



# SEA EDUCATION ASSOCIATION

Environmental Studies at Woods Hole and at Sea

## Robotics and Ocean Engineering at SEA

An April Break Program for High School Students,  
in Collaboration with SEA and WHOI

Join the Sea Education Association on your 2023 April break! Learn how to sail a tall ship, conduct oceanographic research at sea, and explore topics in robotics, ocean engineering, and marine technology with engineering experts from the Woods Hole Oceanographic Institution. This is a four-day offshore voyage from Miami, Florida to Charleston, South Carolina from April 17-20, 2023.



Contact Abby Elder at [aelder@sea.edu](mailto:aelder@sea.edu) for more info.





## Program Overview

This is an experiential, four-day program for high school juniors and seniors that takes place from April 17-20, 2023. Centered on learning by doing, students will work with engineers from the Woods Hole Oceanographic Institution and scientists from the Sea Education Association to explore offshore marine environments with remote operated vehicles (ROVs) and learn about real-world applications of ocean technology. In addition to being fully immersed in oceanographic research methods and marine robotics, students will also learn the basics of nautical science and be crew members aboard SEA's sailing vessel, the Corwith Cramer.



## Woods Hole Oceanographic Institution Collaborators

Molly Curran is a mechanical engineer at WHOI working on a new ROV that was designed to explore hard-to-reach environments such as under ice and around rugged seafloor structures. Students will assist in all aspects of using this ROV, including its deployment, underwater manipulation, and data collection. Molly will teach students about using ROVs to enhance scientific research at sea and about different career paths in STEM.



Francis Elder is WHOI's lead mechanical engineer for the Alvin submersible. Francis will teach students about how he implements the engineering design process in his every day work, the history of the Alvin and its cutting edge discoveries, and topics such as buoyancy, material science, fluid dynamics, and undersea acoustics and imaging.

## Life at Sea

When aboard the ship, students rotate through a day-and-night "watch" schedule. You will learn the basics of sail handling, engine room operations, chart plotting, celestial navigation, and all other aspects of sailing a tall ship. Busy as things are, there is still enough free time to keep a journal, read a novel, climb aloft to enjoy sunrises, play card games, and look out for whales, dolphins, and sharks! Meals are provided. Students will sleep in communal/co-ed bunk rooms aboard the ship.



## Join Us!

All students are welcome to participate. No sailing experience or advanced science courses are necessary, just a desire to learn and a passion for STEM. To learn more about cost, travel logistics, and how to apply, click here: [www.sea.edu/whoirobotics](http://www.sea.edu/whoirobotics)

## How to Apply

To apply for this program, students must create an account on SEA's online application portal. Your email will serve as your username. The application portal walks you through all of the necessary components of the application process.

[Apply Now](#)

You will be required to submit these documents:

- ✓ Online application form
- ✓ Official high school transcript
- ✓ One academic reference
- ✓ Short answer essay questions

If you encounter any problems or have questions, please reach out to Abby Elder at [aelder@sea.edu](mailto:aelder@sea.edu).

## Dates & Deadlines

February 6, 2023 - Applications Open

March 13, 2023 - Acceptance Letters Sent to Students

March 24, 2023 - Required Forms & Payment Due

TBD - Virtual Information Session

TBD - Intro to Nautical Science and Ocean Robotics Lecture/Orientation at SEA Campus in Woods Hole (with a virtual option)

April 17, 2023 - Students Board Ship in Miami, FL

April 20, 2023 - Students Depart Ship in Charleston, SC

## Cost & Travel Logistics

The total cost of this program is \$900 per student. This reduced rate is in part due to contributions by the Woods Hole Oceanographic Institution.

Cost of travel is not included. Students are responsible for booking their flight into Miami and out of Charleston. Students are also responsible for coordinating their own travel to the ship from the airport in Miami, and from the ship to the airport in Charleston.