

Jennifer Katherine Mann Austin, Ph. D.

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- Employment**
- **The University of Texas at Austin**, TX, Mathematics Department, Lecturer, 2010-present
 - **The University of Texas at Austin**, TX, Mathematics Department, Lecturer and RTG Postdoctoral Fellow, Research Mentor: John Luecke, Ph. D., Teaching Mentor: Uri Treisman, Ph. D., 2007-2010
 - **Baylor College of Medicine**, Houston, TX, Molecular Virology & Microbiology Department, Research Assistant of E. Lynn Zechiedrich, Ph. D., 2002-2007
 - **Florida State University**, Tallahassee, FL, Mathematics Department, Research Assistant of De Witt L. Sumners, Ph. D., 2000-2007
 - **Florida State University**, Tallahassee, FL, Mathematics Department, Teaching Assistant, 1999- 2000
 - **University of South Alabama**, Mobile, AL, Mathematics Department, Graduate Assistant, 1997-1999
 - **West Carroll High School**, Atwood, TN, Mathematics & Physics Teacher, 1993-1997
 - **The University of the South**, Sewanee, TN, Mathematics Department, Tutor and Grader, 1990-1993
- Education**
- *Ph.D. in Mathematics* under De Witt L. Sumners, **Florida State University**, Tallahassee, FL, 2007, co-mentored by E. Lynn Zechiedrich, *DNA Knotting: Occurrences, Consequences, & Resolution*
 - *M.S. in Biomedical Mathematics*, **Florida State University**, Tallahassee, FL, 2002
 - *M.S. in Mathematics*, **University of South Alabama**, Mobile, AL, 1999
 - *B.S. in Mathematics*, **The University of the South**, Sewanee, TN, 1993
- Awards, Grants, & Fellowships**
- *College of Natural Sciences Faculty Advisor Award*, **The University of Texas at Austin**, TX, 2016
 - *Great Ideas in Mathematics Course Development Grant*, **The University of Texas at Austin**, TX, 2015
 - *College of Natural Sciences Teaching Excellence Award*, **The University of Texas at Austin**, TX, 2013
 - *Research Training Grant Postdoctoral Fellowship in Topology*, **The University of Texas at Austin**, TX, 2007-2010
 - *Program in Mathematics and Molecular Biology Predoctoral Fellowship*, Burroughs Wellcome Fund Interfaces Program, **Florida State University**, Tallahassee, FL and **Baylor College of Medicine**, Houston, TX, 1999-2007
- Publications**
- *Topological Information Embodied in Local Juxtaposition Geometry Provides a Statistical Mechanical Basis for Unknotting by Type-2 DNA Topoisomerases*, Zhirong Liu, Jennifer K. Mann, E. Lynn Zechiedrich and Hue Sun Chan, (2006) *J Mol Biol* **361**, 268-285.
 - *Hin-Mediated DNA Knotting and Recombination Promote Replicon Dysfunction and Mutation*, Richard W. Deibler*, Jennifer K. Mann*, De Witt L. Sumners and E. Lynn Zechiedrich. (2007) *BMC Mol Biol* **8**:44 (25 May 2007). (*The first two authors contributed equally to this work.)
- Abstracts**
- *DNA Knotting & Unknotting*, Jennifer K. Mann, Richard W. Deibler, De Witt L. Sumners, E. Lynn Zechiedrich, (2005) *Abstracts of papers presented to the American Mathematical Society*. **26**: 1004–92–184.
 - *Unknotting by Type II Topoisomerases*, Jennifer K. Mann, Richard W. Deibler, De Witt L. Sumners, E. Lynn Zechiedrich, (2004) *Abstracts of papers presented to the American Mathematical Society*. **25**:994–92–187.
 - *Topology of Type II Topoisomerases*, Jennifer K. Mann, Richard W. Deibler, De Witt L. Sumners, E. Lynn Zechiedrich, (2002) *SIAM Annual Meeting*.
- Honors**
- Order of the Gown, academic honor society at The University of the South
 - Alpha Theta Chi, collegiate honor society
 - Pi Mu Epsilon, national honorary mathematics society, PME

- Third Place Poster Winner, W. M. Keck Center for Computational and Structural Biology & Houston Area Molecular Biophysics Program, 2003 Annual Research Conference, Hilton Houston NASA Clear Lake, Texas, October 3, 2003, “Unknotting by Type II Topoisomerases”
- Props for Profs, UT College of Natural Sciences Spring 2010 faculty appreciation dinner via students’ invitation
- One of Five Member Faculty Team Winning the Natural Sciences Quiz Bowl, UT College of Natural Sciences Week Fall 2010, team member via students’ invitation

- Invited Lectures**
- Bi-weekly Seminar, Southwest Research Institute, San Antonio, TX, March 13, 2017, “*A Tutorial on the Topology of DNA*”
 - DNA Topology Course, Okinawa Institute of Science and Technology, Okinawa, Japan, November 2-6, 2009, “*Mathematical Models for Topoisomerase and their Motivation*”
 - DNA Topology Course, Okinawa Institute of Science and Technology, Okinawa, Japan, November 2-6, 2009, “*Knot Theory Software*”
 - AMS Fall Southeastern Section Meeting, Middle Tennessee State University, Murfreesboro, TN, November 3-4, 2007, “*DNA Knotting: Occurrences, Consequences, & Resolution*”
 - Homecoming Lecture, The University of the South, Sewanee, TN, November 2, 2007
 - The Mathematics of Knotting and Linking in Polymer Physics and Molecular Biology, Banff International Research Station, Alberta, Canada, May 20-25, 2007
 - Summersfest: Conference on Low-Dimensional Topology and Applications to Molecular Biology and Biomedical Mathematics, Florida State University, Tallahassee, FL, May 4-5, 2007
 - Molecular Virology & Microbiology Departmental Seminar, Baylor College of Medicine, Houston, TX, March 15, 2007
 - Biological Sciences Learning Center, University of Chicago, Chicago, IL, February 12, 2007, “*DNA Knotting: Biological Consequences & Resolution*”
 - Laboratory of N. Patrick Higgins, Department of Biochemistry & Molecular Genetics, University of Alabama at Birmingham, February 7, 2007, “*DNA Knotting: Biological Consequences & Resolution*”
 - Center for BioDynamics, Boston University, Boston, MA, February 5, 2007, “*DNA Knotting: Biological Consequences & Resolution*”
 - Mathematics and Computation Seminar, Department of Mathematics, The University of Arizona, Tucson, AZ, February 1, 2007, “*DNA Knotting: Biological Consequences & Resolution*”
 - Mathematical Biology and Dynamical Systems, The University of Texas at Tyler, Tyler, TX, October 7-9, 2005, “*DNA Unknotting by Human Topoisomerase II α* ”
 - 10th Annual Structural Biology Symposium, Sealy Center for Structural Biology, The University of Texas Medical Branch, Galveston, TX, May 20-21, 2005, Poster Presenter, “*Unknotting by Type II Topoisomerases*”
 - AMS Spring Southeastern Section Meeting, Western Kentucky University, Bowling Green, KY, March 18-19, 2005, “*DNA Knotting & Unknotting*”
 - 2004 Lost Pines Molecular Biology Conference, UT M.D. Anderson Cancer Center, Science Park, Smithville, TX, October 22-24, 2004, “*DNA Unknotting by Human Topoisomerase II α* ”
 - International Summer School on “DNA and Chromosomes: Physical and Biological Approaches,” Institut d'Etudes Scientifiques de Cargese, Corsica, France, August 2-14, 2004, Poster Presenter, “*Unknotting by Type II Topoisomerases*”
 - VI International Joint Meeting AMS and the Sociedad Matemática Mexicana (SMM), Hyatt Regency Houston, Houston, Texas, May 13-15, 2004, “*Unknotting by Type II Topoisomerases*”
 - AMS Spring Southeastern Section Meeting, Tallahassee, Florida, March 12-13, 2004, “*Unknotting by Type II Topoisomerases*”
 - Baylor College of Medicine Molecular Virology & Microbiology Research Retreat 2003, Warwick Hotel, Houston, Texas, November 21, 2003, “*Unknotting by Type II Topoisomerases*”

- W. M. Keck Center for Computational and Structural Biology & Houston Area Molecular Biophysics Program, 2003 Annual Research Conference, Hilton Houston NASA Clear Lake, Texas, October 3, 2003, Third Place Poster Winner, “*Unknotting by Type II Topoisomerases*”
- Statistical Mechanics of Polymer Models, Banff International Research Station, Alberta, Canada, May 10–15, 2003, “*Unknotting by Type II Topoisomerases*”
- Department of Mathematics Colloquium, Rice University, Houston, TX, April 10, 2003, “*Unknotting by Type II Topoisomerases*”
- Celebration of the Career of Clay C. Ross, The University of the South, Sewanee, TN, April 5, 2003, “*Topology, Enzymes & DNA*”
- Math Career Lecture Series, Rice University, February 25, 2003 “*Mathematics in Molecular Biology*”
- SIAM 2002 Annual Meeting & AWM Workshop, Philadelphia, PA, July 8–12, 2002, Poster Presenter & Student Day Speaker, “*Topology of Type II Topoisomerases*”
- “Mathematics and Molecular Biology VII: Modeling Across the Scales- Atoms to Organisms,” Santa Fe, NM, January 5-10, 2002, Poster Presenter, “*Topology of Type II Topoisomerases*”

Teaching

- **Introduction to Mathematics**, M302, *The University of Texas at Austin*, Fall 2011, Spring 2012, Summer 2012, Fall 2012, Spring 2014, Summer 2014, Fall 2014, Fall 2015, Fall 2016, Fall 2017
- **Theory of Interest**, M329F, *The University of Texas at Austin*, Spring 2012, Fall 2012, Spring 2013, Summer 2013, Spring 2014, Spring 2015, Fall 2015, Spring 2016, Fall 2016, Spring 2017, Fall 2017
- **Introduction to Number Theory**, M328K, *The University of Texas at Austin*, Spring 2008, Fall 2014
- **Discrete Mathematics**, M325K, *The University of Texas at Austin*, Fall 2008, Fall 2010, Spring 2011, Summer 2011, Fall 2011, Spring 2013, Summer 2013, Summer 2015, Spring 2017
- **Topology I**, M367K, *The University of Texas at Austin*, Spring 2009, Spring 2015, Spring 2016
- **Theory of Interest**, M389F, *The University of Texas at Austin*, Spring 2013
- **Multivariable Calculus**, M408M, *The University of Texas at Austin*, Summer 2011
- **Matrices and Matrix Calculations**, M340L, *The University of Texas at Austin*, Spring 2011
- **Sequences, Series, and Multivariable Calculus**, M408D, *The University of Texas at Austin*, Fall 2007, Summer 2010, Fall 2010
- **Integral Calculus**, M408L, *The University of Texas at Austin*, Summer 2010
- **Applied Topology**, M367L, *The University of Texas at Austin*, Spring 2010
- **Matrices and Matrix Calculations** Substitute Lecturer, M340L, *The University of Texas at Austin*, February 15, 17, 19 and April 19, Spring 2010
- **Differential & Integral Calculus**, M408C, *The University of Texas at Austin*, Fall 2009, Summer 2012
- **Conference Course in Mathematical Models of Topoisomerase**, *The University of Texas at Austin*, Fall 2009
- **Conference Course in Topology & Graph Theory**, *The University of Texas at Austin*, Spring 2009
- **Algebraic Structures I** Substitute Lecturer, M373K, *The University of Texas at Austin*, April 14 & February 18, 2008
- **Nucleic Acid Structure and Function** Class Guest Lecturer, *Florida State University*, March 13, 2007, “DNA Knotting: Biological Consequences & Resolution”
- **Mathematical Biophysics** Class Guest Lecturer, *Florida State University*, October 14, 2004, “Going Behind & Beyond the Experiments”

Local Seminars

- **Mathematics Teachers' Circle of Austin 2017 Summer Workshop**, *The University of Texas at Austin*, June 14, 2017, “Fibonacci Numbers & The Golden Ratio”
- **Mathematics Teachers' Circle of Austin**, *The University of Texas at Austin*, February 23, 2017, “To Infinity and Beyond!”
- **Mathematics Teachers' Circle of Austin 2016 Summer Workshop**, *The University of Texas at Austin*, June 23, 2016, “Games!”

- **Mathematics Teachers' Circle**, *Texas Lutheran University*, February 18, 2016, "Fibonacci Numbers"
- **Mathematics Teachers' Circle of Austin**, *The University of Texas at Austin*, February 26, 2015, "Puzzles, Bands, and Knots"
- **Saturday Morning Math Group**, *The University of Texas at Austin*
 - April 4, 2009, "Not Just a Knot"
 - November 15, 2014, "DNA Knotting"
- **Association for Women in Mathematics UT Student Chapter**, *The University of Texas at Austin*,
October 8, 2012, "To Be or Knot to be a Mathematician"
- **UT Math Club**, *The University of Texas at Austin*
 - January 23, 2008, "DNA & Knot Theory"
 - April 14, 2010, "Knotty Biology"
 - February 1, 2012, "Topoisomerase: Knotenlöserin"
 - February 14, 2017, "Mathematics, Mentoring, and Motherhood"
- **Topological and Cellular Biology Group**, *The University of Texas at Austin*
 - May 11, 2010, Topology of Mitotic Chromatin
 - March 2, 2010, Discussion of "DNA supercoiling inhibits DNA knotting"
 - April 15, 2008, "Type II Topoisomerase Models"
 - October 23, 2007, "Resolution of DNA Knotting"
 - October 2, 2007, "Biological Consequences of DNA Knotting"
- **Explore UT Public Lecture**, *The University of Texas at Austin*, March 1, 2008, "DNA Knotting: Consequences and Resolution"
- **Graduate Seminar Introduction to Research**, *The University of Texas at Austin*, January 22, 2008, "DNA Knotting: Consequences & Resolution"
- **Women in Mathematics Panel Discussion**, *The University of Texas at Austin*, October 17, 2007
- **Topology Seminar**, *The University of Texas at Austin*, October 1, 2007, "DNA Topology"
- **Molecular Virology & Microbiology Journal Club**, *Baylor College of Medicine*
 - December 9, 2005, "Sense & Sensibility in Bacterial Flagellum"
 - September 30, 2005, "Listeria monocytogenes: Invasion and Defense"
- **Genome Instability Group**, *Baylor College of Medicine*, April 23, 2004, "Unknotting by Type II Topoisomerases"
- **Biomedical Mathematics Projects Class**, *Florida State University*, February 18, 2003, "Experiences of a Mathematician in a Molecular Biology Lab"
- **Biomedical Mathematics Seminar**, *Florida State University*
 - October 12, 2004, "DNA Unknotting by Human Topoisomerase II α "
 - April 17, 2002 and February 18, 2003, "Investigating DNA Twist Knots"
 - February 26, 2002, "DNA Unknotting in *E. coli*"
 - January 29, 2002, " $Lk = Tw + Wr$: How is this equation used to understand DNA conformation?"
 - January 22, 2002, "Topology of Type II Topoisomerases"
 - October 4, 2000, "Knots in Proteins"
- **Nucleic Acid Structure and Function Class Presentation**, *Florida State University*,
March 25, 2001, "How do type II topoisomerases reduce in vitro knotting?"
- **Graduate Student Seminar**, *Florida State University*
 - February 13, 2002, "DNA Knots & Catenanes"
 - September 19, 2001, "Exploring the Möbius Strip"
 - February 8, 2001, "An Introduction to Knot Theory & Its Applications"

Conferences

- **Moves 2017**, National Museum of Mathematics, New York City, NY, August 6-8, 2017
- **Conference on Knots and other Entanglements in Biopolymers: Topological and Geometrical**

Aspects of DNA, RNA and Protein Structures, International Centre for Theoretical Physics, Trieste, Italy, September 15-19, 2008

- **Mathematics of DNA Structure, Function, and Interactions**, IMA, Minneapolis, MN, September 16- 21, 2007
- **Tutorial: Mathematics of Nucleic Acids**, IMA, Minneapolis, MN, September 15, 2007
- **Cozzarelli Memorial Symposium**, Department of Molecular and Cell Biology, Berkeley, CA, June 10, 2006
- **4th Biannual Structural Biology Symposium**, “Computational Structural Biology: From Simulation to Experiment & Back,” Florida State University, January 18-21, 2001
- **MSRI/PMMB short course: Mathematical and Computational Challenges in Molecular and Cell Biology**, Mathematical Sciences Research Institute, Berkeley, CA, June 12-23, 2000
- **Advances & Opportunities at the Biology/Math/Computation/Physical Sciences**, Rutgers University, March 6-7, 1999

Supervision

- Undergraduate Students, The University of Texas at Austin Department of Mathematics, Directed Reading Program, Fall 2016 & Fall 2017
- Undergraduate Student, The University of Texas at Austin Department of Mathematics, Fall 2011-2012
- Undergraduate Student, The University of Texas at Austin Department of Mathematics, 2009-2010
- Graduate Student, The University of Texas at Austin Department of Mathematics, Fall 2009
- Undergraduate Student, The University of Texas at Austin Department of Mathematics, Fall 2009
- Graduate Student, Baylor College of Medicine Structural and Computational Biology & Molecular Biophysics (SCBMB), Spring 2006
- Postdoctoral Associate, Baylor College of Medicine, Summer 2005
- SCBMB Graduate Student, Baylor College of Medicine, Fall 2003
- SCBMB Graduate Student, Baylor College of Medicine, Fall 2003
- Molecular & Human Genetics Graduate Student, Baylor College of Medicine, Fall 2003
- Physics Undergraduate Student, Baylor College of Medicine, Summer 2003

Service

- **Undergraduate Mathematics Faculty Advisor**, Mathematics Department, *The University of Texas at Austin*, Spring 2014-Present
- **UT Association for Women in Mathematics Faculty Sponsor**, Mathematics Department, The University of Texas at Austin, Spring 2017-Present
- **Assistant Undergraduate Mathematics Faculty Advisor**, Mathematics Department, *The University of Texas at Austin*, Fall 2011-Fall 2013
- **Mathematics Teachers Circle of Austin Co-Organizer**, Mathematics Department, *The University of Texas at Austin*, Fall 2015-Present
- **M302 Course Coordinator**, Mathematics Department, *The University of Texas at Austin*, Summer 2015-Present
- **Mathematics Core Curriculum Assessment Committee**, *The University of Texas at Austin*, Fall 2016-Spring 2017
- **CNS Teaching Discovery Day Docent**, *The University of Texas at Austin*, Fall 2016
- **Conference Course in Applied Topology**, M275T, *The University of Texas at Austin*, Spring 2016
- **Conference Course in Discrete Mathematics**, M375T, *The University of Texas at Austin*, Summer 2015
- **Quantitative Reasoning Flag Committee**, *The University of Texas at Austin*, Fall 2015-Present
- **Mathematics College Readiness Committee**, *The University of Texas at Austin*, Spring 2014-Present
- **Undergraduate Studies Committee**, Mathematics Department, *The University of Texas at Austin*, Fall 2013-Present
- **Calculus Reform Committee**, Mathematics Department, *The University of Texas at Austin*, Summer 2016-Present
- **Best of Texas**, Mathematics Department Organizer, *The University of Texas at Austin*, 2015-Present
- **Explore UT**, Mathematics Department Organizer, *The University of Texas at Austin*, 2008, 2010, 2015-Present

- **CNS Family Day**, Mathematics Department Organizer, *The University of Texas at Austin*, 2009, 2014, 2015-Present
- **Sonia Kovalsky High School Mathematics Day**, Co-Organizer, Mathematics Department, *The University of Texas at Austin*, Summer 2012-Spring 2014
- **TACG Seminar Organizer**, Mathematics Department, *The University of Texas at Austin*, 2007-2010
- **Pi Mu Epsilon Florida Beta Chapter Graduate Co-Sponsor**, Mathematics Department, *Florida State University*, 2002
- **Graduate Student Representative on Curriculum Committee**, Mathematics Department, *Florida State University*, 2001-2002
- **Pi Mu Epsilon Historian**, Mathematics Department, *Florida State University*, 2000-2001
- **Graduate Student Seminar Organizer**, Mathematics Department, *Florida State University*, 2000-2002