

MICHAEL BRAD HENRY

Siena College
515 Loudon Road
Loudonville, NY 12211

mbhenry@siena.edu
<http://www.mbhenry.com>
(518) 783-2569

EDUCATION

Washington University in St. Louis, St. Louis, Missouri.

Ph.D. (2009), A.M. (2005), Mathematics. Advisors: Rachel Roberts and Josh Sabloff.
Connections between Floer-type invariants and Morse-type invariants of Legendrian knots.

The University of Texas at Austin, Austin, Texas.

Visiting graduate student, (2006 - 2007).

Augustana College, Rock Island, Illinois.

A.B., Mathematics, Computer Science/Mathematics, *Summa cum Laude*, (2003).

PROFESSIONAL POSITIONS HELD

Assistant Professor, Siena College, (2011 -).

RTG Postdoc Lecturer, The University of Texas at Austin, (2009 - 2011).

GRANTS, FELLOWSHIPS, AND HONORS

2011-2012 Project NExT Fellow sponsored by the Legacy of R.L. Moore Foundation.

American Institute of Mathematics SquaREs Grant for “Augmentations, Rulings, and Generating Families,” (2009 - 2011). With Lisa Traynor, Josh Sabloff, Paul Melvin, Dmitry Fuchs, Daniel Rutherford, Victor Goryunov, and Sergei Chmutov.

The University of Texas at Austin, NSF RTG Fellowship, (2009 - 2011).

Washington University in St. Louis:

1. NSF Research Fellowship, (2006 - 2008).
2. US Dept. of Education GAANN Fellowship, (2004 - 2006).
3. University Fellowship, (2003 - 2004) and (2008 - 2009).

Augustana College:

1. President’s Scholar, (1999 - 2003), full tuition to those who “have demonstrated exemplary academic performance in a challenging academic program, as well as outstanding out-of-classroom involvement, good character and citizenship.”
2. Phi Beta Kappa, (2003).
3. Pi Mu Epsilon, (2003).
4. A. W. Williamson Mathematics Award, (2003).
5. Earl Beling Scholar in Mathematics, (2002), leading to a presentation of undergraduate research at the 2003 MAA Mathfest.

TEACHING EXPERIENCE

The University of Texas at Austin (2009 - 2011):

Instructor:

1. Structure of Modern Geometry, Math 333L, (Spring 2011).
2. Integral Calculus, Math 408L, (Fall 2010).
3. Number Theory, Math 328K, (Spring 2010).
4. Sequences, Series and Multivariable Calculus, Math 408D, (Fall 2009).

Washington University in St Louis (2004 - 2007):

Instructor:

1. Matrix Algebra, Math 309, (Summer 2007).
2. Finite Mathematics, Math 220, (Summer 2006 - Co-taught with Scott Cook).

RESEARCH INTERESTS

Topological, algebraic, and geometric methods in low dimensional topology and contact topology. Specifically, the study of invariants of Legendrian knots derived from generating families and their connections with existing Legendrian knot invariants. AMS 2000 Subject Classification: 57M, 57R, 53D.

PUBLICATIONS AND PREPRINTS

1. *Connections between Floer-type invariants and Morse-type invariants of Legendrian knots*, Pacific Journal of Mathematics, 249-1 (2011), 77–133.
2. *A combinatorial DGA for Legendrian knots from generating families* (With Dan Rutherford), under review, (2011).

SEMINARS AND TALKS (SORTED BY AUDIENCE)

Researchers and Graduate Students:

Selected talks from 2003 - 2011, 26 total. For a complete list see <http://www.mbhenry.com>.

A Morse-theoretic differential graded algebra for Legendrian knots,
University of Texas at Austin Topology Seminar, (Fall 2010).

Connections between existing Legendrian knot invariants,
Philadelphia Area Topology Seminar, Duke Topology Seminar, University of Kentucky
Topology Seminar, University of Texas Topology Seminar, (Fall 2009 - Spring 2010).

Extending the normal ruling invariant to Legendrian surfaces,
American Institute of Mathematics, (Fall 2008).

Generating families, normal rulings and Legendrian knots,
Washington University Combinatorics and Topology Seminar, (Spring 2008).

The Jones polynomial as the Euler characteristic of a knot homology invariant,
Washington University Graduate Organized Seminar, (Fall 2007).

Undergraduates, Middle School Students, and Middle School Educators:

Selected talks from 2002 - 2011, 14 total. For a complete list see <http://www.mbhenry.com>.

The infinitude of primes: the beauty of many proofs,
 UT Undergraduate Math Club, (Spring 2010).

Keeping Secrets: From Ancient Egypt to Modern Cryptography,
 UT Saturday Morning Math Group for Middle School Students, (Fall 2009).

Legendrian Knots: A new twist on an old favorite,
 Luther College, Clark University, (Spring 2009).

Imagining the Universe,
 University of Michigan - Dearborn, (Spring 2009).

How to Play (and Win) Connect Four,
 Washington University Math Circles for Middle School Students, (Fall 2008).

The Difficult Task of Ensuring Fair Elections,
 Washington University Teachers' Circle for Middle School Educators, (Spring 2008).

CONFERENCES ATTENDED

Project NExT Workshop, Lexington, KY, August, 2011.
 Mathfest, MAA National Meeting, Lexington, KY, August 2011.
 Workshop on Contact and Symplectic Topology, Universite de Nantes, France, June 2011.
 MAA Prep Workshop on Inquiry-based Learning, The University of Texas at Austin, June 2010.
 Homology Theories of Knots and Links Research Workshop, MSRI, March 2010.
 Legendrian and Transverse Knots Workshop, American Institute of Mathematics, September 2008.
 Illinois Indiana Symplectic Geometry Conference, IUPUI, March 2008.
 Geometry and the Imagination, Bill Thurston's 60th birthday conference, Princeton, June 2007.
 Low Dimensional Topology Summer School, IAS/Park City Mathematics Institute, July 2006.
 Mathfest, MAA National Meeting, Boulder, Colorado, August 2003.
 Illinois MAA Section Meeting, Illinois College, March 2003.
 Mathfest, MAA National Meeting, Burlington, Vermont, August 2002.

PEDAGOGICAL TRAINING

MAA Prep Workshop on Inquiry-based Learning (Summer 2010), Panelist and attendee.

The University of Texas at Austin (2009 -):

1. Discovery Learning Seminar Series (2009 -), Attendee. A monthly seminar series attended by faculty members in the STEM departments and featuring experts in discovery learning.
2. Math Dept. Inquiry-based Learning Luncheon (2009 -), Attendee. A monthly luncheon led by Profs. Mike Starbird and Ted Odell where math faculty and graduate students discuss inquiry-based learning methods.

Washington University in St Louis (2004 - 2008):

1. Teaching Center Workshops (2007 - 2008), Attendee. Workshops included "Designing a Course," "Teaching Today's Undergrads," "Teaching with Lectures," and "Teaching with Discussion Groups."
2. Graduate Teaching Seminar (Spring 2004), Attendee. A semester long course designed to introduce first-year graduate students to various teaching methods and the practicalities and logistics of teaching undergraduates.

UNDERGRADUATE RESEARCH EXPERIENCE

University of Illinois at Urbana/Champaign, (Summer 2002), REU Participant.

Participated in the REU in Geometric Visualization under the direction of program director Prof. George Francis and mentor Prof. Karen Shuman. Presented results at the 2002 MAA Mathfest conference.

DEPARTMENT, COMMUNITY AND PROFESSIONAL SERVICE

Advisory Board Member, PACE Universal, (2008 - 2011).

PACE Universal is a non-profit organization founded to help educate girls in impoverished areas around Calcutta, India. <http://www.paceuniversal.com>

Math Outreach Programs for Middle School Students and Teachers:

1. Saturday Morning Math Group, The University of Texas at Austin, Presenter, (2009, 2011).
2. Math Teachers' Circle, Washington University, Presenter, (2008).
3. Math Circles, Washington University, Presenter, (2005, 2007, 2008).

Proofreader, (2007 - 2008).

Proofread the manuscript for J. Sabloff's graduate text, "Invariants for Legendrian Knots from Contact Homology."

Professional Memberships:

1. American Mathematical Society (AMS).
2. Association for Women in Mathematics (AWM).
3. Mathematical Association of America (MAA).

Seminar Organizer, Combinatorics and Topology Seminar, Washington University, (Spring 2008).

Committee Member, Guido Weiss Service/Teaching Award, Washington University, (2006, 2008).

Journal Referee, Quantum Topology, (2010).