

Sharon K. McCathern

Curriculum Vitae
November 2018
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Education

Ph.D. 2007, University of Chicago, Chicago, IL

Dissertation: A Replacement Theorem for Modules with a Unipotent Automorphism

M.S. 2001, University of Chicago, Chicago, IL

B.A. 1999, Rice University, Houston, TX

summa cum laude

Teaching Experience

2015- **Associate Professor**, Azusa Pacific University, Azusa, CA

2011-2015 **Assistant Professor**

- Courses taught: College Algebra, Introduction to Statistics, Contemporary Mathematics (liberal arts), Calculus 1 and 2, Linear Algebra, Complex Analysis, Number Theory, Abstract Algebra, Discrete Mathematics and Proof
- Undergraduate research projects mentored in combinatorial linear algebra

2008-2011 **Assistant Professor**, Grove City College, Grove City, PA

- Courses taught: Precalculus, Finite Math (liberal arts), Calculus 1 and 2, Discrete Math, Abstract Algebra
- Senior Projects directed in number theory, group theory, advanced calculus

2007-2008 **Visiting Assistant Professor**, University of Illinois at Chicago, Chicago, IL

- Courses taught: Calculus 1, 2, and 3
- Independent Study director for graduate students in Linear Algebra and Geometric Groups

2003-2007 **Instructor in the College**, University of Chicago, Chicago, IL

- Courses taught: Calculus sequence, Number Theory and Geometry for the Liberal Arts, Precalculus

2006-2007 **Instructor**, Chicago Academic Achievement Program, Chicago, IL

- Summer preparation for college mathematics for incoming minority freshmen at the U. of Chicago
- School-year group tutoring support and individual instruction with the same students

- 2005-2007 **Instructor**, Young Scholars' Program, University of Chicago, Chicago, IL
- Saturday morning enrichment and problem-solving, grades 7-9
- 2002-2004 **Graduate Student Facilitator**, University of Chicago Polk Brothers' Program for the Improvement of CPS Mathematics Teaching, Chicago, IL
- Summer teaching assistant for class of public school teachers
 - School-year observation and model teaching in Chicago Public Schools classrooms
- 1999-2001 **Math Specialist/Substitute Teacher**, American Youth Works High School, Austin, TX
- Consulted with teachers and taught in basic math, algebra and geometry classes
 - Individual instruction and support in GED prep classes

Papers and Presentations

"Minimum Rank with Zero Diagonal," paper presentation in special session at Joint Mathematics Meetings - AMS/MAA - San Antonio, TX, January 2015.

C. Grood, J. Harmse, L. Hogben, T. J. Hunter, B. Jacobs, A. Klimas, **S. McCathern**. Minimum Rank with Zero Diagonal, *Electronic Journal of Linear Algebra*, **27**, 458-477 (2014).

"Graphs with Small Zero-Diagonal Minimum Rank", presentation at SoCal-Nevada section meeting of MAA, October 2013 (with J. Harmse).

"Inquiry-Based Learning in Abstract Algebra: A First Attempt", presentation at SoCal-Nevada section meeting of MAA, October 2011.

Presentations by Mentored Undergraduate Research Students

"The minimum ranks of graphs over Z_p ," McCathern, S., Harmse, J., **Cain, C., Undergraduate (Author & Presenter), Frank, K., Undergraduate (Author)**, presentation SoCal/Nevada section MAA meeting, April 2017.

"The minimum rank of complete graphs over Z_p ," McCathern, S., Harmse, J., **Frank, K., Undergraduate (Author & Presenter)**, presentation at SoCal/Nevada section MAA meeting, October 2016.

"Zero-diagonal Minimum Rank of Graphs over Z_3 ," McCathern, S., Harmse, J., **Schletewitz, J., Undergraduate (Author & Presenter)**, presentation at SoCal/Nevada section MAA meeting, November 2015

Professional Interests

- Combinatorial matrix theory
- Finite group theory and associated Lie algebras
- Scholarship of teaching and learning mathematics
- Inquiry-based learning
- “Flipped” teaching methods
- Member, MAA

Honors and Awards

- Project NExT (New Experiences in Teaching) Fellow, 2008-09
- Lawrence and Josephine Graves Award for Excellence in Undergraduate Teaching, Department of Mathematics, University of Chicago
- NSF Graduate Research Fellowship
- Howard E. Bray Prize for Outstanding Mathematics Undergraduate, Rice University