Approved Electives for the Climate Solutions Graduate Certificate

College of Engineering

Aerospace Engineering (AERO)

Courses within AERO include courses that focus on the fluid dynamics of the atmosphere, space flight systems, or other aspects of space instrumentation that may be relevant for climate.

- AERO/SPACE 581 Space System Management
- AERO/SPACE 582 Spacecraft Technology

Chemical Engineering (CHE)

- CHE 597 Regulatory Issues for Scientists, Engineers and Managers
- CHE 686 Case Studies in Environmental Sustainability

Climate and Space Sciences and Engineering (CLaSP)

Courses within CLaSP include courses that focus on the physical aspects of the climate system, including atmospheric dynamics, clouds and precipitation processes, the cryosphere, and atmospheric composition and chemistry.

- CLIMATE 410. Earth System Modeling
- CLIMATE 411 (EARTH 411). Cloud and Precipitation Processes
- CLIMATE 421 (EARTH 421) (ENVIRON 426). Introduction of Physical Oceanography
- CLIMATE 463 (ENSCEN 463). Air Pollution Meteorology
- CLIMATE 466 Carbon-Climate Interaction
- CLIMATE 473 Climate Physics
- CLIMATE 474 (EARTH 474) Ice Sheets, Glaciers and Climate Change
- CLIMATE 479 (ENSCEN 479) Atmospheric Chemistry

Civil and Environmental Engineering (CEE)

Courses within CEE include courses that focus on a physical understanding of hydrology, air quality, and engineering approaches that are relevant for greenhouse gas emissions, energy, and ecosystem services.

- CEE 421 Hydrology and Floodplain Hydraulics
- CEE 428 Introduction to Groundwater Hydrology
- CEE 465 Environmental Process Engineering
- CEE 587/SEAS 588 Water Resource Policy
- CEE 520 Physical Processes of Land-Surface Hydrology

- CEE 549. Geoenvironmental Engineering
- CEE 555 Sustainability of Civil Infrastructure Systems
- CEE 563 Air Quality Engineering Fundamentals
- CEE 564 Greenhouse Gas Control
- CEE 567/ESENG 567 Energy Infrastructure Systems
- CEE 586/SEAS 557 Industrial Ecology
- CEE 588 (CHE 590) Sustainability Finance: Investment Models for Green Growth
- CEE 589 Risk and Benefit Analysis in Environmental Engineering

Electrical Engineering and Computer Science (EECS)

- EECS 463 Power Systems Design and Operation

Center for Entrepreneurship (ENTR)

- ENTR 490.262/263 / 599.262/263 Innovation for Impact: Climate Change

Integrative Systems + Design (ISD)

- ISD 520 Introduction to Systems Engineering

Mechanical Engineering (ME)

- MECHENG 489 Sustainable Engineering and Design

Naval Architecture and Marine Engineering (NAME)

- NAVARCH 420 (ENSCEN 420) (CLIMATE 420) Environmental Ocean Dynamics
- NAVARCH 528 (CLIMATE 528)(ENSCEN 529) Remote Sensing of Ocean Dynamics

Nuclear Engineering and Radiological Sciences (NERS)

- NERS 211 (ENSCEN 211) Introduction to Nuclear Engineering and Radiological Sciences
- NERS 250 Fundamentals of Nuclear Engineering and Radiological Sciences
- NERS 532 Nuclear Safeguards

College of Literature, Science, and the Arts (LSA)

Ecology and Evolutionary Biology

- EEB 408 Modeling for Ecology and Evolutionary Biology
- EEB 466 Mathematical Ecology

Earth and Environmental Sciences

- EARTH 452 Paleo-oceanography
- EARTH 446 Paleo-climatology
- EARTH 520 The Changing Ocean
- EARTH 596 Communicate Your Science

Political Science

- POLSCI 497 Politics of Energy in the Developing World

Psychology

- PSYCH 442 Perception, Science and Reality

Communications & Media

- COMM 413 Environmental Communications
- COMM 467 Debating Politics and Science

School of Environment and Sustainability (SEAS)

- EAS 550 Systems Thinking for Sustainable Development
- EAS 552 Ecosystem Services
- EAS 555 Climate and Development
- EAS 560 Behavior and Environment: Transitional Thinking for the New Normal
- EAS 574 Sustainable Energy Systems *
- EAS 592 / URP 542 Environmental Planning: Issues and Concepts 8
- EAS 576 Sustainability Finance: Investment Models for Green Growth *
- EAS 615 Renewable Electricity and the Grid
- EAS 501.022 Climate Economics and Policy (< 3 credits)
- EAS 677.041 Climate Change Adaptation (< 3 credits)

A. Alfred Taubman College of Architecture and Urban Planning

These courses focus explicitly on the links between architecture, urban planning, sustainability, and sustainable planning relevant for considering any long term solutions to climate challenges.

- ARCH 426 Environmental Systems
- ARCH 515 Sustainable Systems
- URP 423 Int'l Urban & Environmental Planning
- URP 427 Foundations of Sustainable Food Systems
- URP 506 Planning Methods
- URP 507 Fundamentals of Planning Practice
- URP 522 Collaborative Planning

- URP 532 Sustainability and Social Change
- URP 542 / EAS 592 Environmental Planning: Issues and Concepts

University of Michigan Law School

- LAW671 Climate Change Law

Gerald R. Ford School of Public Policy

Any solution to the climate challenge will interact with policy and regulations. Elective courses from the GFFSPP focus explicitly on policy and regulations impactful to climate change.

- PUBPOL 468 Oil & Gas Policy in the US
- PUBPOL 495.003 Policy Seminar: Energy and Climate
- PUBPOL 519 Sustainable Energy Systems
- PUBPOL 563 Politics of Environmental Regulation
- PUBPOL 564 Government Regulation of Industry and the Environment PUBPOL 754 Research Seminar in Science, Technology and Public Policy

University of Michigan School of Public Health

- EHS/EPID 608 Occupational and Environmental Epidemiology
- EHS 683 Air Pollution and Global Health