

# Climate Science and Solutions Certificate

**Certificate director:** Jeffrey Park ([jeffrey.park@yale.edu](mailto:jeffrey.park@yale.edu))

This Certificate provides students with a foundation in basic climate science, anthropogenic climate change, and solutions, so they can be effective and informed leaders in all walks of life in the decades to come. In our lifetimes, the combined effects of climatic and environmental change will profoundly and pervasively alter the planet and the lives of all of us. In this day and age, effective leaders cannot afford to be ignorant of climate change and the many possible ways to mitigate it and its effects. Climate change is one of humanity's grand challenges and the goal of this Certificate is to prepare students to meet this challenge wherever their paths might lead.

## REQUIREMENTS

See Links to the attributes indicating courses approved for the certificate requirements.

Students must successfully complete six course credits. Three of the required courses must represent three different pillars of thought, each designed to provide the fundamentals, vocabulary, and interdisciplinary scope to engage in integrative conversations, collaborations, and endeavors on climate change and solutions. The three pillars of thought are basic climate science; the science and impacts of anthropogenic climate change; and climate solutions.

*From the first pillar,* students gain an understanding of the components, processes, and feedback of the climate system, including an overview of ocean-atmosphere dynamics, the carbon cycle, atmospheric gases, and their effects, radiative balance, and spatial and temporal climate variability. (YC Climate Basic Climate Sci)

*From the second pillar,* students learn about drivers and projections for anthropogenic climate change, the feedback and uncertainties in regional-to-global climate models, regional-to-global climate change impacts, mitigation, and adaptation, and the interaction between climate and other aspects of global societal and environmental change. (YC Climate Anthropogenic)

*From the third pillar,* students learn about climate solutions, including the scientific, technological, and socio-political aspects of natural and technological solutions and strategies. (YC Climate Solutions)

**One of the remaining 3 courses** needs to be designated as a seminar on climate science and solutions as approved by the certificate director. Three of the 6 courses must have a science, engineering, or technology focus.

No more than two course credits fulfilling the requirements of the Climate Science and Solutions certificate may overlap with a major, a simultaneous degree, or another certificate. Additionally, no course credit may be applied toward the requirements of more than two curricular programs. For example, the same course credit may not be used to fulfill the requirements of two certificates and a major. No more than four credits may come from a single department or school.

**Credit/D/Fail** No course taken Credit/D/Fail may be applied toward the requirements of the certificate.

**Outside credit** Courses taken at another institution or during an approved summer or term-time study abroad program may count toward the certificate requirements with the approval of the certificate director. An on-topic summer internship can replace one elective.

#### DECLARATION OF CANDIDACY

Students must declare their intention to earn a Certificate on the *Declare Major, Concentration within the Major, Certificate* page on Yale Hub, as early as possible, but at the very latest, by the 15th of January or September in their last semester at Yale. Once declared, Degree Audit tracks students' progress toward completion of the certificate.

#### REQUIREMENTS OF THE CERTIFICATE

**Number of courses** 6 course credits

**Distribution of courses** 1 course in each of three pillars; 3 of the 6 required courses must focus on science, engineering, or technology, and 1 should be a seminar on the climate science and solutions of climate crisis