

Curriculum Vitae
Barry Allen Balof

University Address:

Whitman College
Department of Mathematics
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Research Interests

Combinatorics: Ordered Sets (Geometric Representations, Comparability Invariants, Recognition Algorithms), Combinatorial Geometry and Polytope Representations, Graph Theory (Hypergraph Spectral Theory), Algebraic Combinatorics, Mathematical Psychology and Studies of Measurement

Employment Experience

Assistant Professor of Mathematics Whitman College, Walla Walla, Washington August 2003-Present
Collaborateur Scientifique Universite Libre de Bruxelles, Brussels, Belgium October 2005-October 2007

Education

Ph.D., Mathematics, Dartmouth College, Arts and Science Graduate School, June 2003; dissertation advisor, Professor Kenneth Bogart; thesis topic: Geometric representations of (n, i, f) tube orders, unit and non-unit results, triangle orders and graphs, comparability invariance results.

Master of Arts, Mathematics, Dartmouth College, June 2000

Bachelor of Arts, Mathematics and History with Distinction in Mathematics, Colorado College, 1997

Budapest Semesters in Mathematics Budapest, Hungary, Fall 1996

Academic Publications

“Constructing isospectral non-isomorphic digraphs from hypergraphs” (with Christopher Storm), submitted to the *Journal of Graph Theory*

“Invariants on primary abelian groups and a problem of Nunke” (with Patrick Keef), submitted to the *Journal of Algebra*

“The Representation Polyhedron of a Semiorder” (With Jean-Paul Doignon and Samuel Fiorini), accepted to *Discrete Mathematics and Theoretical Computer Science*

“Semiorders and Riordan Numbers” (With Jacob Menashe), *Journal of Integer Sequences*, vol 10, article 07.7.6

“A Finite Non-Unit Free Triangle Order” (with Ken Bogart), *Order*, vol 23, p37-49 (2006)

“A Non-Unit Free Tetrahedron Order” (with Ashifi Gogo), *Congressus Numerantium*, vol 177, p. 183-200 (2005)

“Non-Unit Free Triangle Orders” (with Ken Bogart), *Order*, vol 23, p21-35 (2006)

“Simple Inductive Proofs of the Fishburn and Mirkin Theorem and Scott-Suppes Theorem”, (with Ken Bogart) *Order*, vol 20 p.49-51 (2003)

“Permutations, Scramblings, and Derangements” (with Eric Farmer and Jamie Kawabata), Rose Hulman Technical Report MSTR 97-03, (1997)

“Knight’s Tours and Magic Squares” (with John J. Watkins), *Congressus Numerantium*, vol 120 p.23-32 (1996)

Other Publications

“Extra Credit”, Whitman Magazine, March 2008

Talks and Presentations

Vertices and Facets of the Semiorder Polyhedron

Thirty-Eighth International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, FL, March 2007

DIMACS Workshop on the Polyhedral Combinatorics of Random Utility, Rutgers, NJ May 2006

Counting Semiorders (with Jacob Menashe)

Poster Session: Mount Baldy Conference on Enumerative Combinatorics, Harvey Mudd College, CA, October 2006

What's the Difference? Measurement and Ordered Sets

Faculty Forum-Whitman College February 2006

Geometric Representations of Ordered Sets

Invited Address: Incidence Algebra Seminar, University of Ghent, Belgium, November 2005

Algorithms Seminar: Universite Libre de Bruxelles, Brussels, Belgium, October 2005

MAA-AMS Joint Meetings, Special Session on Lattices and Ordered Sets, Baltimore, MD, January 2003

Invited Lecture, Fitchburg State College, November 2002

Graduate Student Seminar, Dartmouth College, November 2002

Being a Unit Triangle Order is a Comparability Invariant

Thirty-Sixth International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, FL, March 2005

A Finite Non-Unit Free Triangle Order

MAA-AMS Joint Meetings, Special Session on Lattices and Ordered Sets, Phoenix, AZ, January 2004

Thirty-Fifth International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, FL, March 2004

Results on Non-Unit Free Triange Orders

Thirty-Third International Southeast Conference on Combinatorics, Graph Thory, and Computing, Boca Raton, FL, March 2002

SIAM Conference on Discrete Mathematics, San Diego, CA, August 2002

Non-Unit Examples of (n, i, f) Tube Orders

MAA-AMS Joint Meetings, San Diego, CA, January, 2002.

Elementary Proofs of Classic Theorems

Rocky Mountain Section of the MAA, April 2004

Dartmouth College Graduate Student Seminar, February 2002

On a Conjecture of Ringel

Dartmouth College Graduate Student Seminar, October 2001

Permutation and Specht Modules

Dartmouth College Graduate Student Seminar, November, 2000

Permutations, Derangements, and Scramblings

Rose Hulman Conference on Undergraduate Mathematics, March 1997

MAA-AMS Joint Meetings, San Diego, CA, January 1997

Knight's Tours and Magic Squares

Rocky Mountain Section meeting of the MAA, April 1996

Rose Hulman Conference on Undergraduate Mathematics, Terre Haute, IN, March 1996

Twenty-Seventh International Southeast Conference on Combinatorics, Graph Theory, and Computing, Baton Rouge, LA, February 1996

PEW Conference on Undergraduate Research in the Sciences, University of Chicago, November 1995

Teaching Experience

Whitman College (2003-Present)

Assistant Professor: Courses taught include Single and Multivariable Calculus, Introduction to Mathematical Thinking (course for nonscientists), Calculus Laboratory, Introduction to Higher Mathematics, Linear Algebra, Combinatorics and Graph Theory, First and Second Semester Abstract Algebra, and Senior Project. Coordinated Independent Studies in Game Theory, Knot Theory, and Fourier Analysis. Supervised projects in Enumerative Combinatorics, Tableaux Theory, and Matroid Theory. Developed a course in Problem Solving (Putnam Exam Preparation).

Dartmouth College (1998-2003)

Full Instructor: Finite Mathematics, Graph Theory, Linear Algebra (Honors Section). **Tutor:** Single and Multivariable Calculus, Differential Equations, Mathematics and Biology. Coordinated an independent study in Combinatorics. Advised on a senior thesis on Graph Theory and Matroids.

Colorado College

Paraprofessional (1997-98) Teaching assistant for Calculus I-III, Discrete Mathematics, Probability and Statistics, Abstract Algebra I-II, Analysis I-II, Complex Variables, History of Mathematics, Upper Level Probability. Social events coordinator for the Mathematics Department.

Private Tutor (1993-97) Led nightly problem sessions for students in all levels of mathematics. Individually tutored students from elementary school through college.

Related Experience

Graduate Advisor (1999-2003)

Dartmouth College Office of Residential Education. Lived in residence with students as an academic advisor. Individually mentored students on topics including post-graduation options, internships and research opportunities, graduate school applications, undergraduate academic issues. Organized campus wide programs for students on various academic and social topics. Assisted in leading a cluster staff and organizing hall-wide programs.

San Luis Valley Program (1995-2001)

Assistant Director: Worked with students from Southern Colorado and Northern New Mexico in a two-week bridge program at Colorado College. Students attended classes in mathematics, writing, computers, and the arts. Organized and lectured daily to students on topics including calculus, graph theory, combinatorics, and geometry. Lived in residence with students, organized academic and social programs for them. Maintained mentorships with students after the program as they faced college decisions.

Professional Associations

Reviewer for the Journal of Mathematical Psychology, Reviewer for the Journal of Mathematics and Social Science, Reviewer for Discrete Optimization

Member of American Mathematical Society, Mathematical Association of America, Society for Mathematical Psychology, Institute for Combinatorics and its Applications

Phi Beta Kappa-Whitman College, Chapter President, May 2005-May 2008

Barry Goldwater Scholarship, Faculty Representative

Accreditor, Northwest Commission on Colleges and Universities, 2007-Present

Honors and Awards :

A. E. Lange Award for Distinguished Science Teaching, Whitman College, May 2007

Associate Fellow, Institute of Combinatorics and its Applications, 2007-Present

Baccalaureate Address-Whitman College, May 2006

Louis B. Perry Research Award, Summer 2006 (with Jacob Menashe)
Prix d'Ouverture Internationale, Universite Libre de Bruxelles, 2005
Project NExT Leitzel Fellow, 2003-2004
Filene Graduate Student Teaching Award, 2003
Dolores Zohrab Liebmann Fellowship, 2000-2003
Phi Beta Kappa, 1997-Present
Florian Cajori Prize in Mathematics, 1997
Barry Goldwater Scholar, 1996-7

Languages and Computers :

Proficient in French. Fair in Hungarian and Italian.

Familiar with Microsoft Windows, Mac OSX, Adobe Illustrator, Maple, LaTeX, and HTML

Interests :

Duplicate Tournament Contract Bridge (ACBL Life Master and Certified Club Director), Running, Travel, History

References :

Available Upon Request