

Curriculum Vitae for Swatee Naik

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Professional Preparation 1994 Ph.D. Indiana University (Thesis Advisor: C. Livingston)
1988 M.A. Indiana University
1986 M.Sc. Indian Institute of Technology, Mumbai
1984 B.Sc. University of Mumbai

Appointments	2008–present	Professor	University of Nevada, Reno
	2007–2008	Math & Stat Chair	University of Nevada, Reno
	2005–2007	Core Mathematics Director	University of Nevada, Reno
	2001–2008	Associate Professor	University of Nevada, Reno
	2003-04	Visiting Associate Professor	Indiana University, Bloomington
	2001-02	Visiting Associate Professor	University of California, Irvine
	1998-99	Visiting Fellow	Tata Inst. of Funda. Res., Mumbai
	Fall 1997	Visiting Assistant Professor	Indiana University
	1994–2001	Assistant Professor	University of Nevada, Reno

Research Low Dimensional Topology, Knot Theory

Professional Affiliation American Mathematical Society, 1995-present.

Grants and Awards

- National Science Foundation \$286,201 grant joint with Herald and Jabuka, 2007-2011.
- Sabbatical support at Indiana University, 2003-04.
- Teaching and research support at University of California at Irvine, 2001-02.
- Junior Faculty Research Award of \$ 10,000 at University of Nevada, Reno, 1995.

Research Publications

- “Stabilizing Four-Torsion in Knot Concordance,” with C. Livingston, *Top. Proc.* **37** (2011) pp. 119-128.
- “Order in the concordance group and Heegaard Floer homology,” with S. Jabuka, *Geometry and Topology*, **11** (2007) 979-994.
- “Ozsváth-Szabó and Rasmussen invariants of doubled knots,” with C. Livingston, *Algebraic and Geometric Topology*, **6** (2006) 651-657.
- “The Twisted Alexander Polynomial and Periodicity of Knots,” with J. A. Hillman, C. Livingston, *Algebraic and Geometric Topology*, **6** (2006) 145-169.
- “Alexander Polynomials of Equivariant Slice Knots,” with J. F. Davis, *Trans. Amer. Math. Soc.*, **358** (2006), 2949-2964.
- “S-equivalence of Knots in S^3 ,” with T. Stanford, *Journal of Knot Theory and its Ramifications*, **12** (2003) 717-724.
- “Knot Concordance and Torsion,” with C. Livingston, *Asian J. Math.* **5** (2001), 161–168.
- “Computation of Lickorish’s 3-manifold Invariants using Chern-Simmons Theory,” with P. Ramadevi, *Commun. Math. Phys.* **209** (2000) 29–49.

- “Obstructing 4-torsion in the Knot Concordance Group,” with C. Livingston, *J. Diff. Geom.* **51** (1999) 1–12.
- “New Invariants of Periodic Knots,” *Math. Proc. Camb. Phil. Soc.* **122** (1997) no. 2, 281–290.
- “Equivariant Concordance of Knots in S^3 ,” *Knots '96*, Proceedings of the Fifth International Research Institute of Mathematical Society of Japan, held at Waseda University, Tokyo, July 22–26, 1996, ed. S. Suzuki, World Scientific, 1997, pp 81–89.
- “Casson–Gordon Invariants of Genus 1 Knots and Concordance to Reverses,” *Journal of Knot Theory and its Ramifications* **5** (1996) 661–677.
- “Periodicity, Genera, and Alexander Polynomials of Knots,” *Pacific J. Math.* **166** (1994) 357–371.

Other

Publications

- “Knot Concordance,” with C. Livingston, Book in Preparation, will be posted at: <http://wolfweb.unr.edu/homepage/naik/>
- “Lectures on Knot Theory,” Instructional Conference on Knot Theory and Three-manifolds, Allahabad, India, December 2000, posted at: <http://wolfweb.unr.edu/homepage/naik/classes/774/LecNotes.pdf>
- “Knot Theory,” *Bulletin of the Bombay Mathematical Colloquium*, Volume 14 (1998) 35–42.
- “Introduction to Knots and Links,” Souvenir on the Occasion of Mathematics Olympiad 1991, Mathematics Association, Indian Institute of Technology, Mumbai (1991) 23–27.

Professional Presentations

- “Knots in the three-sphere and Concordance relation,” Two lectures at UC San Diego, October 2009
- “Torsion in Knot Concordance,” Athens Institute for Education and Research, Greece, Athens, June 2009.
- “Torsion in the knot concordance group,” Conference for Levine, Brandeis University, June 2008.
- “Knot Concordance,” University of Oklahoma, March 2008.
- “Heegaard Floer Homology and Order in the Concordance group,” Georgia Topology Conference, May 2007
- “Knot Concordance,” Spring Topology and Dynamics Conference, University of Missouri, Rolla, March 2007
- “Coordinating Core Mathematics courses for large scale assessment projects,” co-presented with D. Clarke at the Northern Nevada Assessment Conference, February 2007, http://www.unr.edu/assess/NNAC/2007_NNAC_Conf/ConferencePresentations.pdf
- “Order in the Concordance group,” Gauge Theory Seminar, Columbia University, February 2007.
- “Concordance Order and Heegaard Floer Homology,” Claremont Topology Seminar, Pomona College, November 2006.
- “Introduction to the Concordance Group of Knots,” Mathematics Colloquium, Pomona College, November 2006.
- “Torsion in Knot Concordance,” University of California, Davis, February 2006.
- “Knot Concordance,” University of California, Berkeley, November 2005.
- “The Ozsváth–Szabó Invariant of doubled knots,” Indiana University, April 2005.
- “Knot Concordance,” UC Santa Barbara, April 2002.

- “Knot Concordance,” 2 lectures at UC Irvine, March 2002.
- “A Move on Diagrams that Generates S-equivalence of Knots,” Special Session on Quantum Topology at AMS meeting 972, Irvine, CA, November 2001.
- “Torsion in Knot Concordance,” Special Session on Topology of Links at AMS meeting 965, Las Vegas, NV, April 2001.
- “Knot Theory,” A mini-course at an Instructional Conference on Low Dimensional Topology, Allahabad, India, December 18–31, 2000.
- “Knot Concordance,” University of California at Riverside, June 2000.
- “Torsion in Classical Knot Concordance Group,” Cascade Topology Seminar, University of Pugetsound, Tacoma, Washington, May 1999.
- “Twisted Alexander Polynomials and Knot Periodicity,” Special Session on Symmetries of Knots, AMS meeting in Las Vegas, April 1999.
- “Symmetries of Knots,” Colloquium, Indian Institute of Science, Bangalore, India, February 1999.
- “Knots and Links” University of Mumbai, Mumbai, India, February 1999.
- “Obstructing 4-Torsion in the Classical Knot Concordance Group,” Indian Institute of Technology, Mumbai, December 1998.
- “Torsion in the Classical Knot Concordance Group,” Tata Institute of Fundamental Research, Mumbai, India, July, 1998.
- “Knots and Links,” VSRP lecture at the Tata Institute of Fundamental Research, Mumbai, India, June 1998.
- “Equivariant Concordance of Knots in S^3 ,” Knots '96, International Conference at Waseda University, Tokyo, Japan, July 1996.
- “Equivariant Slice Knots in S^3 ,” Special Session on Knot Theory, Joint Meetings at Orlando, Florida, January 1996.
- “Equivariant Slice Knots in S^3 ,” Indiana University, October 1995.
- “Symmetries of Links,” Stefan Banach International Mathematical Center, Warsaw, Poland, July–August 1995.
- “Knot Periodicity and the Concordance Invariants of Casson and Gordon,” Lehigh University Geometry and Topology Conference, June 1995.
- “Periodic Knots,” University of California, Davis, May 1995.
- “A Survey of Knot Theory,” University of Wisconsin-Parkside, April 1994.
- “Invariants of Knots,” California State University, Northridge, April 1994.
- “Symmetries of Knots,” University of Nevada, Reno, March 1994.
- “Invariants of Knots,” Indian Institute of Technology, Kanpur, India, August 1993.
- “Higher Education Opportunities in the United States,” Vikroli (two-year) College, Maharashtra State, India, July 1993.
- “Invariants of Knots and Links,” A Series of Two Lectures, University of Hyderabad, Hyderabad, India, December 1991.
- “Periodicity and Alexander Polynomials of Knots,” Tata Institute of Fundamental Research, Mumbai, India, December 1991.
- “A Survey of Polynomial Invariants of Knots,” Tata Institute of Fundamental Research, Mumbai, India, December 1991.
- “Knots and Links,” Indian Institute of Technology, Mumbai, India, January 1991.

Teaching	My teaching related experience at UNR and elsewhere includes:
Undergrad	Finite Mathematics, College Algebra and Trigonometry, Fundamentals of College Mathematics, Business Calculus, Calculus I, II, III, Ordinary Differential Equations, Introduction to Statistics, Linear Algebra, Abstract Algebra, Set Theory, Introduction to Proofs, Metric Space Topology.
Graduate	Modern Algebra, Point-Set Topology, Fundamental Groups and Covering Spaces, Singular Homology Theory, Cohomology Theory, Measure Theory, Differential Topology, Knot Theory, Complex Analysis.
Thesis Committees	I have served on Masters thesis committees in the Mathematics Department and both M.S. and Ph.D. committees in Computer Science and in Chemistry at the University of Nevada, Reno.
General Education at UNR	As the Core Mathematics Director at University of Nevada, Reno I was overseeing the curriculum development, coordination, and assessment of undergraduate mathematics courses which satisfy the general education requirements. These include Precalculus Algebra, Trigonometry, Quantitative Reasoning, Introductory Statistics, Business calculus, and Calculus I. In particular, together with a team of instructors, we: <ul style="list-style-type: none"> • Redesigned curricula to improve alignment between the precalculus offerings. • Initiated and supervised coordination between different sections of multi-section courses. • Developed an annual orientation and a mentoring program for graduate student instructors. • Helped the Core Curriculum Office and the University Assessment Office with assessment of student learning via Pre-test/Post-test analysis as well as CLASSE surveys, an in-class version of the National Survey of Student Engagement. Helped design a survey to assess effectiveness of on-line components in classroom teaching.
K-12	<ul style="list-style-type: none"> • Served as a Special Awards Judge at the INTEL International Science and Engineering Fair at Reno, 2009. • Gave an invited talk at an awards ceremony at the Coral Academy of Science, Reno, 2008. • Taught mathematics to first through third grades in the integrated classroom at the Early Learning Center at UNR, once every two weeks in year 2005-06. • Team-taught a class designed for Secondary School Mathematics teachers in Summer 2005. • Served on a Washoe County School District committee to discuss the design of a gateway curriculum for high schools, 2005-06. • Conducted knot theory workshops for middle-school and high-school students 1995-99. • Served as the Regional Coordinator for the State of Nevada for American Junior High School Mathematics Examinations, from July 1995–June 97.
Software	I am familiar with Tex, Minitab, Maple, Matlab, Mathematica, On-line homework systems including Webworks, MyMathLab, and Educo.
Admin	<ul style="list-style-type: none"> • Chair of the Mathematics and Statistics Department (2007-08) I was responsible for all aspects of departmental administration, including budget,

personnel, curriculum and program assessment.

- Core Mathematics Director (2005-07)

I was responsible for providing oversight for all aspects of the Core Mathematics program at the University of Nevada, Reno. The major responsibilities included, developing and presenting an annual orientation for instructors, facilitating coordination between different sections of multi-section courses, directing and overseeing the activities of the course-coordinators, assisting the Core Curriculum Director with K-12 curriculum alignment issues, and facilitating assessment and curriculum development.

**UNR
Service**

- Faculty Senate
- Graduate Council
- Core Curriculum Mathematics Subcommittee
- Faculty Library Committee
- Search Committees in Physics, Chemistry, Child and Family Research Center
- Parent Advisory Board for the Child and Family Research Center

**Dept
Committees**

Curriculum, Executive, Merit, Ph.D., Colloquium, Scholarship, Library, Tenure Track and Lecturer searches.

**Research-
Related
Service**

- Referee for journals including the Proceedings of the American Mathematical Society, Bulletin of the London Mathematical Society, Algebraic and Geometric Topology, Journal of Knot Theory and its Ramifications, and Proceedings of Knots in Hellas '98.
- Referee for National Science Foundation grant proposals.
- Reviewer for Mathematical Reviews
- Co-organizer for conferences:
 1. Special session on Knots, surfaces and 3-manifolds at the AMS meeting #1071, Las Vegas, April 2011 (with C. Herald and S. Jabuka)
 2. Cascade Topology Seminar at University of Nevada, Reno, November 2001 (with Chris Herald)
 3. Special session on Topology of Links at the AMS meeting #965, Las Vegas, April 2001 (with Jeff Johannes)
 4. Special session on Symmetries of Knots and Three-manifolds at the AMS meeting #942, Las Vegas, April 1999 (with Jozef Przytycki)