

Curriculum Vitæ
Barry Allen Balof

University Address:

Whitman College
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Research Interests

Combinatorics: Ordered Sets (Geometric Representations, Comparability Invariants), Combinatorial Geometry and Polytope Representations, Enumerative Combinatorics and Integer Sequences, Graph Theory (Connectivity and Hypergraph Spectral Theory), Algebraic Combinatorics, Mathematical Psychology and Studies of Measurement, Mathematics and Decision Making

Employment Experience

Associate Professor of Mathematics Whitman College, Walla Walla, Washington August 2009-Present.
Department Chair: 2011-2014

Assistant Professor of Mathematics Whitman College, Walla Walla, Washington August 2003-August 2009

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

“A New Measure of Graph Connectivity” (With David Guichard) *Journal of Combinatorial Mathematics and Combinatorial Computing*, accepted for publication (2016)

“Tilings, Continued Fractions, Derangements, Scramblings, and e ” (With Helen Jenne) *Journal of Integer Sequences*, vol 17, article 14.2.7 (2014)

“The Representation Polyhedron of a Semiorder” (With Jean-Paul Doignon and Samuel Fiorini), *Order* Volume 30, Issue 1, pp 103-135 (2013)

“Restricted Tilings and Bijections” *Journal of Integer Sequences*, vol 15, article 12.2.3 (2012)

“Constructing isospectral non-isomorphic digraphs from hypergraphs” (with Christopher Storm), *Journal of Graph Theory*, v. 63, p. 231-242 (2010)

“Invariants on primary abelian groups and a problem of Nunke” (with Patrick Keef), *Note di Matematica* vol. 29, no. 2, 83115 (2009)

“Semiorders and Riordan Numbers” (With Jacob Menashe), *Journal of Integer Sequences*, vol 10, article 07.7.6 (2007)

“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

Sigma Connectivity, Cographs, and Flower Graphs

Forty-Eighth International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, FL, March 2017

Sigma Connectivity

Summer Combinatorics in Vermont (poster session), July 2016

Tilings, Continued Fractions, Scramblings, and e

Seventeenth International Conference on Fibonacci Numbers and Their Applications, Caen, France, June 2016

Forty-Fifth International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, FL, March 2014

Sigma Connectivity: A Preliminary Report

Forty-Sixth International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, FL, March 2015

Chessboard Sequences, Number Tilings and Continued Fractions

Northwest Section of the Mathematical Association of America Meeting, University of Montana, June 2014

Fibonacci and Friends: Famous Number Sequences and the Liberal Arts

Invited Address: Homecoming Celebration 2011, Colorado College (October 2011)

Faculty Forum (Whitman College) February 2012

Restricted Tilings and Coordination Sequences

Fifteenth International Conference on Fibonacci Numbers and their Applications, Eger, Hungary, June 2012

Forty-Second International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, FL, March 2011

Constructing Isospectral Non-Isomorphic Digraphs from Hypergraphs

Twenty-Second British Combinatorial Conference, University of St. Andrews, July 2009

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

Presentations for the Center for Teaching and Learning

Using Groups in the Class to Promote Problem Solving (October 2015)

Interpreting Course Evaluations (2012, 2016)

Discussion Facilitator: Our Underachieving Colleges by Derek Bok (2006)

Teaching Experience

Whitman College (2003-Present)

Associate Professor: Courses taught include Single and Multivariable Calculus, Introduction to Mathematical Thinking (course for nonscientists), Calculus Laboratory, Introduction to Higher Mathematics, History of 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, Matroid

Theory, Finite Geometry, Surreal Numbers, Combinatorial Curvature, Polynomial Invariants, Magic Squares, Ramsey Theory, and Complexity Theory. Developed and run a yearly 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.

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, Institute for Combinatorics and its Applications

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

Barry Goldwater Scholarship, Faculty Representative 2007-2012

Independent Colleges of Washington, Faculty Leadership Working Group, 2017

Campus Service (since tenure)

Director of the Tenure-Track Faculty Mentoring Program (2016-Present)

College Strategic Planning Committee (2016-Present)

Computer Science Steering Committee (2014-Present)

Faculty Commencement/Convocation Marshall (2011-Present)

Department Chair (2011-14)

College Curriculum Committee (2012-13, 2015-16)

General Studies Committee (2011-14)

College Council on Interpersonal Relations (2010-13)

College Website Redesign Committee (2011)

Council on Student Affairs (2006-10)

Trustees Committee on Admission and Financial Aid (2009-11)

Faculty Personnel Committee (2009-10)

Committee on Admission and Financial Aid (2006-09)

Delta Gamma Faculty Advisor (2008-2013)

Various departmental and extra-departmental (Economics, Writing) search committees.

Honors and Awards :

Innovation in Teaching and Learning Grants, 2014-15, 2016-17

National Science Foundation Project UTMOST Grant, 2012-14

CTL Pedagogical Research and Development Grant, Summer 2012

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, Sage, LaTeX, and HTML

Interests :

Duplicate Tournament Contract Bridge (ACBL Silver Life Master and Certified Club Director), Cross-words, Sports and Fitness, Travel, History

References :

Available Upon Request