

MIT-Woods Hole Joint Program in Oceanography and Applied Ocean Science and Engineering

The [Joint Program of the Woods Hole Oceanographic Institution \(WHOI\)](#) and MIT offers advanced degrees in oceanography and applied ocean science and engineering. Graduate study encompasses virtually all of the basic sciences as they apply to the marine environment: physics, chemistry, geology, geophysics, and biology. Students who choose applied ocean science and engineering may concentrate in the major engineering fields of aeronautics and astronautics, civil, environmental, electrical, mechanical and ocean. More than 170 scientists and faculty from the two institutions participate in the joint program (JP). There are currently 151 students enrolled in the five areas of study offered: biological, chemical, or physical oceanography; marine geology and geophysics; and oceanographic engineering.

Since all MIT faculty involved in the joint program are members of an academic department, their individual accomplishments and awards are reported through those departments. These include the Departments of Aeronautics and Astronautics; Civil and Environmental Engineering; Mechanical Engineering; Electrical Engineering and Computer Science; Biology; and Earth, Atmospheric and Planetary Sciences.

MIT-WHOI Joint Program External Review

On October 28–30, 2019 the joint program invited eight distinguished oceanographers and academics to the MIT and WHOI campuses for our five-year external review. The three days were extremely productive and resulted in some very lively discussions. The committee found the JP to be in an overall state of good health. The JP continues to attract the top students in the fields of oceanography and ocean engineering, and JP graduates continue to enjoy success in securing career opportunities following graduation. Recognizing that the social, political, and academic landscape is undergoing a period of change, the committee believes that certain adjustments may be necessary to sustain the strong position that the JP has enjoyed for the past half century. With this in mind, the committee has made a number of recommendations intended to help the JP adjust to this changing landscape. The JP faculty are currently discussing the best ways to address concerns and make progress toward established goals.

MIT-WHOI Joint Program Response to COVID-19

In March 2020 when MIT transitioned to virtual teaching in response to the COVID-19 pandemic the joint program found itself in a unique position. Since the inception of the program, we realized that we had to devise something to connect two populations that were more than 80 miles apart. In the 1980's the joint program had embraced and explored best practices to deliver our academic curriculum to our students through distant technologies as far back as microwave links and satellite transmissions. The early system was completely analog and depended on radio modules positioned at points between MIT's campus and Cape Cod. It was prone to lapses because of the weather and other problems.

Around 2002, we transitioned from an analog system to a digital one that was vastly superior, and we've continued to upgrade regularly. The system became more flexible; it evolved beyond point-to-point broadcasts between only MIT and WHOI to include multipoint sites. Scientists and experts around the world could participate using compatible equipment, which has enhanced scientific collaborations and teaching. Addressing the teaching challenges during COVID-19 was made somewhat easier as distance learning technologies were fully ingrained in our program prior to the pandemic.

Degrees Awarded

The joint program awarded 17 doctoral degrees in AY2020, and eight master of science degrees. Degrees were conferred by MIT on May 29, 2020. Margaret Tivey—the vice president for Academic Programs and dean of WHOI, and Professor Edward Boyle—director of the MIT Joint Program, honored the joint program graduates on June 24, 2020 during a virtual online celebration. The quinquennial WHOI graduation ceremony scheduled for this year with all joint program graduates from the past five years was postponed due to the COVID-19 pandemic.

Edward Boyle

Director

Professor, Department of Earth, Atmospheric and Planetary Sciences