

Education

- **Vanderbilt University**, Nashville, TN
PhD., Mathematics expected May 2011, GPA: 3.9.
Supervisor: Alexander Olshanskii.
Teaching Certificate expected May 2010.
M.A., Mathematics, granted December 2009.
- **McMaster University**, Hamilton, ON, Canada
M.Sc., Mathematics, 2004-2006, GPA: 3.9.
Thesis title: Computations in Galois Cohomology and Hecke Algebras.
Supervisor: Romyar Sharifi.
- **University of Hawaii at Manoa**, Honolulu, HI
B.A., Mathematics, Minor, English, 2000-2003, GPA: 3.6.

Research Interests

- Geometric and Combinatorial Group Theory
- Dehn Functions of Groups
- Distortion Functions of Groups and Semigroups
- Varieties of Groups

Publications

- Length Functions for Semigroup Embeddings, Submitted to the Journal of Algebra and Discrete Mathematics, November 2009

Courses Taught

- **Math 150A, Calculus I**, Vanderbilt University, Spring 2009, Fall 2009
- **Math 150B, Calculus II**, Vanderbilt University, Fall 2008
Was the head instructor of first and second semester Calculus classes. Duties included lecturing three hours per week, holding office hours, writing and grading tests and quizzes and supervising a Teaching Assistant. Obtained average student satisfaction rating 4.37 out of 5.
- **Algebra I**, St. Andrews Priory School, Summer 2003
Taught Summer Course in Accelerated Introductory High School Algebra. Prepared lesson plans, exams, and activities; managed classroom.

Invited Talks

- **Pi Mu Epsilon Lecture**, Chico State University, Chico, CA, April 2009.

Funding Awarded

- **Teaching Assistantship**, Vanderbilt University, 2006-present
- **Research Scholarship**, Vanderbilt University, 2006-present
- **Teaching as Research Award**, Center for the Integration of Research, Teaching and Learning award from NSA, Fall 2008-December 2009
- **Summer Funding**, NSF Grant of Alexander Olshanskii, Summer 2009.
- **Summer Funding**, Vanderbilt University, Summer 2008, 2009.
- **Teaching Assistantship**, McMaster University, 2004-2006
- **Research Scholarship**, McMaster University, 2004-2006

Conferences

- **Workshop on Groups and Embeddings**, University of Hawaii at Manoa, March 2009

- **Content, Learning Theory and Lesson Design Workshop**, Vanderbilt University, September 2008
- **Mathematics Education Forum**, Fields Institute, Toronto, ON, Fall 2005

Courses TA-ed

- **Math 155A, Accelerated Calculus I**, Vanderbilt, Fall 2006, Fall 2007
- **Math 155B, Accelerated Calculus II**, Vanderbilt, Spring 2008
Helped instruct first and second semester Calculus classes. Obtained average student satisfaction rating 4.39 out of 5.
- **Math 1B03, Linear Algebra**, McMaster, Fall 2004-Spring 2006
Prepared and led tutorials in Linear Algebra. As Head TA from 2005-2006, also oversaw and coordinated exam marking and proctors.
- **English 101** University of Hawaii English Department, 2002-2003.
Assisted in teaching English 101; tutored small groups of remedial English students. Received substantial training in composition pedagogy.

Talks Given

- **Effects of Journals in Math Education**, Poster Session for Teaching as Research Fellows, Vanderbilt, January 2010.
- **Isoperimetric Functions of and Distortion in Nilpotent Groups**, Qualifying Examination, Vanderbilt, February 2009.
- **Passive vs. Active Approaches to Mathematics Instruction**, Poster Session for Teaching as Research Fellows, Vanderbilt, January 2009.
- **Sudoku**, Vanderbilt Undergraduate Student Seminar, Spring 2008, Spring 2009; Harpeth Hall Math Club, Spring 2009.
- **Infinity**, Vanderbilt Undergraduate Student Seminar, Fall 2007, 2008, 2009.
- **A Construction of the Real Numbers**, Vanderbilt Undergraduate Student Seminar, Spring 2007.
- **Group Theory**, Vanderbilt Undergraduate Student Seminar, Fall 2006.
- **Computations in Galois Cohomology and Hecke Algebras**, Masters Thesis Defense, McMaster, September 2006.
- **Classification of Finite Simple Groups**, McMaster Graduate Student Seminar, Spring 2005.
- **Elliptic Curves**, McMaster Graduate Student Seminar, Fall 2004.
- **The Fundamental Theorem of Algebra**, University of Hawaii Undergraduate Seminar, Fall 2003.

Community Work

- **STEM Think Tank at VU Volunteer**, Nashville, TN, November 11, 2009.
- **American Women in Mathematics Mentor**, Served as a mentor to an undergraduate student, March 2008-present.
- **Co-organizer of Undergraduate Student Seminar**, Vanderbilt University Mathematics Department, Fall 2007-present.
- **High School Outreach**, Fostered relationship with Harpeth Hall School; they attended our Undergraduate Seminar and we spoke in their Math Club. Fall 2008-Spring 2009.

- **Computer Liaison Committee Member**, Vanderbilt University Mathematics Department. Created a website cataloging all information relevant to graduate mathematics students, September 2007-present.
- **Mathematics Department Liaison Committee Member**, McMaster University Mathematics Department, 2005-2006.
- **Co-wrote the Handbook for LTS All-Science Challenge**, Hamilton, ON, April 2006.

Seminars Attended

- **Topology and Group Theory Seminar**, Vanderbilt University, 2006-present
- **Department Colloquium**, Vanderbilt University, 2006-present
- **Math Teaching Seminar**, Vanderbilt University, Spring 2007
- **Arithmetic Geometry Seminar**, McMaster University, 2004-2006
- **Graduate Student Seminar**, McMaster University, 2004-2005
- **Department Colloquium**, McMaster University, 2004-2006
- **Undergraduate Seminar**, University of Hawaii, 2002-2004

Membership

- Mathematical Association of America
- American Mathematical Society
- American Women in Mathematics

Tutoring

- **Calculus Tutor**, Vanderbilt Mathematics Department, Spring 2007.
- **Calculus Tutor**, McMaster Mathematics Department, 2004-2006.
- **Calculus Tutor**, University of Hawaii Mathematics Department, 2002-2004.
Demonstrated and explained mathematical principles to students and aided with homework assignments; managed the tutoring room.

Volunteer Work

- **Better Tomorrows**, Reading tutor for illiterate adults, Nashville, TN, September 2007-June 2008.
- **Hamilton Literacy Council**, Reading tutor for illiterate adults, Hamilton, ON, 2005-2006.
- **Habitat for Humanity**, Construction Volunteer, Dodoma, Tanzania, 2002.
- **Queen Kaahumanu Elementary School**, English as a second language tutor, Honolulu, HI, 1999.

Personal

- Home address: 2822 Blair Blvd., Nashville, TN 37212 USA
- Phone number: (615) 496-0953
- E-mail address: tara.c.davis@vanderbilt.edu
- Citizenship: USA
- Language skills: Speak French proficiently, some Japanese
- Computer skills: Magma, Latex, Microsoft Office, Mac OS X, Linux