

Department of Mathematics
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Emille K. Davie

Education

2001-present **University of Georgia** Athens, Georgia
Doctorate of Philosophy in Mathematics expected August 2007
Co-Advisors: William Kazez and Clinton McCrory
Dissertation Title: *Characterizing Right-Veering Diffeomorphisms of the Punctured Torus Via the Burau Representation of B_3 .*

2004 **University of Georgia** Athens, Georgia
Master of Arts in Mathematics

1997-2001 **Spelman College** Atlanta, Georgia
Bachelor of Science in Mathematics

Research Interests

Mapping class groups of surfaces, braid groups, 3-manifolds, and knot theory.

Honors

UGA Department of Mathematics Outstanding Graduate Teaching Award, 2007
Southern Regional Education Board Dissertation Fellowship Award, 2006
University of Georgia Outstanding Graduate Student Instructor Award, 2005
Ford Foundation Pre-Doctoral Fellowship Honorable Mention, 2003
VIGRE Fellowship; 2001, 2003, 2005
Women in Science and Engineering (WISE) Scholarship, 1998
Jackie Robinson Foundation National Scholarship, 1997
Spelman College Academic Dean's Scholarship, 1997
Georgia HOPE Scholarship, 1997

Collaborative Research

Knots in Lens Spaces; VIGRE Research Group; 2005;
developed an algorithm for expressing knots in lens spaces as closed braids; preprint in preparation

Tight Contact Structures on a Genus Two Handlebody; VIGRE Research Group; 2003;
developed a computer program which detected the number of tight contact structures on a genus two handlebody given a set of dividing curves on the handlebody

Conference Talks

- Jan. 2007 ***Right-Veering Diffeomorphisms of Bordered Surfaces and the Burau Representation of B_3***
Mapping Class Groups and Handlebodies AMS Special Session
AMS-MAA Joint Mathematics Meetings, New Orleans, Louisiana
- July 2002 ***Asymptotic Behavior of Natural Growth on Time Scales,***
Rocky Mountain Mathematics Consortium at the University of Wyoming,
Laramie, Wyoming

Topology Seminar Talks

- Apr. 2007 Emory University; Atlanta, Georgia
- Feb. 2007 University of California, Santa Barbara; Santa Barbara, California
- Jan. 2007 Louisiana State University; Baton Rouge, Louisiana

Undergraduate Talks

- Feb. 2007 *The Topology of the Torus*
Trinity College, Hartford, Connecticut
- Sept. 2005 *The Graduate School Experience*
Spelman College, Atlanta, Georgia

Seminar Talks at the University of Georgia

- Dec. 2006 ***Right-Veering Diffeomorphisms of Bordered Surfaces and the Burau Representation of B_3***
Topology Seminar
- Apr. 2006 ***Surface Topology and Geometry and the Mapping Class Group***
VIGRE seminar
- Aug. 2005 ***The Burau Representation is Not Faithful for $n=5$***
Oral examination
- Sept. 2004 ***Knots in S^3 and Rational 2-Tangles***
VIGRE seminar
- July 2003 ***Characterizing Continuity by Preserving Compactness and Connectedness***
Graduate Student seminar

Dec. 2001 *Simple Mathematical Models with Very Complicated Dynamics*,
VIGRE seminar

Professional and Service Activities

2006-2007 Co-organizer of the University of Georgia VIGRE seminar

June 2006 Enhancing Diversity in Graduate Education (EDGE) Program mentor,
New College of Florida

June 2001 Enhancing Diversity in Graduate Education (EDGE) Program participant,
Spelman College

Teaching

Graduate Student Instructor, University of Georgia

GRSC 7770: Seminar for Graduate Teaching Assistants, Fall 2006,
taught mathematics graduate student instructors how to develop teaching pedagogy,
classroom and lecturing techniques, sound grading practices, examination making, etc.

MATH 8205: Topology Problem Solving Session, Spring 2006,
led problem solving sessions for graduate students preparing for Algebraic Topology
qualifying exam

MATH 2200: Differential Calculus, Spring 2005, Fall 2004, Spring 2003,
solely responsible for developing and administering lectures, examinations and grades for
a class of approximately 30 students

MATH 2200L: Differential Calculus Maple Lab, Spring 2005,
introduced Maple code and commands, graded labs, and administered grades for a class of
approximately 30 students

MATH 7900: Foundations for Graduate Mathematics (Teaching Assistant), Fall 2004,
responsible for grading homeworks and holding additional office hours for 10 new
graduate students

MATH 1113: Precalculus, Fall 2002,
solely responsible for developing and administering lectures, quizzes, and grades for a
class of approximately 30 students

Selected Professional Meetings and Conferences Attended

- Oct. 2006 *Institute on Teaching and Mentoring* *Miami, Florida*
SREB, AGEP, Gates Millennium, Sloan Foundation scholars (et. al.)
- Aug. 2006 *AID Young Global Leaders Summit* *Atlanta, Georgia*
focused on combatting global poverty and the education of women in third world countries
- Apr. 2005 *Infinite Possibilities Conference* *Atlanta, Georgia*
for minority women pursuing graduate degrees in the mathematical sciences
- Mar. 2005 *Braids, Links, and Mapping Class Groups* *New York, New York*
in honor of Joan Birman at Columbia University
- July 2004 *Knot Theory and 3-Manifolds* *Vancouver, British Columbia*
two-week graduate student summer school

Professional Memberships

American Mathematical Society
National Association of Mathematicians
Association for Women in Mathematics
Spelman College Alumni Association
Jackie Robinson Foundation Alumni Association