Drew Zemke

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Department of Mathematics
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Education

2012 – 2018 PhD in Mathematics
Cornell University
Advisor: Jason Manning
Thesis: "Surfaces in three- and four-dimensional topology"

2008 – 2012 BS in Computational Mathematics
Rochester Institute of Technology
Highest Honors and Distinction in Mathematics, GPA 4.0.

Teaching Experience

2018 – present Preceptor in Mathematics
Department of Mathematics, Harvard University
Courses Taught:

Calculus II	2018
Multivariable Calculus	2018

2012 – 2018 Graduate Instructor and Teaching Assistant
Department of Mathematics, Cornell University
Courses Taught:

Instructor

Calculus II for Engineers	2017, 2015
Calculus I	2013

Teaching Assistant (TA)

Multivariable Calc. for Engineers	2018, 2015, 2013
Calc. II for Engineers	2017, 2014, 2012

Head TA

Multivariable Calc. for Engineers	2018, 2016
Calculus II for Engineers	2015

2008 – 2012 Mathematics Tutor
Academic Support Center, Rochester Institute of Technology

Honors and Awards

- **Hutchinson Fellowship**
  Cornell Department of Mathematics, December 2016
- **Deanne Gebell Gitner '66 and Family Annual Prize for Teaching Assistants**
  Cornell College of Arts and Sciences, May 2016
- **Cornell Mathematics Graduate Student Teaching Assistant Award**
  Cornell Department of Mathematics, December 2015

Publications

- **Calculating the homology and intersection form of a 4-manifold from a trisection diagram**
  With Peter Feller, Michael Klug, and Trent Schirmer. *Submitted for publication.*
  Preprint available at *https://arxiv.org/abs/1711.04762*.
- **The simple loop conjecture for 3-manifolds modeled on *Sol***
  Algebraic & Geometric Topology, 16(5):3051-3071, 2016.
- **Unary pattern avoidance in partial words dense with holes**
  With Francine Blanchet-Sadri and Kevin Black. *Language and Automata Theory and Applications*, number 6638 in *Lecture Notes in Computer Science*, pages 155–166. Springer-Verlag, 2011.
- **Greedy algorithms for generalized k-rankings of paths**
  With Sandra James and Darren A. Narayan. *Information Processing Letters*, (110):979-985, 2010.
- **Minimal k-rankings for prism graphs**
  With Juan Ortiz, Hala King, Darren A. Narayan, and Mirko Hornak. *Involve*, 3(2):183–190, 2010.

Presentations

- **Calculating the classical algebraic topology of a 4-manifold from a trisection diagram.**
  Joint Mathematics Meetings in San Diego, CA, January 2018
- **Random Stuff: Graphs, Groups, and 3-Manifolds**
  Olivetti Club at Cornell University, March 2017
  π-RIT at the Rochester Institute of Technology, April 2017
- **The Mathematics of Dancing**
  CTY Science and Technology Series: Mathematics at Cornell University, November 2016
- **Trisections of 4-Manifolds**
  Topology and Geometric Group Theory Seminar at Cornell University, September 2016
- **The Simple Loop Conjecture for 3-Manifolds Modeled on *Sol***
  Temple Geometry-Topology Seminar at Temple University, April 2016
- **Playing With Surfaces**
  CTY Science and Technology Series: Mathematics at Cornell University, March 2015
- **How to Draw 3- and 4-Manifolds**
  Olivetti Club at Cornell University, March 2015
- **The Simple Loop Conjecture for Orientable Solvmanifolds**
  Graduate Student Conference in Algebra, Geometry, and Topology at Temple University, May 2015
  Topology and Geometric Group Theory Seminar at Cornell University, March 2015
- **Normal Surface Theory & Algorithmic Topology**
  Olivetti Club at Cornell University, October 2014