Terra.do
CLIMATE CHANGE: LEARNING FOR ACTION

*Climate Change: Learning for Action*is both a course and much more: It is an interactive, multi-media journey into collective problem-solving around one of the greatest challenges of our time. This learning experience will help you develop the knowledge, and the critical thinking, analytical and collaborative skills you need to work on climate mitigation and adaptation/resilience anywhere in the world.

Intended Audience

This course is ideal for any professional looking to leverage their existing experience and skills for the purpose of solving climate change. Prerequisites include a high-school level proficiency in science and math, and a willingness to work in teams on challenging assignments.

Course structure

- The course is 100% online, and features a multi-media format combining text, videos, infographics and slideshows.
- It is cohort-based, with 20-25 students in a cohort.
- All classes are taught by a live instructor who is available to students via Zoom, Slack and email.
- The format is highly interactive with a cohort Slack channel built into the platform.
- The course features 5-7 guest expert live talks, which will also be available for non-synchronous viewing.
- The course runs for 12 weeks, with two “classes” a week.
- Students should expect to commit approximately 8-10 hours/week.
- The course includes multiple mini-assignments within every class, and group homework projects every week. The assignments are designed to cement key concepts, develop analytical and quantitative skills, and enhance collaborative learning and problem-solving.
- The course culture is grounded in collaboration, mutual support and kindness.
- There are no grades; the requirements for “graduation” are active participation and completion of all assignments with sincere effort.

Class topics

1.	*Introductions, orientation and meet your instructor*	10.	*Mitigation 1:*Workshop using EN-ROADS, MIT's climate change solutions simulator--grapple with complexities, options and trade-offs in getting to 1.5C
2.	*Climate Science 1:*Earth's energy balance, greenhouse effect and greenhouse gases, radiative/climate Forcing	11.	*Mitigation 2:* Energy--context and concepts
3.	*Climate Science 2:* The work of climate scientists, the role of observations and statistics, intro to climate models	12.	*Mitigation 3:* Energy--economics, the smart grid and pathways to deep decarbonization
4.	*Climate Science 3:* Global Warming Potentials, the global carbon cycle, emissions, stocks, and concentrations, climate sensitivity	13.	*Mitigation 4:* Transport, agriculture, industry, buildings, aviation and shipping (student-led research and presentations)
5.	*Impacts 1:*1.5C, global impacts today, tipping points, global carbon budget, shared socio-economic pathways	14.	*Land use change and offsets:*Role of forests, theory and practice of offsets, REDD+ opportunities and challenges
6.	*Impacts 2:* Local impacts and climate change: science and limits of attribution through case studies	15.	*Climate finance and business:* Multilateral, bilateral, governmental and private finance models; emerging areas for business
7.	*Climate and development:* Exploring creative models that work for humans and the environment	16.	*Adaptation and resilience:* Key issues; case studies of cities and small-holder agriculture (+ begin work on student projects)
8.	*Economics of climate change:*market failure model vs. other perspectives, a critical review of the social costing of carbon, carbon markets and pricing, debates on taxation, trade and climate	17.	*Communicating climate change:* psychology of communicating for advocacy and action; the role of "framing;" exploring effective strategies; role of new media
9.	*Politics and policies:* Global negotiations, global political movements, fairness and justice, country-level options (case studies)	18.	*Projects:* final submissions, feedback, and wrap-up

Faculty bio

Dr. Kamal Kapadia has 22 years of work, research and teaching experience in the fields of climate change, clean energy and sustainable development. She began her career as Business Development Manager for SELCO in the late 1990s, building rural, off-grid markets for solar photovoltaic systems in India, Sri Lanka and Vietnam. Since then she has consulted for the World Bank on renewables-based electrification, worked on post-disaster rural livelihoods recovery with the Sarvodaya Shramadana Movement in Sri Lanka, evaluated energy efficiency proposals for the California Public Utilities Commission, and taught at the University of California, Berkeley. She was a research fellow at the Environmental Change Institute, University of Oxford from 2008 to 2012, and taught extensively on the Oxford Master's program in Environmental Change and Management. More recently, she worked on 100% clean energy advocacy at Blue Planet Foundation in Hawaii. Kamal holds an M.Sc. in Environmental Change and Management from the University of Oxford and a Ph.D. in Energy and Resources from the University of California, Berkeley.

Pool of experts for guest lectures

- *India energy policy:* Dr. Amol Phadke, Lead of the India Research Program, and Deputy of the International Energy Analysis Department, Energy Analysis and Environmental Impacts Division at Lawrence Berkeley National Laboratory, Berkeley (U.S./India)
- *Smallholder climate adaptation:* Dr. Ariella Helfgott, Capability Development and Consulting Lead at Collaboration for Impact, Honorary Fellow at University of Oxford and former principal investigator of the CGIAR Climate Change Agriculture and Food Security (CCAFS) Systemic Integrated Adaptation Research Program (Australia)
- *Politics of global climate regime:* Dr. Heike Schroeder, Professor of Environmental Governance at the School of International Development, University of East Anglia (U.K.)
- *Rural energy and development:* Dr. Harish Hande, founder and CEO, SELCO-India and SELCO Foundation, and winner of the Ramon Magsaysay Award (widely known as the Asian Nobel Prize) (India)
- *Climate science and adaptation:* Dr. Charles ("Chip") Fletcher, Associate Dean for Academic Affairs and Professor, Department of Earth Sciences, at the School of Ocean and Earth Science and Technology (SOEST), University of Hawai'i at Mānoa. Also Vice-Chair of the Honolulu Climate Change Commission. (U.S.)
- *EN-Roads workshop on mitigation options:* Chris Page, Climate Interactive Facilitator (U.S.)
- *Green buildings and cities:* Micah Lang, Senior Green Building Planner, City of Vancouver (Canada)
- *Carbon auditing for your company:* Tim Falls, Strategic Advisor, WEAVR (U.S.)

- *Climate investment and business:* Matt Eggers, Investor at Breakthrough Energy Ventures (U.S.)
- *Climate communications:* Dr. Rajesh Kasturirangan, Cofounder and CEO of Socratus and cofounder of ClimateX (U.S. and India)
- *Planning for 100% clean electricity systems:* Dr. Matthias Fripp, Associate Professor of Electrical Engineering, University of Hawaii-Manoa. (U.S.)