

RoBOT: “Rocks Beneath Our Toes”

An experiential learning opportunity in mineralogy and geochemistry



Prof. Ethan Baxter
Department of Earth Sciences at Boston University
and The National Science Foundation



What is RoBOT?

The “Rocks Beneath Our Toes” or RoBOT Program began in 2006 with funding from the National Science Foundation. The educational outreach program (run during the Fall semester) engages high school students in a hands-on study of the rocks and minerals in their backyards and communities. Beginning with nothing more than the very rocks beneath their toes, students work with Boston University undergraduates to analyze the mineralogy and unravel the unique story that each rock holds about its geologic past. The goal is to provide high school students a unique window into modern scientific methods of geochemistry and mineralogy and to unlock for them the exciting information about Earth history that all rocks preserve.

Who is it for?

The program is for Boston area or Eastern Massachusetts **high school students** who are interested in looking at rocks in a whole new way and learning what modern geoscience is all about. High school participant group sizes vary between 8 and 20 students. The program succeeds with freshmen through seniors, including both students that have, or have not, had the opportunity for Earth science coursework in high school.

What will we do?

The program begins in the early Fall with an **introductory lecture** about the program and about the role of geochemistry and mineralogy in Earth Systems from Prof. Ethan Baxter. After students identify potential sampling locations in their community, BU undergraduates enrolled in Mineralogy join high school RoBOT participants on a weekend **field trip** to collect and document rock samples. Special “thin sections” are made of each rock which may then be analyzed under the petrographic light microscopes at Boston University. During the semester, BU undergraduates work on the thin sections, updating their high school RoBOT pairs on their progress. At the same time, high school RoBOT participants begin their own **background research** on the geography and underlying geology of the sample locations for a final poster or diorama-type display describing the geological story of their rock. In late Fall, all RoBOT participants meet at Boston University for an afternoon **tour of the geochemical analytical facilities** in the Department of Earth Sciences. The BU visit culminates with an opportunity for high school and undergraduate students to meet again, **explore the spectacular rock thin sections with the microscopes**, and discuss what can be learned about the story of the rock. High school RoBOT participants, armed with information and micro-photographs from thin sections, return to finish their posters for display.

I am interested! How do I sign up?

If you are a Massachusetts high school educator and wish to learn more about getting involved with RoBOT in a future year, please contact Prof. Ethan Baxter directly. If you are a high school student and this sounds interesting to you, talk to your science teachers and encourage them to contact me!

Prof. Ethan Baxter efb@bu.edu 617-358-2844 www.people.bu.edu/efb

