

R. Sean Bowman

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Education

- 2005–2012 **Ph.D., Mathematics**, *University of Texas, Austin*.
Advisor: John Luecke
- 2002–2005 Graduate study in computer science, *University of Arkansas, Fayetteville*
- 1996–2000 **A.B., Mathematics**, *Washington University in St. Louis*.

Academic Employment

- 2012–present **Visiting Assistant Professor**, *Oklahoma State University*.
- 2005–2012 **Teaching Assistant and Assistant Instructor**, *University of Texas, Austin*.

Research Interests

Topology and geometry in 3 dimensions, bridge number of knots and links, Dehn surgery, Heegaard splittings, topological data analysis, and machine learning

Publications

- R. Sean Bowman. Knots in handlebodies with nontrivial handlebody surgeries. *Journal of Topology*, 6(4):955–981, 2013.
- R. Sean Bowman, Scott Taylor, and Alex Zupan. Bridge spectra of twisted torus knots. To appear in *International Mathematics Research Notices*.
- R. Sean Bowman, Douglas Heisterkamp, and Jesse Johnson. Thin tree position. arXiv:1408.4074, 2014.
- R. Sean Bowman, Douglas Heisterkamp, Jesse Johnson, and Danielle O'Donnol. An application of topological graph clustering to protein function prediction. arXiv:1408.5634, 2014.
- Ken Baker, R. Sean Bowman, and John Luecke. Bridge number and boundary reducing surgeries. In preparation.
- R. Sean Bowman and Jesse Johnson. Bridge number of knots in the page of an open book. In preparation.
- R. Sean Bowman and Stephen B. McCaul. Fast Searching for Andrews-Curtis Trivializations. *Experimental Mathematics*, 15(2), 2006.
- J. C. Lusth and R. S. Bowman. A Minimalist Approach to Objects. *Computer Languages, Systems, and Structures*, 32(1), 2006.
- Kyle Cranmer and R. Sean Bowman. PhysicsGP: A Genetic Programming Approach to Event Selection. *Computer Physics Communications*, 167(3), 2005.
- R. Sean Bowman and Henry Hexmoor. Agent Collaboration and Social Networks. In *Proceedings of Knowledge Intensive Multiagent Systems (KIMAS)*, 2005.

Some of these can be found at http://arxiv.org/a/bowman_r_1

■ Funding & Awards

- Supported by NSF RTG grant DMS-0636643, Summer 2010, May 2011–May 2012
- University of Texas Professional Development Award, 2012
- AMS Mathematical Research Communities workshop on Computational and Applied Topology, 2011

■ Talks

Invited Talks

- 10/2014 University of Miami Topology Seminar
- 9/2014 University of Iowa Topology Seminar
- 8/2014 *The Thin Manifold* conference, University of Iowa
- 6/2014 Nihon University Topology Seminar
- 6/2014 Nara Women's University Topology Seminar
- 4/2014 University of Oklahoma Topology Seminar
- 2/2014 University of Arkansas Topology Seminar
- 10/2013 University of Texas Topology Seminar
- 4/2013 AMS sectional meeting, Boston College
- 4/2013 AMS sectional meeting, Iowa State University
- 10/2012 University of Arkansas Topology Seminar
- 9/2012 Oklahoma State University Colloquium
- 2/2012 Caltech Topology Seminar
- 10/2011 University of Texas Topology Seminar
- 3/2011 University of Arkansas Topology Seminar

Contributed & Local Talks

- 1/2014 Joint Meetings of the AMS/MAA
- 1/2014 Oklahoma State Topology Seminar
- 9/2013 Oklahoma State Topology Seminar (also Fall 2012 and Spring 2013)
- 1/2012 Joint Meetings of the AMS/MAA

General audience talks

- 10/2013 Oklahoma State University Math Club
- 9/2010 Austin Math Circle (elementary through high school students)

■ Teaching

Instructor, Oklahoma State University

- Calculus I, Fall 2012–Fall 2014. I was part of the overhaul of the Calculus I course at OSU, an effort to improve the student success rates significantly.

Assistant Instructor, UT Austin

- Calculus for Emerging Scholars, Fall 2009, Fall 2010. This is a challenging adjunct class open to students by invitation.

Teaching Assistant, UT Austin

- Honors Differential Equations, Fall 2008
- Differential equations, Fall 2005, Spring 2009
- Calculus II, Spring 2006, Fall 2006, Spring 2008
- Multivariable Calculus, Spring 2007, Fall 2007
- Integral Calculus, Summer 2007, Spring 2010
- Applied Calculus, Summer 2009
- Participated in the supplemental instruction program Spring 2007, Fall 2007, Spring 2010. This program aims to increase retention and graduation rates of first generation and historically underrepresented college students.

Adjunct, Texas International Education Consortium

- Taught math and math vocabulary to ESL students from Asia and the Middle East, Fall 2008–Spring 2010

Teaching Assistant, University of Arkansas

- College Algebra and Discrete math, Fall 2004–Summer 2005

Service, Outreach, & Advising

- Conference co-organizer and grant co-PI, Redbud conference, Spring 2015
- Honors contract supervisor for two undergraduate Calculus students, Spring 2014
- Reviewer, MathSciNet
- Member, AMS

Other Work Experience

2004 **Software Developer**, *Rocket Software*.

Summer internship developing software for Linux on zSeries mainframes

2000-2002 **Software Developer**, *Open Software Services, LLC*.

Co-owner of software company specializing in web applications

Computer skills

- Fluent: Python, C, C++, Java, \LaTeX
- Conversational: Ruby, Mathematica, Haskell, OCaml, Scala, Matlab
- Experience with many technologies, including web programming stacks, relational and non-relational databases, standard libraries of the above languages, proof automation tools such as Coq.