

Center for Women in Mathematics and the Center's Post-Baccalaureate Program Smith College

After earning a bachelor's degree in theater, with a minor in mathematics, at Smith College in 2005, Samantha Oestreicher spent two years working in the costume shop in a college theater department and freelancing in costuming and backstage work in theaters in New England. Fast-forward to the fall of 2010, and she is starting her third year of graduate school in mathematics at the University of Minnesota. Her performance is outstanding: she passed her preliminary examinations early, participates actively in a research seminar, and is an exemplary teaching assistant. She held an internship at Los Alamos National Laboratory and now has a research assistantship on a grant from the National Science Foundation (NSF).

That Oestreicher made her way back to mathematics and then excelled so quickly is an indication of her talent and motivation. Helping that talent to flower and that motivation to strengthen was the post-baccalaureate program at the Center for Women in Mathematics at Smith College. Founded in 2007 with funding from the NSF, the center serves women who discover their desire to do mathematics only after having exited the traditional educational track and who need to build up or refresh their backgrounds to be able to enter graduate school. "If it wasn't for Smith's program and the NSF funding, then I would never have made it as far as I have," Oestreicher said. "Smith's program gave me a totally fresh start and the opportunity to do math for a living."



Photo courtesy of The Center for Women in Mathematics, Smith College.

The center's post-baccalaureate program, the first in mathematics in the U.S., attracts students from all over the country. In this one-year program, students take upper-level courses in the Smith mathematics department and also have the opportunity to take courses at Amherst, Hampshire, and Mount Holyoke colleges and the University of Massachusetts at Amherst. In addition, the center designed two special courses for the students. The first, Dialogues in Mathematics, introduces the students to the culture and profession of mathematics through various means: meetings with colloquium speakers to talk about mathematics and mathematical careers, preparation for the GRE examination, discussions of strategies for graduate school, and examination of issues pertinent to the mathematical community. In the other course, the Advanced Mathematics Seminar, the students work in small groups with faculty, generally on a research topic. The topics have included graph theory, combinatorics, and computational geometry, as well as biological and medical applications of mathematics. The center's NSF grant provides tuition and a living stipend for some of the post-baccalaureate students who are U.S. citizens or permanent residents.

Among the center's other activities is a Junior Program for undergraduate women from outside Smith College who want to spend one or both semesters of their junior year in a mathematically intense environment. The NSF grant provides financial aid to participants who are U.S. citizens or permanent residents. In addition, the center hosts an annual conference called Women in Mathematics in New England (WIMIN). In 2009 the conference was one of the Regional Undergraduate Mathematics conferences sponsored by the Mathematical Association of America and attracted 105 participants and

twenty-four student talks. Most of the center's post-baccalaureate students attend the Joint Mathematics Meetings, the Joint Statistical Meeting, and/or the Hudson River Undergraduate Mathematics Conference.

The center is well integrated into the Smith College mathematics department and capitalizes on some of the department's assets, such as the Math Forum, a welcoming and comfortable space where students and teachers gather for conversation, study, and relaxation, as well as tea and cookies. At the same time, the center has had a positive, revitalizing influence on the department. By bringing together a group of active, serious, and motivated women, the center inspires Smith mathematics majors and increases the level of activity in the department. The center has fostered a vertically integrated community that is developing into a focal point for women mathematicians in New England. It is also having a national impact, as other departments around the country establish programs emulating those at the center.

Data about the center's students demonstrate its success. By the fall of 2010, twenty-four women had completed the post-baccalaureate program. Of those, seventeen entered graduate school in the mathematical sciences immediately after completing the program, and five will have entered after brief deferrals; almost all of these students went to Group I or II departments. Only one student has dropped out of the graduate program. Ten new students joined the program in the fall of 2010.

The September 2007 issue of the *Notices* carried an Opinion column by the directors of the then newly created Center for Women in Mathematics. The final paragraph of their piece captures well the philosophy behind the center: "Yes, we marvel at the prodigies whose unwavering interest and aptitude in mathematics are evident from the start. But we must also open our minds to the vast numbers of students—women and minorities (and others from all walks of life)—who can be mathematicians but may not make that choice until late in their college careers or after."

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