

CURRICULUM VITA

Joseph A. Fox

Mathematics Department
Salem State University
352 Lafayette Street
Salem, MA 01970

phone: (978)542-6996
fax: (978)542-7175
e-mail: joseph.fox@salemstate.edu
web: www.salemstate.edu/~jfox2

PROFESSIONAL TRAINING

- Ph.D. 2006 Western Michigan University, Kalamazoo, MI
Area: Mathematics
Dissertation: “Nilpotent Orbits on Infinitesimal Symmetric Spaces”
Advisor: Terrell L. Hodge
- M.A. 2001 Western Michigan University, Kalamazoo, MI
Area: Mathematics
- B.A. 1999 Franklin College, Franklin, IN
Areas: Pure Mathematics, Applied Mathematics (summa cum laude)

PROFESSIONAL EXPERIENCE

- 2006-present: Assistant Professor, Salem State University
- 2005-06: Visiting Instructor, Grand Valley State University
- 1999-2005: Graduate Teaching Assistant, Western Michigan University

RESEARCH AND TEACHING GRANTS AND SUPPORT

- New Directions Short Course in Applied Algebraic Topology, Institute for Mathematics and its Applications (2009)
- R.L. Moore Project NExT Fellowship, Mathematical Association of America (2006-07)
- Callon-Daub Research Fellowship, Franklin College (1997-98)

HONORS / AWARDS

- Yousef Alavi Doctoral Student Award, Western Michigan University, 2005 (*Presented to an outstanding doctoral student in mathematics or statistics in recognition of excellence in the student’s field of study, covering graduate studies, doctoral examinations, and research activities including the doctoral dissertation.*)

- Graduate Student Teaching Effectiveness Award, Western Michigan University, 2004 (*Presented to a graduate student in recognition of significant contributions to the teaching mission of the University.*)
- Charles H. Butler Excellence in Teaching Award, Western Michigan University, 2002 (*Presented to graduate teaching assistants in recognition of excellence in teaching over an extended period.*)

ACCEPTED PAPERS

- “A classification of nilpotent orbits in infinitesimal symmetric spaces.” *Journal of Algebra* **323** (2010), 1358–1368.
- “Light Bulb Presentations in a Mathematics for the Liberal Arts Course.” *PRIMUS* **18:6** (2008), 559–562.
- “Results on the independence number for the generalized Petersen graphs.” With Raluca Gera and Pantelimon Stanica (to appear in *Ars Combinatoria*)

STUDENT RESEARCH SUPERVISED

- With Chen Chen: “Sensor Networks and Algebraic Topology” (presented at Hudson River Undergraduate Mathematics Conference, Keene State College, April 2010)
- With Rebecca Jacobs: “Finding Holes in Sensor Networks Using Algebraic Topology” (presented at Salem State University Undergraduate Research Symposium, May 2010)
- With Brandon Tries: “A Connection Between the Fibonacci Numbers and Newton’s Method” (presented at Hudson River Undergraduate Mathematics Conference, Keene State College, April 2010 and Salem State University Undergraduate Research Symposium, May 2010)

INVITED ADDRESSES

- “Groebner Bases and their Applications.” Naval Postgraduate School, Monterey, CA, July 2007
- “Nilpotent Orbits in Lie Triple Systems.” University of Massachusetts Boston Seminar Series, October 2006
- “A Classification of Nilpotent Orbits in Infinitesimal Symmetric Spaces.” AMS-MAA Joint Mathematics Meetings, Special Session on Modular Representation Theory of Finite and Algebraic Groups, Atlanta, GA, January 2005
- “Hard Problems Made Easy by Groebner Bases.” Franklin College colloquium, Franklin, IN, March 2004

- “An Introduction to Wavelets.” Franklin College Math Day, October 1998

CONTRIBUTED PRESENTATIONS

- Talks at regional or national conferences
 - “A New Proof of a Result on the Closure Ordering of Nilpotent Orbits in Type A.” AMS-MAA Joint Mathematics Meetings, Contributed Paper Session, New Orleans, January 2007.
 - “Algebraic Groups and Nilpotent Orbits.” MAA Northeast Section Meeting, November 2006.
- Talks at Salem State University
 - “The Great Mathematical Formula Debate.” With Pedro Poitevin. Salem State University Mathematics Society, Salem, MA, January 2008.
 - “Stuff from the Legacy of R.L. Moore Conference.” Salem State University Mathematics Department seminar series, Salem, MA, April 2007.
- Seminar talks at Western Michigan University
 - “Nilpotent Orbits.” WMU Algebra Seminar, April 2005
 - “Crystallographic Groups.” WMU Algebra Seminar, October 2004
 - “Nicolas Bourbaki.” WMU History of Mathematics Seminar, April 2004
 - “A Theorem of Chevalley.” WMU Algebra Seminar, March 2004
 - “The Parallel Postulate.” WMU History of Mathematics Seminar, October 2003
 - “A Homotopy-Theoretic Definition of Lusternik-Schnirelmann Category.” WMU Topology Seminar, September 2003
 - “Affine Varieties and Their Ideals.” WMU Algebra Seminar, September 2003
 - “An Introduction to Lie Triple Systems.” WMU Algebra Seminar, March 2003
 - “Cantor and Infinite Sets.” WMU History of Mathematics Seminar, February 2003
 - “Explicit Resolutions.” WMU Topology Seminar, October 2002
 - “Representation Theory: Basic Definitions and Examples.” WMU Algebra Seminar, March 2002
 - “Lie Groups: Basic Definitions and Examples.” WMU Algebra Seminar, September 2001
 - “Groups and Counting.” WMU Algebra Seminar, September 2000
- Other talks
 - “Nilpotent Orbits Associated to Groups with Involutions.” Grand Valley State University Algebra Seminar, October 2005
 - “Reductive Algebraic Groups and Their Simple Modules.” University of Virginia Algebra Seminar, December 2003

SELECTED CONFERENCES ATTENDED

- Undergraduate-centered conferences
 - Hudson River Undergraduate Mathematics Conference, Keene State College, Keene, NH (April 2010)
 - Hudson River Undergraduate Mathematics Conference, Union College, Schenectady, NY (April 2009)
 - Math at Work conference, Bentley College, Waltham, MA (October 2007)
 - Hudson River Undergraduate Mathematics Conference, Siena College, Loudonville, NY (April 2007)
- Research conferences
 - Algebraic Cycles, K-Theory, and Modular Representation Theory, Northwestern University (September 2004)
 - Infinite-Dimensional Aspects of Representation Theory and Applications, University of Virginia (May 2004)
 - Coding Theory and Quantum Computing, University of Virginia (May 2003)
- Other conferences
 - The Legacy of R.L. Moore Conference, University of Texas (April 2007)
 - Several regional and national AMS and MAA meetings

PROFESSIONAL AFFILIATIONS

- Mathematical Association of America

SELECTED SERVICE ACTIVITIES

- Service to the mathematical community
 - Referee for *Ars Combinatoria* (2010)
 - Referee for PRIMUS (2008)
 - Textbook reviewer for W.H. Freeman (2008), Wiley & Sons (2009), and Brooks/Cole (2009)
 - Wrote comprehensive exam for Franklin College graduating math majors which they took as a capstone requirement (2008 and 2009)
- At Salem State University
 - Chair, Mathematics Department undergraduate curriculum committee (2009-present)
 - Co-organizer of the undergraduate research group of the Mathematics Department (2009-present)

- Five-yearly academic program review coordinator for the Mathematics Department (2008)
 - Math Society co-advisor (2006-10)
 - Mathematics Department assessment committee member (2008-09)
 - College-wide Foundations of Excellence Task Force (2008-09)
 - School of Arts and Sciences Strategic Planning Committee (2007-09, 10)
- At Western Michigan University
 - Graduate student representative on Department of Mathematics undergraduate committee (2002-05)
 - Organizer of the Math History Seminar (2004)
 - At Franklin College
 - Co-organizer of the MAA Indiana Section Meeting (1996)

COURSES TAUGHT (primary instructor with full responsibility for all courses listed)

- At Salem State University
 - Introduction to Mathematical Proof
 - Introduction to Mathematical Computing
 - Real Analysis
 - Abstract Algebra I and II
 - Linear Algebra I
 - Discrete Structures
 - Calculus I, II, and III
 - Pre-calculus
 - Mathematics for the Liberal Arts
 - Algebraic Structures (graduate course)
 - Abstract Algebra (graduate course)
 - Number Systems for Middle School Teachers (graduate course)
- At Grand Valley State University
 - Calculus I and II (These courses included a weekly computer lab component in which students made calculus explorations using *Maple*.)
 - College Algebra
 - Algebra I
- At Western Michigan University
 - Linear Algebra

- Calculus I and II
- Pre-calculus
- Algebra I and II
- Excursions in Mathematics