Anthony Bosman

Contact Information

Andrews Univeristy
Department of Mathematics
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Research Interests

Low-dimensional topology, knot theory, shake concordance of links, 4-manifolds.

Education

Rice University

Ph.D., Mathematics (May 2017)

Advisor: Shelly Harvey (2016), Andrew Putman (2015-2016), Tim Cochran (2013-2014)

M.S. in Mathematics, December 2014

Stanford University

B.S. in Mathematics (Honors), June 2012

Papers

Shake Slice and Shake Concordant Links. Forthcoming.

Mathematics in Light of Eternity, Journal of Adventist Education. Forthcoming.

Learning and Service in Undergraduate Mathematics: A Literature Review, 2015.

Teaching Experience

Instructor, Rice University
- Rice Program in Mathematics for High School Students, Summer 2016
- Single Variable Calculus II, Summer 2015
- Multivariable Calculus, Fall 2014
- Single Variable Calculus I, Summer 2014

Teaching Associate, Rice University
- Single Variable Calculus I (Flipped Classroom), Fall 2016
- Single Variable Calculus I (Flipped Classroom), Fall 2015

Teaching Assistant, Rice University
- Knot Theory, Spring 2016
- General Topology, Spring 2015
- Multivariable Calculus, Spring 2014
- Single Variable Calculus I, Fall 2013
- Single Variable Calculus II, Spring 2013
- Single Variable Calculus II, Fall 2012

Graduate Fellow, Center for Teaching Excellence, Rice University
- Organizer and presenter for *Graduate Pedagogy Institute*, October 2016
- Advise graduate students on teaching and learning, Fall 2016-Spring 2017

Training and Professional Development
- Graduate Certificate in Teaching and Learning, Completed Spring 2016
- Teaching Portfolio, Spring 2016
- Practicum in College Teaching, Rice University, Fall 2015
- Research on Teaching and Learning, Rice University, Spring 2015
- Invited Panelist for the Center of Teaching Excellence's Teaching Symposium, Rice University, January 2015

Principles of Effective College Teaching, Rice University, Fall 2014
Graduate Teaching Seminar, Mathematics Department, Rice University, 2010-2012

Teaching Assistant/Counselor, Stanford University
Stanford University Mathematics Camp, Summer 2011
Stanford Education Program for Gifted Youth, Summer 2010
Stanford Online High School, Summer 2010

Invited Talks

Shake Concordance of Links, Topology Seminar (October 2016, Rice University)

Shake Slice and Shake Concordant Links, Knots in Hellas (July 2016, Olympia, Greece)

I Think Knot: how surfaces help us understand knots, Undergraduate Math-Physics Seminar (October 2015, Andrews University)

Shake Slice and Shake Concordant Links, Topology Seminar (June 2015, Postech University)

Why Knot? An Introduction to Knot Theory, Undergraduate Math-Physics Seminar (April 2015, Andrews University)

An Introduction to Knot Theory, Andrews Research Conference (May 2014, Andrews University)

Selected Expository Talks

Non-concordant links with homology cobordant zero surgery manifolds, Topology Working Seminar (April 2017)

Clasp-pass moves on knots, links, and spatial graphs, Topology Working Seminar (Oct 2016)

Conway's Theorem on Rational Tangles, Current Mathematics Seminar (Sep. 2016)

Milnor's Invariants and Self C_k-Equivalence, Topology Working Seminar (April 2016)

Iterated Bing Doubles, Concordance Invariants, and Covering Links, Topology Working Seminar (November 2015, Rice University)

Quantum Money from Knots, Current Mathematics Seminar (Sep. 2015, Rice University)

Proving the Four-Color Theorem?, Current Mathematics Seminar (April 2015, Rice University)

Constructing Slice Knots and Links, Topology Working Seminar (March 2015, Rice University)

A Prime Decomposition for the String Link Monoid, Topology Working Seminar (Nov. 2014, Rice University)

Series of Lectures on Contact Geometry and Transverse Knots, Contact Geometry Seminar (Fall 2014, Rice University)

An Introduction to Knot Theory, Andrews Research Conference (May 2014, Andrews

University)

On Levine's Algebraic Concordance Group for Knots, Topology Working Seminar (Apr. 2014, Rice University)

Series of Lectures on Differential Forms, Differential Geometry Seminar (Mar. 2014, Rice)

Rochlin's Invariant for Spin 3-Manifolds, Topology Working Seminar (Dec. 2013, Rice University)

Obstruction Theory, Current Mathematics Seminar (Oct. 2013, Rice University)

Link Concordance Implies Homotopy, Topology Working Seminar (Mar. 2013, Rice University)

On Dividing a Square into Equal Area Triangles, Current Math Seminar (Nov. 2012, Rice University)

Bott Periodicity, Topology Working Seminar (Aug. 2012, Rice University)

Service and Outreach

Rice University Math Circle Coordinator (Fall 2015-Spring 2017t)
Organizes bimonthly program for area high school students.
Math Circle Presenter (Fall 2014-Spring 2017). Presentations included:
Everything You Ever Wanted To Know About Pi
The Mathematics of *Spot it!*
The Mathematics of the Game Set
Mathemagic: The Mathematics of Magic
The Pigeonhole Principle
The Four Color Theorem
Knots and Surfaces
The Mathematics of Fair Elections
The Mathematics of Games

Conferences Attended

ProjectNEXT at MathFest, Chicago IL, June 2017

Andrews Research Conference, Berrien Springs MI, May 2017

MAA-AMS Joint Mathematics Meetings, Atlanta GA, January 2017

Knots in Hellas, International Olympic Academy, Olympia, Greece, July 17-23, 2016

Topology in dimension 3.5, Rice University, Houston TX, June 1-4, 2016

MAA-AMS Joint Mathematics Meetings, San Antonio TX, January 10-13, 2015
Special Session on Knot Theory
Session on Using Flipped Pedagogy
Case Studies in Best Practices for Classroom Teaching

Graduate Workshop on 4-Manifolds, Simons Center for Geometry and Physics, Stony Brook NY, August 18-22, 2014

Combinatorial Link Homology Theories, Braids, and Contact Geometry, Institute for

Computational and Experimental Research in Mathematics (ICERM), Brown University, Providence RI, August 4-8, 2014

Topology Students Workshop, Georgia Institute of Technology, Atlanta GA, June 9-13, 2014

Andrews Research Conference, Andrews University, Berrien Springs MI, May 7-11, 2014

Graduate Coursework

- Geometric Topology
- Integration Theory
- Abstract Algebra
- Algebraic Topology
- Complex Analysis
- Differential Topology
- Differential forms and de Rham cohomology
- Heegaard Floer theory
- Topics in Heegaard Floer homology
- Concordance invariants from Heegaard Floer homology
- Contact Geometry