

CLIMATE AND FINANCIAL MARKETS

ACCT/BEPP 2640/7640

Fall Semester 2026, M/W 12:00-1:30pm and 1:45-3:15pm, location to be announced

Note: This syllabus may be updated throughout the semester as policy developments occur. Please check Canvas for the latest version before you do the readings for the next lecture.

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Course overview. Climate change might be the defining challenge of our times, with a wide range of effects on financial markets and the broader economy. We examine how climate risks—both physical and regulatory—affect firms, traditional financial markets (including equity, debt, insurance, and real-estate markets), and markets for carbon, energy, and data centers. We also examine the role of firms' disclosures and third-party information sources, such as carbon disclosures, reporting and rating agencies, and the impact of greenwashing. Investors in financial markets shape the transition to a net-zero economy directly through their influence on

corporations and indirectly through their portfolio-allocation choices. Moreover, climate risks shape decisions inside organizations, such as spin-offs, hedging, and the structure of executive-compensation contracts. Finally, we study how governments and private investors finance investments in climate technologies. We discuss various financial instruments that have been developed to spur growth in clean tech investment. Given the enormous importance of electrification as a pathway towards a low-carbon future, there is special emphasis on renewable energy finance and economics, including its role in meeting the surge in power demand from AI and vehicle electrification.

Readings. The research in this field is rapidly advancing, as are policy and financial-market developments. Rather than one comprehensive textbook, we rely on a mix of academic papers, newspaper articles, and reports by industry groups, policy makers and regulators. Starred (*) readings are required. Non-starred readings are optional but we will often discuss them in class, and you are highly encouraged to read them if you want further background on a topic.

Attendance. Attendance is mandatory. Please email the instructors if you have a good reason not to attend a particular session. We will use the attendance app aPlus+ but not formally link it to your participation grade; instead, we will have our TAs reach out if you repeatedly miss classes.

Guest lectures. The course has six guest lectures/panels/simulations by external experts. Attendance is mandatory and the content is fair game for questions on assignments and tests. The two panels, carbon-market simulation, and some of the guest lectures will be outside of regular class hours; **we expect you to attend them unless you email the TAs with a class conflict.**

Assignments and grading. Two in-class tests (40%), several short case write-ups (as a group; up to three students; 15%), three quantitative assignments (as a group; up to three students; 25%), and class participation (20%). Your class participation grade will be based on the quality of your comments during class and Canvas prep-questions (graded based on completion only; 10%), and your participation in the experiments and the simulation (10%).

Tests. You should attend both in-class tests. Contact Beth Moskat in BEPP (emoskat@wharton.upenn.edu) if you have a medical issue or an emergency. No other exceptions. Please do not email the instructors or TAs about alternative test dates for other reasons as we have no flexibility to accommodate such requests in all fairness to other students.

AI policy. You may use generative AI programs (e.g., tools like ChatGPT) to help generate ideas and brainstorm. However, you should note that the material generated by these programs may be inaccurate, incomplete, or otherwise problematic. Beware that use may also stifle your own independent thinking and creativity. You may not submit any work generated by an AI program as your own. If you include material generated by an AI program, it should be cited like any

other reference material. Any plagiarism or other form of cheating will be dealt with severely under relevant Penn policies.

Academic integrity policy. All students are required to uphold the [Code of Academic Integrity](#). MBAs must also uphold the [MBA Code of Ethics](#). Any suspected violation of these policies will be submitted to either the [Center for Community Standards and Accountability](#) or the Wharton Graduate Division Ethics Committee for review. A determination that any of these policies have been violated, whether made by these committees or by the professor of the relevant class, results in failing any assignment involved with the violation, and may have further consequences up to and including failure of the course. Additionally, the Center for Community Standards and Accountability and the Wharton Graduate Division Ethics Committee have authority to enforce sanctions beyond this class according to their own policies.

Electronics. Taking notes on tablets is permitted. Phones are permitted for responding to polls, but should otherwise not be a distraction to you or your classmates. No laptops.

Other details. The course is included in Wharton Impact's undergraduate concentration in IVSB with a specialization in Business, Energy, Environment and Sustainability; the Environmental Studies majors from the Earth & Environmental Science department; and in the university-wide minors in Environmental Studies and Sustainability and Environmental Management. Non-Wharton students are welcome and encouraged to contact the professor in advance to discuss the informal prerequisites.

CLASS SCHEDULE

Required readings are marked with (*); additional readings that provide more in-depth insight are provided without the mark.

Lecture 1 (Aug 26): **Course Introduction**

Topics: climate science; what is climate finance; physical and transition risks.

All of these resources are optional, but if you want a primer in climate science, risk, and solutions, you might enjoy the following resources:

- [Video:](#) The Science of Climate Change ([link](#)).
- Climate Science, Risk, and Solutions, MIT ([link](#)).

If you want to start thinking about the finance connection, here are two op-eds on sustainable investing:

- Gore, A. and D. Blood, “The Business Case for Green Energy”, *Wall Street Journal*, 3/17/25 ([link](#)).
- Sindreu, J., “Why ESG Investing May Never Recover”, *Wall Street Journal*, 3/24/24 ([link](#)).

The EPA provides a nice summary on climate risks, both physical and transition, and climate-related opportunities ([link](#)).

In-class experiment:

- “Climate-Impact Preferences of Investors.” This experiment is based on Bonnefon, J.-F., A. Landier, P. Sastry and D. Thesmar, 2025. “The Moral Preferences of Investors: Experimental Evidence.” *Journal of Financial Economics* 163 ([link](#)).

Optional Session (Aug 31): **Basic Review of Portfolio Theory**

Topics: risk vs. return; idiosyncratic vs. market risk; capital asset pricing model; capital structure.

Note: This session takes place from 5:15-6:45 p.m. in a TBA location. The session is optional, it will be recorded, and we will distribute all materials via Canvas. If you have taken an introductory corporate finance course, you should not need this review.

- Investopedia, articles on the CAPM ([link](#)) and beta ([link](#) and [link](#))
- Khan Academy, videos on present value ([link](#)), risk vs. return ([link](#)), and the CAPM ([link](#))
- Corporate Finance Institute, video on capital structure and WACC ([link](#)) and article on tax shield ([link](#)).

If you want more details, you can consult any introductory textbook on corporate finance. A classic is *Principles of Corporate Finance* by Brealey, Myers, Allen, and Edmans (McGraw Hill, 14th edition); part two on risk includes the CAPM.

Lecture 2 (Aug 31): **Climate Risk in Real Estate Markets**

Topics: hedonic price method; housing and mortgage markets; muni bonds.

- (*) Flavelle, C., “Florida Sees Signals of a Climate-Driven Housing Crisis”, *New York Times*, 10/12/20 ([link](#)).

- (*) Brown, C. and M. Rojanasakul, “A Climate ‘Shock’ Is Eroding Some Home Values. New Data Shows How Much”, *New York Times*, 11/19/25 ([link](#)).
- Friedman, N. and D. Acosta, “Climate Change to Wipe Away \$1.5 Trillion in U.S. Home Values, Study Says”, *Wall Street Journal*, 2/3/25 ([link](#)).

The lecture will show some highlights of academic papers by [Baldauf et al. \(2020\)](#), [Keys and Mulder \(2022\)](#), [Keys and Mulder \(2025\)](#), [Butler and Uzmanoglu \(2025\)](#), and [Goldsmith-Pinkham et al. \(2023\)](#). You are welcome to take a look at these papers if you are interested, but certainly not expected to.

Lecture 3 (Sep 2): **Climate Impact on Asset Prices**

Topics: climate risk and the CAPM; systematic risk of climate change; climate risk factors; climate preferences of investors.

- (*) Giglio, S., M. Maggiori, J. Stroebl, Z. Tan, S. Utkus and X. Xu, 2025. “Four Facts about ESG Beliefs and Investor Portfolios.” *Journal of Financial Economics* 164: 103955 ([link](#)). Read the introduction on pages 1-3 and Section 2 on pages 6-9.
- (*) Huij, J., D. Laurs, P. Stork and R. Zwinkels, 2025. “Carbon Beta: A Market-Based Measure of Climate Transition Risk Exposure.” Working paper ([link](#)). Read the abstract and introduction on pages 1-4.
- Ramani, V., “Addressing Climate as a Systemic Risk: A Call to Action for Financial Regulators”, *Harvard Law School Forum on Corporate Governance*, 6/28/20 ([link](#)).
- Lambert, R., C. Leuz and R. Verrecchia, 2007. “Accounting Information, Disclosure, and the Cost of Capital.” *Journal of Accounting Research* 45(2): 385-420 ([link](#)).

The lecture will show some brief takeaways from [Alekseev et al. \(2024\)](#). You are welcome to take a look at this paper if you are interested, but certainly not expected to.

Lecture 4 (Sep 9): **Climate Risk in Equity Markets**

Topics: carbon risk premium; greenium/green returns; warm glow/preferences for “green investments”.

- (*) Bolton, P. and M. Kacperczyk, 2023. “Global Pricing of Carbon-Transition Risk.” *Journal of Finance* 78(6): 3677-3754 ([link](#)) Read the introduction on pages 3677-3683.
- (*) Berk, J. and J. van Binsbergen, 2025. “The Impact of Impact Investing.” *Journal of Financial Economics* 164: 103972 ([link](#)). Read the introduction on pages 1-2.

- Kruttly, M., B. Roth Tran and S. Watugala, 2025. “Pricing Poseidon: Extreme Weather Uncertainty and Firm Return Dynamics.” *Journal of Finance* 80(2): 783-832 ([link](#)).
- Taylor, L., “Why Green Assets May Not Continue to Outperform”, *Knowledge at Wharton*, 6/29/21 ([link](#)).

The lecture will show some brief takeaways from [Atilgan et al. \(2025\)](#), [Bolton and Kacperczyk \(2021\)](#), and [Ilhan et al \(2020\)](#). You are welcome to take a look at these papers if you are interested, but certainly not expected to.

Lecture 5 (Sep 14): **Climate Risk in Debt Markets**

Topics: green bonds; sustainability-linked loans; public debt.

- (*) Flammer, C., 2021. “Corporate Green Bonds.” *Journal of Financial Economics* 142(2): 499-516 ([link](#)). Read the introduction on pages 499-501.
- (*) Pastor, L., R. Stambaugh and L. Taylor, 2022. “Dissecting Green Returns.” *Journal of Financial Economics* 146: 403-424 ([link](#)). Read section 2 on pages 406-408.
- Shimauchi, T., M. Fukui, D. Yamamoto, Y. Taura and K. Kameda, 2025. “Sustainability Bond, Sustainability-Linked Bond, and Firms' Environmental Performance.” *International Review of Financial Analysis* 102: 104127 ([link](#)).

Case:

- (*) Does Sustainability Pay? Barry Callebaut's Sustainability Improvement Loan ([link](#)). Case discussion questions will be provided via Canvas.

The lecture will show some brief takeaways from [Acharya et al. \(2024\)](#), [Allen et al. \(2025\)](#), and [D’Amico et al. \(2026\)](#). You are welcome to take a look at these papers if you are interested, but certainly not expected to.

Lecture 6 (Sep 16): **Compliance Carbon Markets**

Topics: market fundamentals and pricing in compliance carbon markets; financial carbon instruments; EU ETS market design.

- (*) Video: How Do Carbon Markets Work? (on Canvas, Class Recordings tab).
- (*) Appunn, K. and J. Wettengel, “Understanding the European Union’s Emissions Trading Systems (EU ETS)”, *Clean Energy Wire*, 5/23/24 ([link](#)).
- (*) “Carbon Emissions Are Dropping—Fast—in Europe”, *The Economist*, 4/25/24 ([link](#)).

- (*) Twidale, S., “EU Carbon Market Emissions Drop 5% in 2025, on Track for 2030 Target”, *Reuters*, 4/4/25 ([link](#)).

The following reading and video are optional but useful if you want the economist’s take on carbon markets:

- Lecture notes: An Introduction to Carbon Markets (on Canvas, Files -> Notes tab).
- Videos: (1) Cap-and-Trade and (2) Carbon Tax vs. Carbon Market (on Canvas, Class Recordings tab).

Lecture 7 (Sep 21): **Voluntary Carbon Markets**

Topics: carbon offsets; voluntary carbon markets; additionality; leakage; permanence; pricing.

- (*) Lecture notes: Offsets and Voluntary Carbon Markets (on Canvas, Files -> Notes tab).
- (*) Greenfield, P., “Revealed: More Than 90% of Rainforest Carbon Offsets by Biggest Certifier Are Worthless, Analysis Shows”, *The Guardian*, 1/18/23 ([link](#)).
- (*) Bryan, K., “Shell Dominates Carbon Credit Market as Clean Energy Spending Scaled Back”, *Financial Times*, 1/29/25 ([link](#)).
- “Can the Voluntary Carbon Market Save the Amazon?”, *The Economist*, 9/19/24 ([link/link](#)).

Lecture 8 (Sep 23): **Carbon-Trading Simulation**

Guest speaker: Josh Margolis, Environmental Markets Consultant

Topics: carbon market trading; market design; the effect of uncertainty on carbon markets.

In-class experiment:

- Students participate in a simulated carbon market “CarbonSim”, where they develop and implement a carbon portfolio management strategy and learn the importance of market design ([link](#)).
- (*) Instructions for the carbon-trading experiment. See “CarbonSim Flyer and Cheat Sheet” on Canvas under Files -> CarbonSim.
- If you want to get a head start and increase your chances of winning a prize, feel free to have a look at the CarbonSim preparation materials and watch the [overview video](#) and the [open hand round video](#).

Note: There will be two time slots for the simulation and you can attend either one: 1:45-5:00pm or 5:15-8:30pm on Sep 23. The simulation will take place in a different classroom: JMHH F95. There will not be a regular class session on Sep 23.

Lecture 9 (Sep 28): **Climate-Related Disclosures**

Topics: from voluntary to standardized reporting; materiality; scope 1, 2 and 3 emissions; greenwashing and regulation to curb it.

- (*) Carter, M., L. Lee and E. Yu, 2025. “Real Effects of Proposed Scope 3 Disclosures.” *Journal of Accounting and Economics* 101820 ([link](#)). Read the introduction on pages 1-4.
- (*) Khan, Y., “Exxon-Backed Coalition Challenges How Companies Account for Emissions. Some Say It Could Stop Them from Decarbonizing”, *Wall Street Journal*, 1/23/26 ([link](#)).

Lecture 10 (Sep 30): **Capital Market Regulation**

Topics: climate information and market efficiency; measuring and aggregating ESG performance; rating agencies.

- (*) Tayan, B., 2022. “ESG Ratings: A Compass without Direction” ([link](#)). Please read from the beginning through “What Do They Say They Measure?”; the rest is optional.
- (*) Toplensky, R., “Why ESG Ratings Are All Over the Map: Requiring Companies to Disclose a Uniform Set of ESG Data Would Make It Easier for Investors to Compare”, *Wall Street Journal*, 8/31/23 ([link](#)).

Case:

- (*) Comment Letters to SEC Proposed Rules on Climate-Related Disclosures. Case discussion questions will be provided via Canvas.

Lecture 11 (Oct 5): **Panel Discussion on Climate Disclosures and Investment**

Guest speakers: Liza McAndrew Moberg, Director, Regulatory Policy Development, IFRS Foundation; Sarah Friedman Hersh, SVP and Head of Sustainable Investing, Wilmington Trust; Andreas Bork, General Manager, Investor Relations, Shell; Liza McAndrew Moberg, Director of Regulatory Policy at the IFRS Foundation

Topics: effect of climate risk on portfolio selection; the need for standardized ESG reporting; industry responses to climate risk as well as investor and regulatory pressures.

Note: This panel will take place from 3:30-5:00pm only in a different location: JMHH 8th floor, followed by a networking reception. There will be no regular sections on Oct 5.

Lecture 12 (Oct 7): **Test I**

Note: The test will be held during the regular class time.

Lecture 13 (Oct 12): **The Pepsi and Coke Reporting Challenge (1) – NO CLASS**

Topics: environmental, social and governance (ESG) matters; various types of reports where companies disclose ESG matters.

Assignment:

- (*) The Pepsi and Coke Reporting Challenge. Questions will be provided via Canvas.

Note: You can work on the assignment during class. The TAs will be in the room to answer questions.

Lecture 14 (Oct 14): **The Pepsi and Coke Reporting Challenge (2) and Voluntary Disclosures**

Topics: class presentations; debrief; voluntary and mandatory GHG disclosure.

- (*) Mahieux, L., H. Sapra and G. Zhang, 2025. “Measuring Greenhouse Gas Emissions: What Are the Costs and Benefits?”, *Journal of Accounting Research* 63(3): 1063-1105 ([link](#)).
- Friedman, H., M. Heinle and I. Luneva, 2025. “Implications of Introducing Investor-Focused ESG Reporting”. Working paper ([link](#)).

Optional Session (Oct 14): **Basic Review of Cash Flow Discounting**

Topics: time value of money; discounted cash flows; net present value; internal rate of return; valuing stocks; valuing bonds.

Note: This session takes place from 5:15-6:45 p.m. in a TBA location. The session is optional, it will be recorded, and we will distribute all materials via Canvas. If you have taken an introductory corporate finance course, you should not need this review.

If you want more details, you can consult any introductory textbook on corporate finance. A classic is *Principles of Corporate Finance* by Brealey, Myers, Allen, and Edmans (McGraw Hill, 14th edition); part one on value includes discounted cash flows and valuation.

Lecture 15 (Oct 19): **Renewable Energy Finance (1)**

Topics: key trends in renewable energy; levelized cost of electricity; the variable value of renewable energy.

- (*) Lecture notes: Renewable Energy Finance and Policy, pp. 1-4 (on Canvas, Files -> Notes tab).
- (*) Kay, C., R. Millard, M. Muir and E. White, “The Global Boom in Solar — With or Without the US”, *Financial Times*, 10/29/25 ([link](#)).
- Lazard, “Levelized Cost of Energy+ 2025”, 6/25 ([link](#)).

Lecture 16 (Oct 21): **Renewable Energy Finance (2)**

Topics: tax credits; tax equity; accelerated depreciation; solar leases and PPAs; securitization.

- (*) Lecture notes: Renewable Energy Finance and Policy, pp. 4-9 and 13-16 (on Canvas, Files -> Notes tab).
- (*) Treece, K., “How Does a Solar Lease Work?”, *Consumer Affairs*, 3/2/23 ([link](#)).
- (*) Church, B., “Solar Lease vs. Solar PPA”, *Consumer Affairs*, 3/10/23 ([link](#)).
- (*) Levine, M., “Financial Engineering for Green Energy”, *Bloomberg*, 1/29/24 ([link](#)).
- (*) Video: Tax Equity Structure in US Renewable Energy Sector ([link](#)). [Note: you may want to watch this video after this lecture or after the guest lecture.]
- Walton, R., “US Utility-Scale Storage Outlook Ticks upward Post-OBBBA”, *Utility Dive*, 8/27/25 ([link](#)).
- J. St. John, “Sunnova Warns of Dwindling Cash amid Rooftop Solar Woes”, *Canary Media*, 3/4/25 ([link](#)).

Lecture 17 (Oct 26): **Solar Project Energy Finance**

Guest speaker: Gianluca Signorelli, Head of Capital Markets, U.S. SB Energy (SoftBank)

Topics: solar energy project finance; project development; capital structure; tax equity; project finance debt; PPAs.

- (*) Norton Rose Fulbright, “Racing To Meet Electricity Demand”, *Project Finance NewsWire*, 1/16/26 ([link](#)).
- (*) Norton Rose Fulbright, “Cost Of Capital: 2026 Outlook”, *Project Finance NewsWire*, 1/29/26 ([link](#)).
- (*) Norton Rose Fulbright, “US Renewables Policy Outlook for 2026”, *Project Finance NewsWire*, 2/18/26 ([link](#)).

Note: This lecture will be held in the usual location at the usual time (both sections). There will be a happy hour on Oct 26 from 4-5pm at Louie Louie.

Lecture 18 (Oct 28): **Renewable Energy Finance (3)**

Topics: renewable portfolio standards; (S)RECs; net metering; PACE financing.

- (*) Lecture notes: Renewable Energy Finance and Policy, pp. 9-12 (through Property Assessed Clean Energy) and 17-22 (on Canvas, Files -> Notes tab).
- Borenstein, S., “California’s Exploding Rooftop Solar Cost Shift”, *Energy Institute at Haas Blog*, 4/22/24 ([link](#)).
- Borenstein, S., “How To Fix the Solar Cost Shift”, *Energy Institute at Haas Blog*, 5/19/25 ([link](#)).

Lecture 19 (Nov 2): **Renewable Energy Finance (4)**

Topics: blended finance; import tariffs; renewable energy finance outside the United States; feed-in tariffs; contracts for differences; tendering.

- (*) Lecture notes: Renewable Energy Finance and Policy, pp. 12-13 (on Canvas, Files -> Notes tab).
- (*) “Vineyard – Offshore Tax Equity Arrives”, *Project Finance International*, 12/5/23 ([link](#)).

- (*) Beaumont, H., “Is Trump Winning or Losing His War on Offshore Wind Power?”, *The Guardian*, 2/2/26 ([link](#)).
- (*) Farhat, E. and J. Shankleman, “Record Offshore Wind Auction Boosts UK’s Hopes for 2030 Goal”, *Bloomberg*, 1/14/26 ([link](#)).
- Sorge, P., “Germany Cancels 2026 Offshore Auctions, Plans New Design”, *Bloomberg*, 1/28/26 ([link](#)).

Lecture 20 (Nov 4): **Panel Discussion on Low-Carbon Investing**

Guest speakers: Jake Susman, Origination & Partnerships Americas at Google; Lisa Khanna, Sustainable Assets & Cleantech Investor and Founder, Parkside Advisors; Patrick Verdonck, Founder at Verdonck Partners & Rhyndland Energy

Topics: investing in renewable energy, batteries, and data centers; changes in the investment landscape in a changed political climate.

Note: This panel will take place from 3:30-5:00pm only in the Dim Sum House, 3939 Chestnut Street, followed by a networking reception. There will be no regular sections on Nov 4.

Lecture 21 (Nov 10): **Renewable Energy Dealmaking**

Guest speaker: Kaam Sahely, Partner, Vinson & Elkins

Topics: case studies in renewable energy dealmaking.

Note: There will be no regular sections on Nov 9. There will be a happy hour on Nov 10 from 4-5pm at Louie Louie.

Case:

- (*) Assessment on Transaction Structures in Energy. Case discussion questions will be provided via Canvas.

Lecture 22 (Nov 11): **Corporate Climate Incentives**

Topics: climate scenario analysis; hedging climate risks; spinoffs vs. integrated companies; executive compensation.

- (*) Wright, C. and D. Nyberg, 2024. “Corporations and Climate Change: An Overview”, *WIREs Climate Change* 15(6): e919 ([link](#)). Please read section 3 (pages 5-8); the rest of the paper is optional.
- Cohen, S., I. Kadach, G. Ormazabal and S. Reichelstein, 2023. “Executive Compensation Tied to ESG Performance: International Evidence”, *Journal of Accounting Research* 61(3): 805-853 ([link](#)).
- Byrd, J., E. Cooperman and K. Hickman, 2020. “Capital Budgeting and Climate Change: Does Corporate Internal Carbon Pricing Reduce CO2 Emissions.” Working paper ([link](#)).

Lecture 23 (Nov 16): **Climate Ventures and Private Equity**

Guest speaker: Marisa Sweeney, Principal/Climate Investor at S2G Investments

Topics: climate ventures; private equity; commercialization of early climate and energy technologies.

Note: This lecture will be held in the usual location at the usual time (both sections). There will be a happy hour on Nov 16 from 4-5pm at Louie Louie.

Lecture 24 (Nov 18): **Climate Risks in Insurance Markets**

Topics: catastrophe insurance; parametric insurance; climate risk impacts in home and flood insurance markets.

- (*) Naik, G., J. Wyss and G. Ritchie, “The Harsh Reality of Hurricane Insurance”, *Bloomberg*, 10/13/24 ([link](#)).
- Flavelle, C., “Home Insurance Rates in America Are Wildly Distorted. Here’s Why.”, *New York Times*, 7/8/24 ([link](#)).

Case:

- (*) Hippo: Weathering the Storm of the Home Insurance Crisis. Case discussion questions will be provided via Canvas.

The lecture will show some highlights of academic papers by [Boomhower et al. \(2025\)](#), [Keys and Mulder \(2025\)](#), [Oh et al. \(2025\)](#), [Ge et al. \(2025\)](#), [Ge et al. \(2026\)](#), and [Sastry et al. \(2026\)](#). You are welcome to take a look at these papers if you are interested, but certainly not expected to.

Lecture 25 (Nov 23): **Long-Run Discount Rates**

Topics: theory of long-run discounting; empirical evidence for long-run discount rates; the social cost of carbon.

- (*) Rennert, K., C. Kingdon and B. Prest, “Social Cost of Carbon 101”, *Resources for the Future*, 3/13/25 ([link](#)).
- (*) The Economist, “Weighing the Future”, 5/19/14 ([link](#)).
- (*) The Economist, “Not So Impatient”, 4/16/15 ([link](#)).

Pre-class experiment

- “Very Long-Run Discount Rates” in which students decide how much to pay to (i) buy a property; (ii) lease it for time periods of varying length; based on Giglio, S. and J. Stroebe, 2015. “Very Long-Run Discount Rates.” *Quarterly Journal of Economics* 130(1): 1-53.

Lecture 26 - UG (Nov 30): **Climate Policy**

Topics: global climate policy developments; cost-effectiveness of climate policies; overlapping climate policies; internal carbon leakage; waterbed effect.

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- (*) K. Appunn, “National Climate Measures and European Emission Trading: Assessing the ‘Waterbed Effect’”, *Clean Energy Wire*, 4/4/19 ([link](#)). Skip the sections from “Waterbed Effect – Then and Now” onwards ([link](#)).
- (*) J. Wettengel, “Germany Deletes EU CO2 Allowances Freed up by Coal Exit”, *Clean Energy Wire*, 2/15/24 ([link](#)).

Lecture 27 (Dec 2): **Test II**

Note: The test will be held during the regular class time.

Lecture 28 (Dec 7): **Research in Climate Finance and Economics**

Topics: “lightning-style” presentations of academic research in climate finance and economics.

- (*) Video: Carbon Burden, L. Taylor, Wharton Climate Prof 2024 ([link](#)).
- (*) Video: Electricity Pricing, A. van Benthem, Wharton Climate Prof 2024 ([link](#)).

DUE DATES

Tests

Test 1: Wednesday Oct 7, in class.

Test 2: Wednesday Dec 2, in class.

Short case write-ups

Case 1 (Does Sustainability Pay? Barry Callebaut's Sustainability Improvement Loan): due on Monday Sep 14, before class.

Case 2 (Comment letters to SEC Proposed Rules on Climate-Related Disclosures): due on Wednesday Sep 30, before class.

Case 3 (EDF Renewables North America: Tax Equity Financing and Asset Rotation): due on Monday Nov 9, before class time (note: class will be held on Tuesday Nov 10).

Case 4 (Hippo: Weathering the Storm of the Home Insurance Crisis): due on Wednesday Nov 18, before class.

Quantitative assignments

Assignment 1 (Brownium and the Carbon Portfolio): due on Wednesday Sep 23, midnight EST.

Assignment 2 (The Pepsi and Coke Reporting Challenge): due on Wednesday Oct 14, before class.

Assignment 3 (Renewable Energy Economics and Finance): due on Monday Nov 2, midnight EST.

Class participation

Short pre-lecture prep questions are due before the start of each lecture.