseworks 210305)  
|   | Project Finance  | The Big Emerging Question (Blackrock)  
|   | Blended Finance  |  
| 6 | The Business Transition  | Investing in the Era of Climate Change (Ch. 23-26)  
|   | Net Zero Pledges  | Risks and Opportunities from the Transition to a Low Carbon Economy (HBS 9-123-014)  
|   | Scopes and Supply Chains  | Oil and Gas “Super Majors” and the Transition to Net Zero (Caseworks 230302)  
|   | Shareholder Perspectives  | Patagonia’s Path to Carbon Neutrality by 2025 (B5916)  
|   | Business Case for Action  | How individual actions can combat climate change  
|   | Your role and responsibility  |  

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METHOD OF EVALUATION

The focus of the classes is on understanding concepts, and the challenges and opportunities of applying those concepts in real-world settings. The chosen readings and cases analyze climate change mitigation and adaptation by businesses, and the strategies used by business leaders to manage the resulting opportunities and challenges. This course requires active class participation, and students’ grades will be heavily dependent on the quality of class discussion. Students are expected to challenge one another, guests, and the professor.

Students’ grades in the course are based on the following metrics:

<table>
<thead>
<tr>
<th>Metric</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Class participation (C - individual)</td>
<td>40%</td>
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<tr>
<td>Climate Tech Assignment (C - individual)</td>
<td>10%</td>
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<tr>
<td>Business Transition Assignment (A – group/group)</td>
<td>10%</td>
</tr>
<tr>
<td>Final exam (C - individual)</td>
<td>40%</td>
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CLASSROOM NORMS AND EXPECTATIONS

Core Culture

Students are expected to adhere to CBS Core Culture in this class by being Present, Prepared, Participating. Students are required to prepare for each class by reading and analyzing the assigned cases and other materials and utilizing any study guidance questions provided via Canvas. In class, students are expected to add thoughtful points to each class discussion.

Honor Code and Academic Integrity

The Columbia Business School Honor Code calls on all members of the School community to adhere to and uphold the notions of truth, integrity, and respect both during their time in school, and throughout their careers as productive, moral, and caring participants in their companies and communities around the world. All students are subject to the Honor Code for all of their academic work. Failure to comply with the Honor Code may result in Dean’s Discipline. Here you can review examples of Academic Misconduct which may result in discipline.

Course Attendance Policies

Students from all programs should review and be familiar with the MBA Core attendance policy here. Students are required to attend each class – class attendance and participation will be recorded. Students should reach out to the professors and the TA regarding excused absences (for religious observances; personal, medical, and family emergencies; military service; court appearances such as jury duty). Unexcused absences will affect your class participation grade and your overall course grade, as follows:

- Students that miss more than 33% of their classes (unexcused absences) will at most receive a P for the course grade.
Students that miss more than 50% of their classes (unexcused absences) will receive an F for the course grade.

This course may use PollEverywhere as a tool to increase in-class student engagement. PollEverywhere may also be used to confirm student attendance and participation records. Students who have concerns regarding whether their responses have been recorded should contact the instructor. If a student is not present in the classroom at the time of a poll (due to absences or any other reasons), the poll should not be answered. Responding to a poll when not present in the classroom is a violation of the Honor Code.

Inclusion, Accommodation, and Support for Students

At Columbia Business School we believe diversity strengthens any community or business model and brings it greater success. The School is committed to providing all students with equal opportunity to thrive in the classroom by providing a learning, living, and working environment free from discrimination, harassment, and bias on the basis of gender, sexual orientation, race, ethnicity, socioeconomic status, or ability.

Students with documented disabilities may receive reasonable accommodations. Students are encouraged to contact the Columbia University’s Office of Disability Services for information about registration.

Columbia Business School adheres to all community, state, and federal regulations as relate to Title IX and student safety. Read more about CBS’ policies to support Inclusion, Accommodations and Support for Students here.