Giving Women a Second Chance: Center for Women in Mathematics at Smith College

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U. Hawaii and Smith College[1]

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Goals

- help women make the transition from casual mathematics student to beginning PhD student in the mathematical sciences.
- provide an opportunity for students who decide they are serious about mathematics too late to apply directly to graduate programs
- create an environment that encourages undergraduate women to continue in the mathematical sciences.

Why a Center for Women in Mathematics?

- Still not that many women in mathematics.
- At every stage women drop down or drop out.

data

WOMEN IN MATH

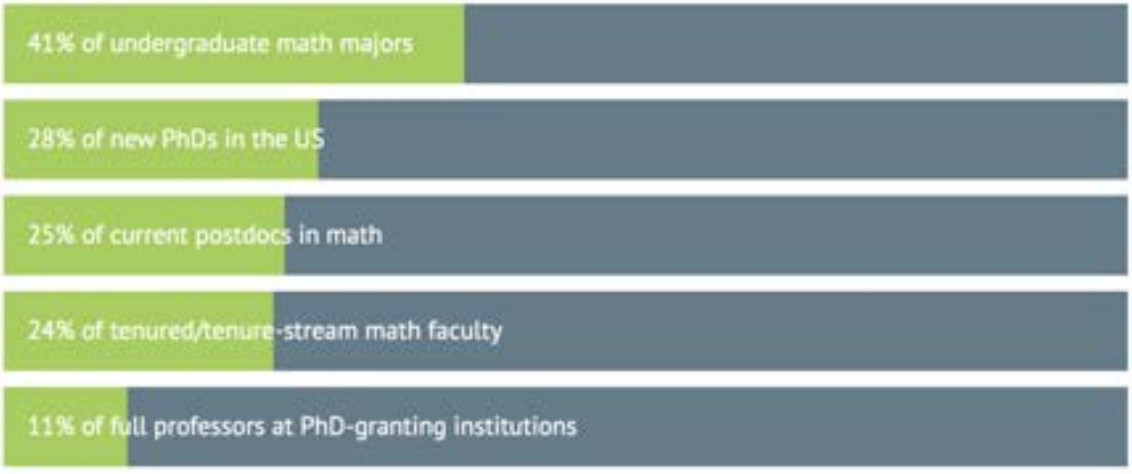
K-12 UNDERGRAD GRAD EDUCATORS DATA & RESEARCH

DATA AND RESEARCH

Search ...

The 2015 Annual Survey of the Mathematical Sciences in the U.S. paints a picture of women's representation in mathematics.

As of 2015, women are...



Why so few?

SEE THE FULL REPORT

This 2010 report from the American Association of University Women (AAUW) presents "profiles of eight key research findings that point to environmental and social barriers — including stereotypes, gender bias, and the climate of science and engineering departments in colleges and universities — that continue to block women's progress in STEM".

Why do what *we* do

- Disconnect between taking math classes and doing mathematics.
- Social aspect of mathematics is hidden.
- The mathematician stereotype.
- Women get serious about math later.
- Women underestimate their abilities in mathematics.

Perception: What is mathematics?

Disconnect between taking math classes and doing mathematics.

Perception: What is mathematics?

Disconnect between taking math classes and doing mathematics.

Solutions to Section 5.4

1. (i) $P_2(x) = 2 + \frac{x}{4} - \frac{x^2}{64}$, (ii) $P_2(1) = 2 + \frac{1}{4} - \frac{1}{64} = 2 + \frac{15}{64}$

3.

$$\begin{aligned} P_8(x) &= 0 + (x-1) + \frac{(-1)(x-1)^2}{2!} + \frac{(2)(x-1)^3}{3!} + \frac{(-3)(x-1)^4}{4!} + \cdots + \frac{(-7)(x-1)^8}{8!} \\ &= (x-1) - \frac{(x-1)^2}{2} + \frac{(x-1)^3}{3} - \frac{(x-1)^4}{4} + \frac{(x-1)^5}{5} - \frac{(x-1)^6}{6} + \frac{(x-1)^7}{7} - \frac{(x-1)^8}{8} \\ &= \sum_{i=0}^{8} (-1)^{(i+1)} \frac{(x-1)^i}{i} \quad (\text{could start at } i = 1). \end{aligned}$$

5.(a) $\sum_{i=0}^{\infty} \left(\left(\frac{2}{3} \right)^3 \right)^i = \frac{1}{1 - 8/125} = \frac{125}{117}$ (b) $\frac{2}{5} \sum_{i=0}^{\infty} \left(\frac{1}{5} \right)^i = \frac{2}{5} \cdot \frac{1}{1 - 1/5} = \frac{1}{2}$

(c) $2.2222\ldots = 2 \sum_{i=0}^{\infty} \left(\frac{1}{10} \right)^i = 2 \cdot \frac{1}{1 - 1/10} = \frac{20}{9}$

(d) $1 + 2x + 3x^2 + 4x^3 + 5x^4 + \cdots = \frac{d}{dx} \sum_{i=0}^{\infty} x^i = \frac{d}{dx} \frac{1}{1-x} = \frac{1}{(1-x)^2}$ converges if $|x| < 1$

(e) does not converge since $|-2.2| > 1$.

Perception: What does a mathematician look like?

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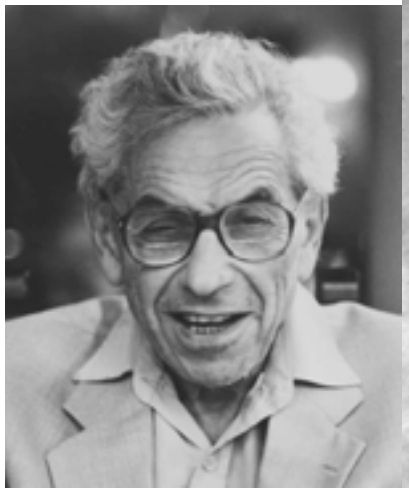

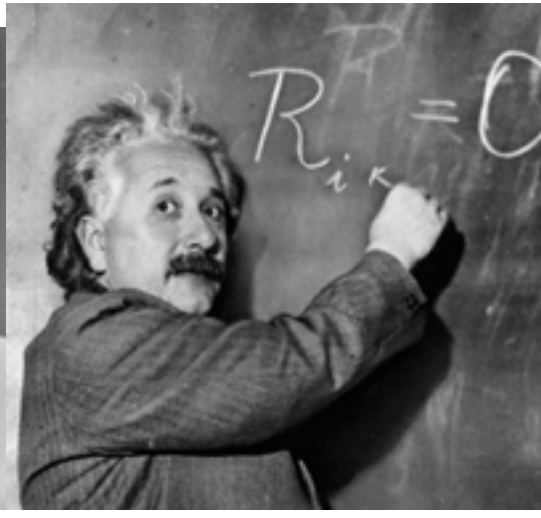

Perception: What does a mathematician do?

Perception: What does a mathematician do?

Reality

Mathematics is open ended, creative, social.

Who goes to grad school in mathematics and why?

- People who are "good at math."
- People who can imagine themselves as mathematicians.

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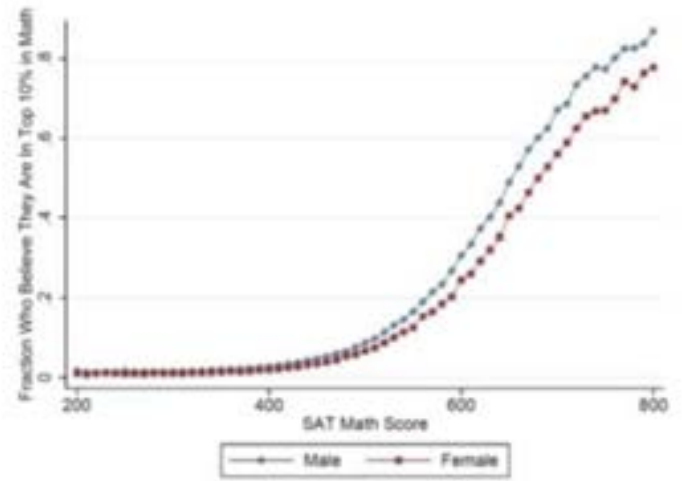
Women who are elite mathematicians are less likely than men to believe they're elite mathematicians



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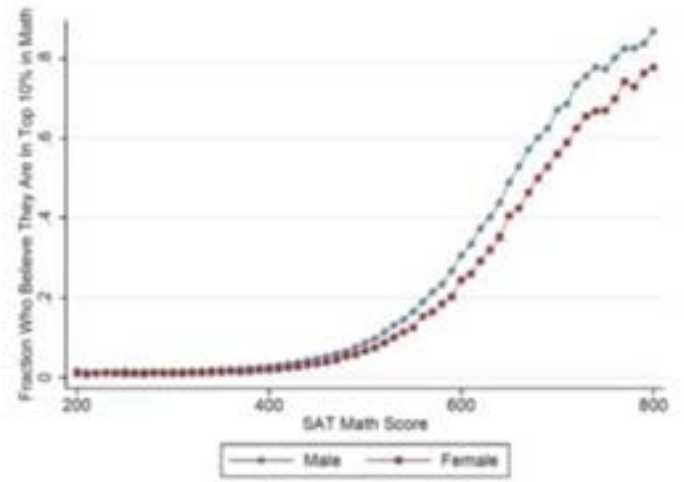
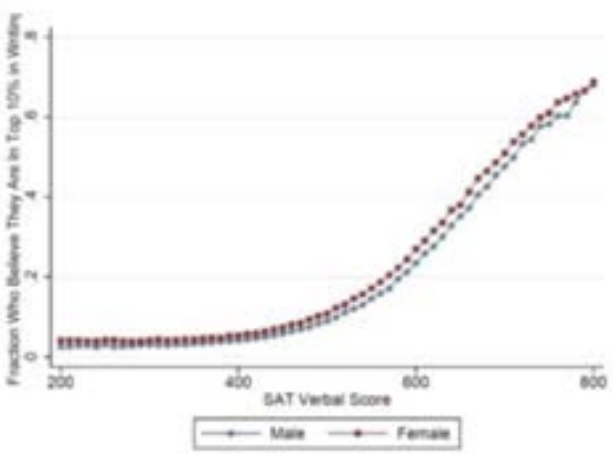




- Women and those from under-represented groups dont see themselves as potential mathematicians.
- Don't commit to mathematics until later. May have less extensive course work.
- May be quicker to drop out.
- Missing motivation/encouragement.
- Most mathematicians are not stereotypical math nerds.

The Post-baccalaureate Program at Smith College:

Center for Women in Mathematics

POST-BACCALAUREATE PROGRAM

The Postbaccalaureate Program is for women with bachelor's degrees who did not major in mathematics or whose mathematics major was light. This program is open to all women with a serious interest in pursuing a higher degree in the mathematical sciences. Successful applicants will have completed at least Linear Algebra

How to Apply
FAQs
Brochure
Downloads require Adobe Reader (fre
Download Adobe Reader >

Post–Baccalaureate Program in Mathematics at Smith College

- help women make the transition from casual mathematics student to beginning PhD student in the mathematical sciences.
- provide an opportunity for students who decide they are serious about mathematics too late to apply directly to graduate programs.
- create an environment that encourages women to continue in the mathematical sciences.

What we do.

First, an opportunity.

Megan Sawyer

Assistant Professor

Dr. Megan Sawyer joined the mathematics department as an assistant professor in 2013. Courses taught include: Heart of Mathematics, Applied Statistics, Calculus, Cryptology, Applied Linear Algebra, and Differential Equations.

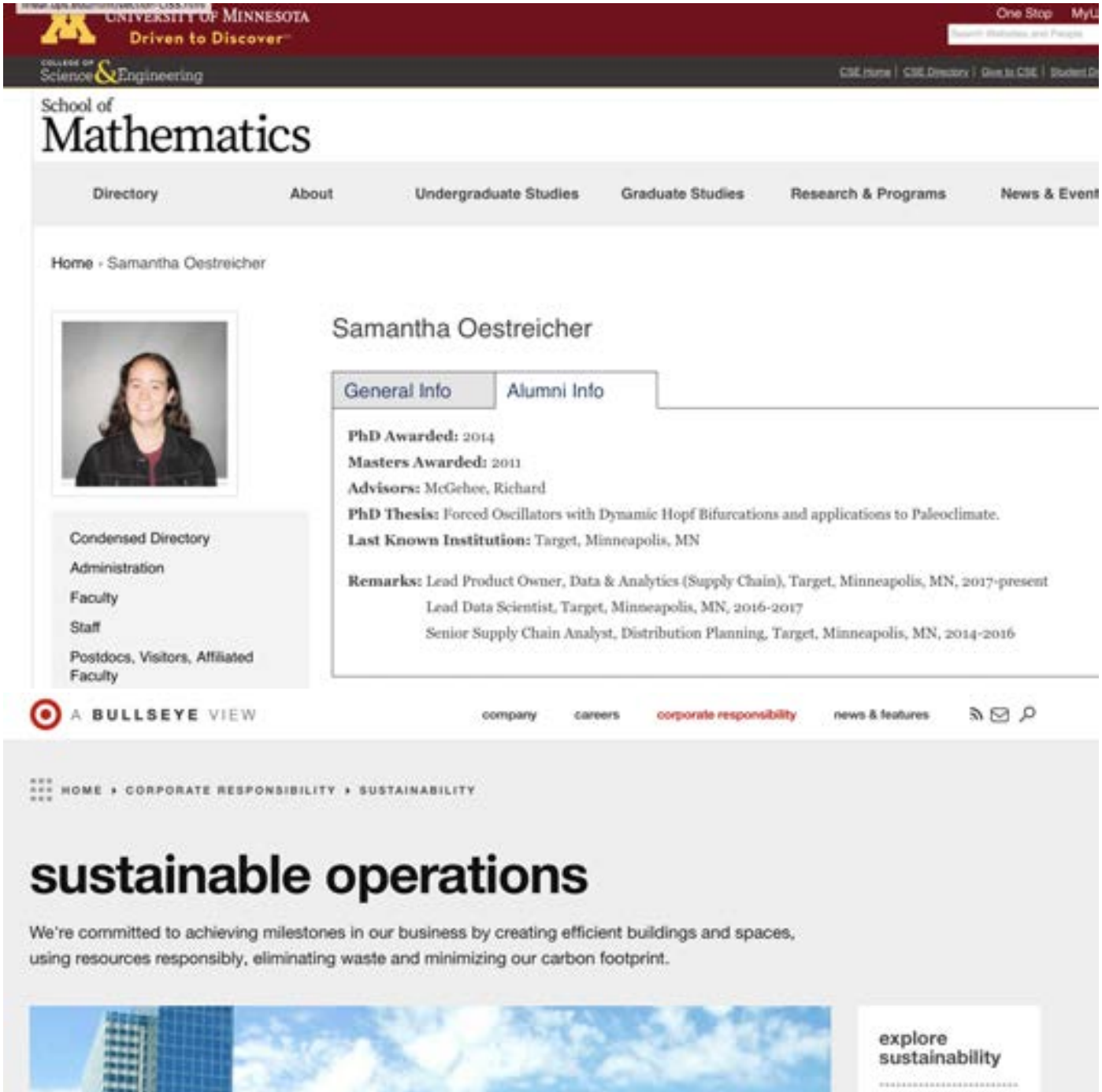
Sawyer received their Bachelor of Science in Mathematics Education from University of Colorado Denver, a Certificate of Post-Baccalaureate Studies in Mathematics from Smith College, and their Master of Science in Mathematics and Doctor of Philosophy in Applied Mathematics from North Carolina State University. Sawyer was nominated for SNHU's Excellence in Teaching award in 2015, as well as several teaching awards from North Carolina State University.

Sawyer has served or serves as a member of the School of Arts and Sciences Curriculum Committee, Undergraduate Research Committee, and the President's Commission on LGBTQ Advocacy. In addition, they serve on the Great Bay Community College Mathematics Department Advisory Board, have participated in several symposia for Diversity, Equity and Inclusion in Higher Education, and serve as an advisor to Generation Equality, an advocacy group on campus.

Research interests include physiologically based pharmacokinetic (PBPK) modeling including applications to Vitamin D as well as dermal models. Multiple conference presentations and publications, including articles submitted to Toxicology Letters and Journal of Pharmacokinetics and Pharmacodynamics, center around these topics. Research awards include the US Environmental Protection Agency 2013 Level III Scientific and Technological Achievement Awards (STAA) for work conducted with undergraduate students. Other publications include "Modeling Dynamic Biological Systems" by Hannon and Ruth, Mathematical Association of America Book Reviews, October 2015.

Southern New Hampshire University


University of Minnesota
Driven to Discover
One Stop
College of Science & Engineering
School of
Mathematics
Directory
About
Undergraduate Studies
Graduate Studies
Research & Programs
Home › Samantha Oestreicher
Samantha Oestreicher
General Info
Alumni Info
PhD Awarded: 2014
Masters Awarded: 2011
Advisors: McGehee, Richard
PhD Thesis: Forced Oscillators with Dynamic Hopf Bifurcations and applications to Paleoclimate.
Last Known Institution: Target, Minneapolis, MN
Remarks: Lead Product Owner, Data & Analytics (Supply Chain), Target, Minneapolis, MN, 2017-present
Lead Data Scientist, Target, Minneapolis, MN, 2016-2017
Senior Supply Chain Analyst, Distribution Planning, Target, Minneapolis, MN, 2014-2016
Condensed Directory
Administration
Faculty
Staff
Postdocs, Visitors, Affiliated Faculty


University of Minnesota
Driven to Discover
College of Science & Engineering
One Stop
School of Mathematics
Directory
About
Undergraduate Studies
Graduate Studies
Research & Programs
Home › Samantha Oestreicher
Samantha Oestreicher
General Info
Alumni Info
PhD Awarded: 2014
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Remarks: Lead Product Owner, Data & Analytics (Supply Chain), Target, Minneapolis, MN, 2017-present
Lead Data Scientist, Target, Minneapolis, MN, 2016-2017
Senior Supply Chain Analyst, Distribution Planning, Target, Minneapolis, MN, 2014-2016
Condensed Directory
Administration
Faculty
Staff
Postdocs, Visitors, Affiliated Faculty
A BULLSEYE VIEW
company
careers
corporate responsibility
news & features
HOME › CORPORATE RESPONSIBILITY › SUSTAINABILITY
sustainable operations
We're committed to achieving milestones in our business by creating efficient buildings and spaces, using resources responsibly, eliminating waste and minimizing our carbon footprint.
explore sustainability

"Because you can't take Real Analysis in Night School."

Our students were previously:

High school/middle school math teachers

Med school drop outs,

Information Technology Specialist

Lawyers

Architects

Bio majors, theater majors, French majors, Econ majors, Women Studies majors, Poorly prepared math majors

Office Of The Provost / Academic Affairs

- Institutional Effectiveness
- Provost's Office Staff
- Academic Job Opportunities
- Requirements for Faculty Searches

Leona Sparaco

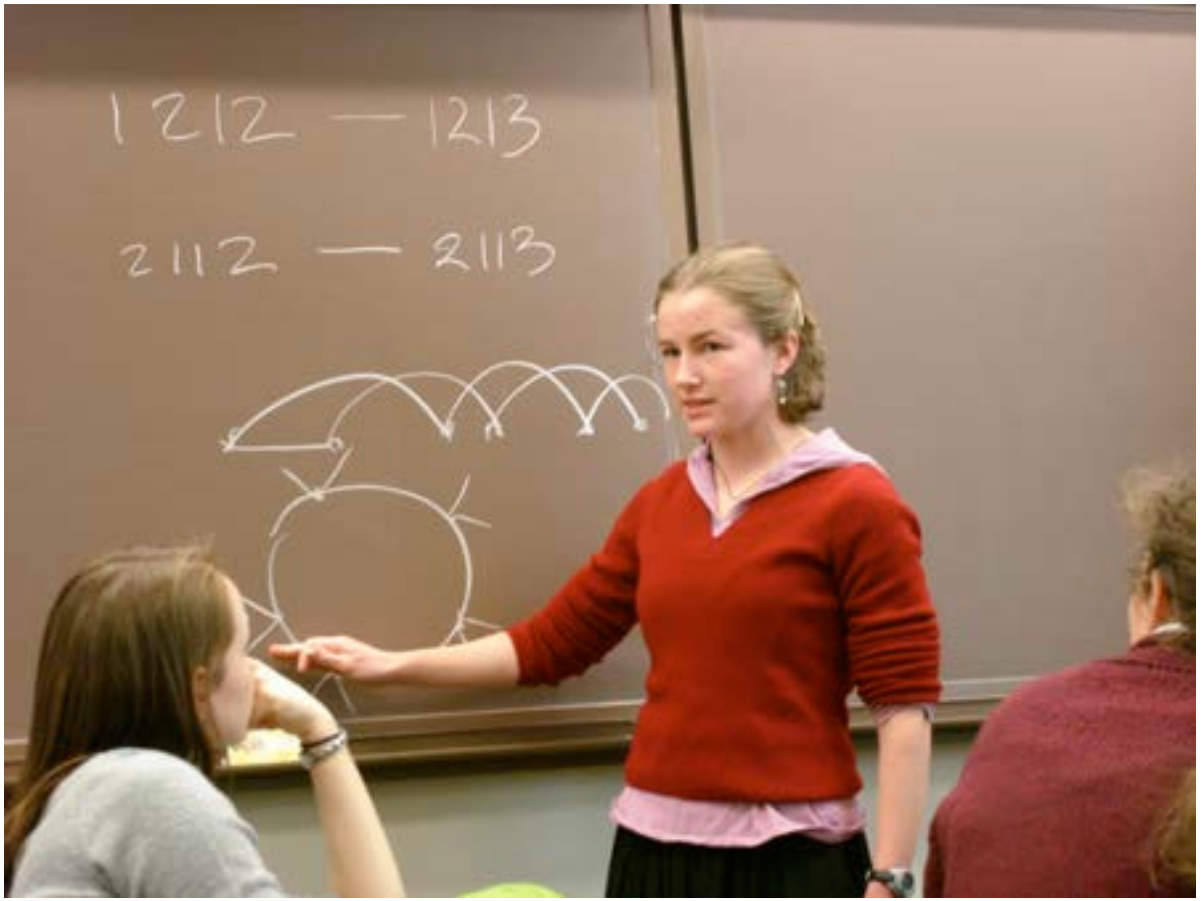
Dr. Sparaco, of Tallahassee, Florida, wa named visiting instructor in the Mathematics Department. She earned a bachelor's degree in mathematics from Siena College and a doctorate in mathematics from Florida State University. Since 2012 , she has taught variety of calculus, trigonometry, college algebra and other math classes at Florida State.

Courses

- Real Analysis (Modified Moore Method)
- Algebra
- Topology
- Complex Analysis
- Other things: Combinatorics, Graph Theory, Number Theory, Differential Equations, Probability, Statistics, etc.
- Graduate Courses at U Mass. (Often several students together.)
- Dialogues in Math/ Research course

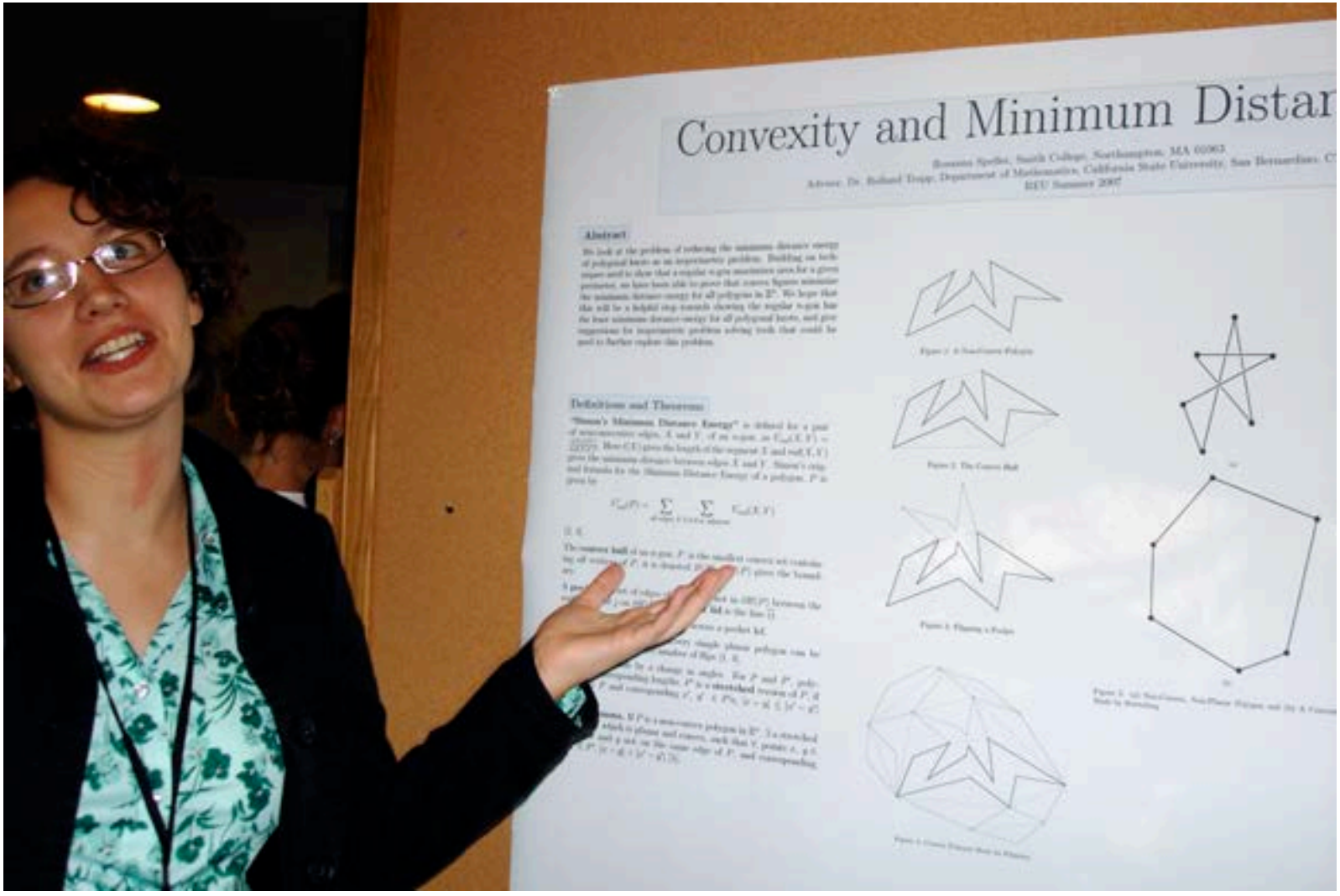
– Tailor the program to the student.

Research Experience.



Experience open ended research. Work as a team.
–creativity, set backs, conjectures, results....

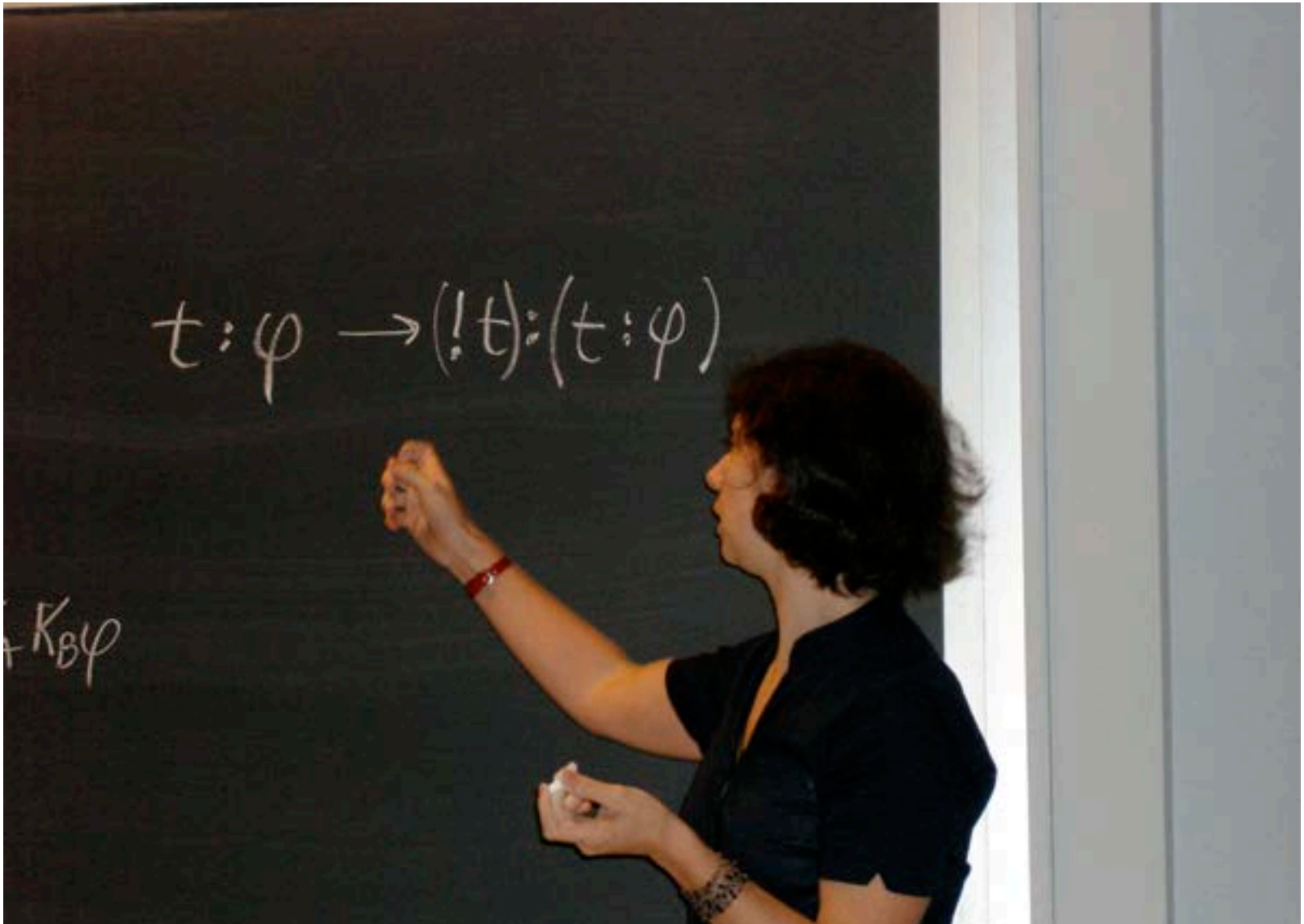
Research Experience.



-presentations, posters, talks, write ups,

On being a mathematician....

Hear lots of mathematics from many mathematicians.



On being a mathematician....

Meet lots of mathematicians at many stages.
Hear their stories.

Conferences:

Make them a community.

Do hard math together.

Make them a community.

Have fun together.

Results

- In the past 9 years 90 postbacs completed program.
- 80 of these went to graduate programs in the mathematical sciences. (Mostly PhD programs) Minnesota, U. Illinios, U. Illinois Chicago, UC Davis, UMass, NC State, Wesleyan, Georgia, Brown, Santa Cruz, Columbia, Utah, Duke, Oregon, Cornell, N. Texas, Vermont, Georgetown, Nebraska, U. Iowa, Iowa State, U. Conn., Tufts, U Md, Columbia, Harvard, UNC, Indiana, London School of Economics.
- This is $> 1\%$ first year women grad students.
- 80% of these student continue to make good progress (or have finished).

How do grad schools react to our students?

- They ALL want more women students.

How do grad schools react to our students?

- They ALL want more women students.
- In practice, many are wary of the meandering paths and lower GREs of these students.
- Most grad schools do not help students feel truly part of the math community early on. (several years of courses and exams before any research, competitive environment)
- We give our students a community to which they stay connected. (And point them to grad schools that suit them better.)

Our experience

Women need to hear the stories of women mathematicians!

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Especially stories of bumps in the road and persistence.

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Women need to hear the stories of women mathematicians!

Especially stories of bumps in the road and persistence.

And stories of those of us who are just "average" mathematicians.