

Tom Edgar
Curriculum Vitae

Department of Mathematics
Pacific Lutheran University
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EDUCATION

Ph.D., Mathematics, August 2009, University of Notre Dame, Notre Dame, Indiana

Ph.D. Thesis: Dominance and Regularity in Coxeter Groups
Ph.D. Advisor: Matthew Dyer

M.S., Mathematics, May 2004, Colorado State University, Fort Collins, Colorado

M.S. Thesis: Finite Projective Geometries and Linear Codes
M.S. Advisor: Anton Betten

B.S. Mathematics (summa cum laude), February 2002, Dickinson College, Carlisle, Pennsylvania

ACADEMIC POSITIONS

Department of Mathematics, Pacific Lutheran University

Assistant Professor, Fall 2009-present.

Department of Mathematics, University of Notre Dame

Graduate Teaching Assistant, Fall 2004-Spring 2009.

Department of Mathematics, Colorado State University

Graduate Teaching Assistant, Fall 2002-Summer 2004.

GRANTS

NSCI Undergraduate Research Program, Pacific Lutheran University, Summer 2012.

Received \$16,440 to act as Summer Undergraduate Research Mentor with two PLU undergraduates.

Teaching and Learning with Technology Grant, Pacific Lutheran University, Fall 2011.

Received a one-course release (in lieu of \$5000) to implement the use of Sage in M331: Linear Algebra.

American Institute of Mathematics Workshop, Palo Alto, CA, Summer 2011.

Received full funding to attend the week-long "Research experiences for undergraduate faculty" workshop.

TEACHING EXPERIENCE

Pacific Lutheran University-Assistant Professor

M107: Mathematical Explorations (J-11)

M151: Calculus I (F-09, S-10, Su-10)

M253: Calculus III (S-12)

M331: Linear Algebra (F-11)

M381: Mathematical Modeling Seminar (J-11)

M499: Senior Capstone (F-10, S-10)

M115: Algebra (F-11)

M152: Calculus II (F-10, S-11)

M317: Introduction to Proofs (S-10, S-11, S-12)

M381: Problem Solving Seminar (F-10)

M433: Abstract Algebra (F-09, F-10)

University of Notre Dame - Instructor

M10360: Calculus B (for Life Sciences) (S-08)

M10250: Elements of Calculus I (for Business) (S-05)

M10240: Principles of Calculus (F-05)

Colorado State University - Instructor

M130: Math for Social Sciences (Su-04) M161: Calculus II for Physical Sciences (S-04)
 M155: Calculus I for Biological Sciences (F-03) M124: Logarithms and Exponents (F-02, S-03, Su-03)
 M125: Numerical Trigonometry (F-02, S-03, Su-03) M126: Analytic Trigonometry (F-02, S-03, Su-03)

NSF Research Experience for Teachers - Workshop Leader

Voting Theory with Linear Algebra Workshop (Su-08) Number Theory and Symmetry Workshop (Su-07)
 Probability and Statistics Workshop (Su-06)

University of Notre Dame -Teaching Assistant

M20550: Calculus III (Fa-08) M10560: Calculus II, (S-07 TA Chair, F-07)
 M10350: Calculus A (F-06 TA Chair, F-07 TA Chair) M13150: Freshman Seminar: Number Theory (S-06)

University of Notre Dame - Undergraduate Reading Seminar Leader

Coxeter Groups and Finite Reflection Groups, (S-06)

Colorado State University - Teaching Assistant

Tutor in Individualized Mathematics Program (F-02, S-03, Su-03)

Dickinson College - Teaching Assistant

Calculus I, Calculus II, Pre-Calculus, Quantitative Reasoning, 1999-2002

Dickinson College - Individual Tutor, 1999-2002

PUBLICATIONS

“Universal Reflection Subgroups in Coxeter Groups,” to appear in Communications in Algebra.
 “A case-free characterization of hyperbolic Coxeter groups,” J. of Group Theory. **14** (2011), no. 5, 777-782.
 “Reduced expressions in semidirect products of Coxeter groups,” J. of Group Theory. **13** (2010), no. 1, 109-115.
 “Dominance and Regularity in Coxeter Groups,” Ph.D. Thesis, University of Notre Dame (2009).
 “Sets of reflections defining twisted Bruhat orders,” J. Algebraic Combin. **26** (2007), no. 3, 357-362.

RELATED WORK EXPERIENCE

AP Calculus Exam Reader, College Board, 2005
 Math Education Research, Colorado State University, 2004
 Helped to develop MapleTA for the Trigonometry Intensive Review at Colorado State
 Workshop Calculus Solution Manual
 Helped write “Instructor Resources for Workshop Calculus,” Key College Publishing
 Agentsmart LLC
 Developed math problems for a computer pre-calculus tutorial
 Whitaker Research Grant, Assistant, Dickinson College, 2001
 <http://users.dickinson.edu/richesod/waves/>

SELECTED PRESENTATIONS

Invited

Colloquium, Western Washington University

Title Forthcoming, February 2012

Colloquium, University of Puget Sound

Connecting the Dots: Posets and Inversion to Understand Finite Sums, Combinatorics and Number Theory, April 2010

Colloquium, Kalamazoo College

Unlocking the Mysterious Möbius Function, November 2008

Contributed

Joint Meetings of the AMS and MAA, Boston, MA

Web 2.0 for Linear Algebra Classes, January 2012

Western Sectional Meeting of the AMS, University of Utah

A Conjectural Normal Form for Elements of Coxeter Groups, October 2011

PNW Sectional Meeting of the MAA, Seattle University

Adopt-a-Group Project with a Course Wiki, April 2010

Mathematics Seminar, Pacific Lutheran University

Abstract Algebra in our World, October 2009

How to use L^AT_EX, October 2010

An Introduction to L^AT_EX, September 2011

An Introduction to the Beamer package for L^AT_EX, November 2011

Algebra Seminar, University of Notre Dame

Coxeter Groups and Automata, October 2008

Hecke Algebras and Kazhdan-Lusztig Polynomials, March 2005

Coxeter Groups, Root Systems, and Bruhat Order, February 2005

Indiana Sectional Meeting of the MAA, St. Mary's College

An Introduction to Posets and Möbius Inversion, March 2008

Commutative Algebra Seminar, University of Notre Dame

Twisted Bruhat Orders and Shellability, December 2006

Graduate Student Seminar, University of Notre Dame

Rock the Vote or Vote The Rock, October 2008

Root Systems for the Infinite Dihedral Group, April 2007

Wild Weyl and Twisted Bruhat, October 2007

Rocky Mountain Algebraic Combinatorics Seminar, Colorado State University

Linear Codes and Finite Projective Geometries, April 2004

HONORS, AWARDS, AND MEMBERSHIPS

Honors

Phi Beta Kappa

Pi Mu Epsilon

Awards and Scholarships

Kaneb Center Outstanding Graduate Student Teacher Award, University of Notre Dame, 2007

Striving For Excellence in Teaching Certification, Kaneb Center, 2004-2008

University Graduate Fellowship Award, Colorado State University, 2002

The Lance E. Kohlhaas Memorial Prize in Mathematics, Dickinson College, 2002

Caroline H. Clarke Scholarship for Mathematics (2), Dickinson College, 2000-2002

Benjamin Rush Scholarship, Dickinson College, 1998-2002

Memberships

American Mathematics Society, 2002-Present

Mathematical Association of America, 2006-Present

 CAPSTONES ADVISED

2011-2012

Square Roots mod n, Andrew Clear
RSA Algorithm, Rachael Devlaeminck
Stirling Numbers and Combinatorics, Stacey Hagensen
Voting, Eric Herde

2010-2011

Dance and Mathematics, Monica Boldizar
Deciphering the Secrets of Cryptography, Andrew Carpenter
Finite State Automata and Automata Theory, Daniel Case
The Riemann Hypothesis, Janessa Gramson
An Analysis of Communications between the Mars Rover and Earth, Graham Malek (co-adviser)
The Complexities of Voting, Linda Nusser
Pairs of Circles and Their Intersections, Sam Rise (co-adviser)

2009-2010

Galois Theory and its Applications, Ahmed Benkhalti
Fermat's Last Theorem, Dustin Hunt
Permutation Groups Acting for The Enigma Machine, Shellan Ley
Error Correcting Codes, Shayne Smith

 COLLEGIATE SERVICE

Pacific Lutheran University

President's and Regents' Interviewer, Spring 2012
 Mathematics Curriculum Committee Member, 2009-present
 Major Advisor, Spring 2010-present
 First-Year Advisor, Fall 2010-present
 Department Webmaster, Fall 2009-present
 Mathematics Seminar Coordinator, 2010-2011
 Math Club Advisor, Fall 2009-present
 Putnam Exam Advisor, Fall 2010, Fall 2011
 Mathematical Modeling Contest Advisor, Spring 2011
 Academic Festival Coordinator, 2011
 Smash Club Advisor, 2010-2011
 MESA Day Judge, Spring 2011
 Math Day Workshop Coordinator, Fall 2011
 Mathematics Tutor, Lincoln Center at Lincoln High School, 2011-present

University of Notre Dame

Organizer for Mathematics Graduate Teaching Assistants, Fall 2007-Spring 2009
 Speaker, "Experiences in Teaching," Mathematics Teaching Seminar, University of Notre Dame, Spring 2008
 Co-organizer for SUMR Graduate/Undergraduate Reading Seminars, Spring 2007
 Panelist, Mathematics Teaching Seminar, University of Notre Dame, Spring 2007
 Judge, The Northern Indiana Regional Science and Engineering Fair, Spring 2006
 Graduate Representative of Parking Appeals Committee, University of Notre Dame, 2005-2006
 GSU Representative to Ad Hoc Parking Committee, University of Notre Dame, 2005-2006

Dickinson College

Math and Computer Science Society Officer, Dickinson College, 2001-2002

CONFERENCES ATTENDED

AMS-MAA Joint Meetings, Boston, January 2012
Combinatorial Potlatch, Seattle University, November 2011
AMS Sectional Meeting, University of Utah, October 2011
Research experiences for undergraduate faculty, American Institute of Mathematics, Palo Alto, CA, July 2011
Scottfest, University of Puget Sound, April, 2010
MAA Sectional Meeting, Seattle University, March 2010
AMS-MAA Joint Meetings, San Francisco, January 2010
AMS-MAA Joint Meetings, Washington, D.C., January 2009
MAA Sectional Meeting, St. Mary's College, March, 2008
AMS Sectional Meeting, University of Notre Dame, April 2006
Midwest Algebra, Geometry and Interactions Conference, University of Notre Dame, October 2005
Midwest Representation Theory Conference, University of Michigan, October 2005
CBMS Regional Conference on Algebraic and Topological Combinatorics, August 2005
MAA Rocky Mountain Sectional Meeting, Colorado College, April 2004
AMS Sectional Meeting, University of Colorado, October 2003