One primary reason our department in valued by Bowdoin is because we have created three introductory courses that are viewed by our administration as open, engaging, and challenging. Each faculty member teaches an introductory course that can count towards the major, but is chiefly populated by students meeting the Inquiry in Natural Science requirement. Each course has as its basis field research in the local area with themes of either bedrock-geology, hydrology, or oceanography. Each course uses a field-based hands-on approach to geoscience. Each has a lab course with regular field trips, and each has a project component in which students work in small groups on true research projects (i.e., the precise outcome is not known ahead of time, even to the instructors). Course enrollments are capped at 36 (2 lab sections) and are well subscribed.

The course I teach is Marine Environmental Geology (Geo/ES103) and in this paper I describe what students in science through service learning. I deliver a part of the traditional content of this course by having teams of students work on projects in support of a community partner, a local environmental group. Students are posed with a problem by the partner and they design and carry out a research project to address the problem. Writing a report for the partner is treated as a structured writing exercise with feedback and several revisions. Students conduct high quality posters and present their results in public to their community partner and the campus at a semester end service learning symposium. Enrollments in women in this course average 16 students and have been as great as 74. The administration views service learning as a pedagogy that introduces and interests women in science.

Community Partner
For fifteen years, Friends of Casco Bay has been the leading environmental organization working to improve and protect the environmental health of Casco Bay. Through advocacy, education, collaborative partnerships, and water quality monitoring, FOCB is the headquarters of the Casco Baykeeper. I’ve found that a true research project (i.e., the precise outcome is not known ahead of time, even to the instructors). Course enrollments are capped at 36 (2 lab sections) and are well subscribed.

Student Project
In consultation with faculty, laboratory instructors, and their community partners students draft and revise a project design document to address the problem posed by the community partner. Their design is a realistic plan that takes into account logistics, equipment, time availability, and the time left in the semester. This is an important step and often establishes the direction of the project. Students are encouraged to redesign the project based on feedback from the mentor and the community partner and to carry out a research project to address the problem. Writing a report for the partner is treated as a structured writing exercise with feedback and several revisions.

Service-Learning Project
Project design
In consultation with faculty, laboratory instructors, and their community partners students draft and revise a project design document to address the problem posed by the community partner. Their design is a realistic plan that takes into account logistics, equipment, time availability, and the time left in the semester. This is an important step. Students are encouraged to redesign the project based on feedback from the mentor and the community partner and to carry out a research project to address the problem. Writing a report for the partner is treated as a structured writing exercise with feedback and several revisions.