Brendan W. Sullivan

bwsulliv@andrew.cmu.edu
math.cmu.edu/~bwsulliv

Home:	*Work:*
5 Bayard Road, Unit 213	Dept. of Math Sciences.
Pittsburgh, PA 15213	Wean Hall 6113, CMU
508-864-5044	Pittsburgh, PA 15213

Education:

D.A., Mathematics	**B.A., Mathematics & Physics**
Carnegie Mellon University	Hamilton College
May 2013	May 2007
Advisor: Dr. Jack Schaeffer	*Thesis:* IFS with Memory
Thesis: Textbook and course	*Thesis:* Effects of co-dopants on rare
materials for Concepts of Math	earth dispersion in sol-gel glasses

Teaching Experience:

Recipient *of the Hugh D. Young Graduate Student Teaching Award 2013*

Instructor:

· *Fall 2012: Concepts of Mathematics*
Main instructor for lecture section with 150 students. Oversaw three TAs and coordinated all course planning and written materials, including lecture notes, recitation handouts, textbook materials, assignments, exams, and grading rubrics. Shared these materials with advisor Jack Schaeffer, who was instructor for another lecture section.

· *Summer 2011: Concepts of Mathematics*
Main instructor for 45 students. Oversaw one TA and created all course materials. Coordinated a dozen student projects.

· *Summer 2010: Concepts of Mathematics*
Main instructor for 25 students.

· *Summer 2009: Calculus in Three Dimensions*

· *Summer 2008: Calculus II for Humanities*

· Have covered lectures for other professors on several occasions, as well, including calculus courses and ODEs.

TA:

· *Fall 2011: Concepts of Mathematics*
Worked with instructor John Mackey to write homework assignments and exams. Coordinated review sessions. Wrote bi-weekly course handouts.

· *Fall 2010: Concepts of Mathematics*

· Have TAed for every course in the standard calculus sequence in previous semesters, several more than once.

· *Summer 2007:* Answered questions, monitored forum, and graded for an online course, The Art and Science of Quantitative Reasoning, through Boston University's Metropolitan College.

· Oversaw video TA training sessions at CMU for the past three years.

Grader:
· Have graded for upper-level undergrad courses in numerical analysis, as well as Concepts of Math during summer sessions.

Tutor:
· Extensive peer tutoring experience while an undergrad, as well as paid work with several students in calculus and Concepts during grad studies.

Publications:
· R. Bedient, M. Frame, K. Gross, J. Lanski, B. Sullivan, 2011: Higher Block IFS 2: Relations between IFS with different levels of memory. *Fractals*, **18**, 399-408.
· R. Bedient, M. Frame, K. Gross, J. Lanski, B. Sullivan, 2010: Higher Block IFS 1: Memory reduction and dimension computations. *Fractals*, **18**, 145-155.
· A.J. Silversmith, N.T.T. Nguyen, B.W. Sullivan, et al., 2008: Rare-earth ion distribution in sol-gel glasses co-doped with Al^{3+}. *Journal of Luminescence*, **128**, 931-933.

Talks and Conferences:
· MAA Allegheny Section annual meeting, April 2013
· Joint Mathematics Meetings, January 2013
· CMU Graduate Student Seminar: Have given several talks in this weekly series. Slides and LaTeXdocuments are available on my website.
· CMU Undergrad Math Club: Have adapted some of my Grad Seminar talks to be presented to undergrads.
· Finite Element Circus, October 2009.
· Hudson River Undergrad Math Conference, April 2007. Presented a fifteen-minute talk on IFS with memory.

Research Interests:
· General mathematics education and related issues, including course and curriculum design, assessment, addressing student difficulties with learning abstract mathematics, and developing homework and exam exercises.
· Fractals, particularly IFS with memory and related topics.
· Combinatorics and graph theory, particularly the probabilistic method and extremal combinatorics.
· PDEs/ODEs and related theory, and the Finite Element Method.

Memberships: AMS, MAA, NCTM

Other Skills: Extensive experience with LaTeX. Programming in `Matlab` and `HTML`. Conversational and reading-comprehension level French.

Personal Info: Competitive `SCRABBLE` player. Crossword constructor. Avid golfer, jogger, and racquetball player. Music blogger. Improv comedian.