

Curriculum Vitae

Eric Gottlieb

Associate Professor and Chair

Department of Mathematics and Computer Science

January 2009

Education:

- Ph.D. in mathematics, 1998, University of Miami, *The Cohomology of Dowling Lattices and Lie Superalgebras*; advisor, Michelle Wachs.
- M.S. in mathematics, 1992, University of Washington, *The Permutahedron*; advisor, Branko Grunbaum.
- B.S. in Environmental Science/Geology, 1987, Antioch College.

Research Interests:

- Algebraic and enumerative combinatorics
- Homology and shellability of partially ordered sets
- Voting theory and fair division
- Graph theory
- Mathematical programming and its applications
- Combinatorial game theory

Publications

- *Some impartial games on partitions*, with undergraduate Whitney Duval, in preparation.
- *Fair division and Coxeter groups*, in preparation.
- *Counting votes when preferences are partially ordered*, with M. Ackerman, S.-Y. Choi, P. Coughlin, and J. Wood, in preparation.
- *Some results about permutation walklength*, in preparation.
- *The h, k -equal partition lattice is contractible when $h \geq k$* , in preparation.
- *Inclusion-exclusion and the topology of partially ordered sets*, in *Resources for Teaching Discrete Mathematics*, MAA Notes #74 (2008).
- *La formula de Euler: poliedros, grafos planares, y topologia*, *Revista del Instituto de Matematica y Fisica*, Año 7, No. 11, 1-12 (2004).
- *Color-induced subgraphs of Grünbaum colorings of triangulations of the sphere*, with K. Shelton, *Australasian Journal of Combinatorics* **30**, 183-192 (2004).
- *An EL-shelling of the nondecreasing partition lattice*, *Proceedings of the Thirty-Fourth Southeastern International Conference on Combinatorics, Graph Theory and Computing*, *Congressus Numerantium* **162**, 119-127 (2003).
- *On the homology of the h, k -equal Dowling lattice*, *SIAM Journal of Discrete Mathematics* **17**, 50-71 (2003).

- *Using integer programming to guide college admissions decisions: A preliminary report*, The Journal of Computing in Small Colleges **17**, 257-265 (2001).
- *Cohomology of Dowling Lattices and Lie Superalgebras*, with M. Wachs, Advances in Applied Mathematics **24**, 301-336 (2000).

Conference Participation and Talks

- *A partially ordered approach to fair division*<http://www.math.fau.edu/cgtc/cgtc38/Abstracts/Gottlieb.pdf>, contributed talk, Combinatorics seminar, University of Miami, March 2008.
- *Posets from fair division*<http://www.math.fau.edu/cgtc/cgtc38/Abstracts/Gottlieb.pdf>, contributed talk, Combinatorics, Graph Theory, and Computing, Florida Atlantic University, March 2008.
- Co-organizer, Special session on voting theory, Joint meetings of the AMS/MAA, San Diego, CA, January 2008.
- Conference participant, The Art of Teaching Mathematics, Harvey Mudd College, June 2007.
- *Some elementary results about the walklength of permutations*, contributed talk, Combinatorics, Graph Theory, and Computing, Florida Atlantic University, March 2007.
- Conference participant, Joint meetings of the AMS/MAA, New Orleans, LA, January 2007.
- Leading the Academic Department: A Workshop for Chairs of Mathematical Sciences Departments, MAA PREP workshop, Washington, DC, October 2006.
- *Walking over Permutations*, presentation to an REU at Lafayette College and to the Master of Arts in Teaching program at Bard College, July 2006.
- *A hyperplane arrangement arising from partially ordered voting preferences*, invited speaker, AMS special session on the Many Lives of Lattice Theory, the Theory of Ordered Sets, and Universal Algebra, Joint Meeting of the AMS/MAA, January 2006
- *Es difícil elegir bien*, plenary address, Talleres de Matemática para estudiantes de enseñanza media, June 2005, Talca, Chile
- Participant, DIMACS satellite reconnect conference, Mathematics of Decisions and Elections, Montclair State University, June 2005.
- *Es difícil elegir bien: una introducción a la teoría de elecciones*, guest speaker, Centro de Estudios Científicos (CECS), June 2005, Valdivia, Chile
- *Es difícil elegir bien: una introducción a la teoría de elecciones*, plenary speaker, XIX Jornada de Matemática de la Zona Sur, April 2005, Colbun, Chile
- *The h, k -equal partition lattice is EL-shellable when $h \geq k$* , joint meeting of The 2004 NZIMA Conference in Combinatorics and its Applications and The 29th

Australasian Conference in Combinatorial Mathematics and Combinatorial Computing, December 2004, Lake Taupo, New Zealand

- *On the homology of the h, k -equal Dowling lattice*, invited speaker, special session on Dowling lattices, Eastern sectional meeting of the AMS, October 2003.
- Participant, knot theory workshop, Wake Forest University, 2003.
- *An EL-shelling of the nondecreasing partition lattice*, contributed talk, Combinatorics, Graph Theory, and Computing, Florida Atlantic University, 2003.
- Conference participant, Cumberland Graph Theory Conference, Mississippi State University, 2002.
- Conference participant, Joint meetings of the AMS/MAA, San Diego, CA, 2002.
- *Using integer programming to guide college admissions decisions: A preliminary report*, contributed talk, Southeastern sectional meeting of the Consortium for Computing in Small Colleges, 2001.
- *A concrete introduction to mathematical programming with MS-Excel*, contributed talk, MathFest, Madison, Wisconsin, 2001.
- Participant, ACS microteaching workshop, Eckerd College, 2000.
- Conference Participant, Southeastern Sectional Meeting of the Mathematical Association, Rhodes College, 1999.
- *On the h, k -equal Dowling lattice*, Contributed talk, DIMACS Research and Education Institute, Rutgers University, 1999.
- *On the cohomology of the Dowling lattice*, invited speaker, combinatorics seminar, University of Memphis, 1998.
- *Every embedding of K_6 in R^3 contains a nontrivially linked pair of triangles*, Invited Speaker, seminar of the mathematics department, Murray State University, 1998.
- *On Dowling lattice homology and Lie superalgebras*, invited speaker, AMS Special Session on Algebraic Combinatorics, University of Louisville, 1998.
- Conference participant, Joint meetings of the AMS/MAA, Baltimore, MD, 1998.
- *On Dowling lattice homology and Lie superalgebras*, with M. Wachs, contributed talk, Combinatorics, Graph Theory, and Computing, Florida Atlantic University, 1997.
- Participant, workshop on Representation Theory and Symmetric Functions, MSRI Berkeley, 1997.
- Conference participant, Formal Power Series and Algebraic Combinatorics, University of Minnesota, 1996.
- Conference participant, combinatorics conference in honor of Herb Wilf, University of Pennsylvania, 1996.

Grants, Awards, and Fellowships

- Participant, Mellon foundation grant, Firestone Ecological Reserve, Costa Rica, May 2008.
- Participant, Mellon foundation grant, Firestone Ecological Reserve, Costa Rica, May 2007.
- E.C. Ellett Chair of Mathematics, 2004-2007.
- Fulbright award #4499. Spent the 2004-2005 academic year at the University of Talca in Talca, Chile. Taught one section per semester of Calculus II in Spanish and conducted research.
- Rhodes College FDE research grants, 2006, 2003, 1999.
- Grant from Dean of the College to develop handout describing some applications of mathematical programming for Linear Methods, 2001.
- Panhellenic Professor of the month, October 2000.
- Graduate Fellow, Department of Mathematics and Computer Science, University of Miami, 1995 –1998.
- Research Assistant for a grant from the NSF to develop a logic programming language for expert systems, 1995. PI: Prof. Jan Plaza.
- Graduate Student of the Year, Department of Mathematics and Computer Science, University of Miami, 1998.

Articles Refereed

- An article for a special volume of the American Mathematical Society series "Contemporary Mathematics" entitled "Communicating Mathematics: A Conference in Honor of Joseph Gallian's 65th Birthday," 2008.
- An article on fair division for a volume in honor of Peter Fishburn, 2007.
- An article for a special issue on Industrial Ecology of the journal Economic Systems Research, 2004.
- Three articles on mathematical approaches to horticultural problems for the Journal of the American Society for Horticultural Science, 2005.

Employment:

Chair, Department of Mathematics and Computer Science, Rhodes College, 2006 – 2008.

Associate Professor, Department of Mathematics and Computer Science, Rhodes College, fall 2004 – present.

Assistant Professor, Department of Mathematics and Computer Science, Rhodes College, fall 1998 – fall 2004.

- *Courses taught:*
 - Spring 2009: Calculus II, Linear Algebra, Senior Seminar
 - Fall 2008: Calculus I, Differential Equations, Discrete Structures for CS,

- Senior Seminar, GRE Preparation, Combinatorics (DI)
- Spring 2008: Calculus II, Abstract Algebra
- Fall 2007: Linear Methods (2 sections), Abstract Algebra
- Spring 2007: Linear Methods (3 sections), Mathematical Methods, Discourse, and Culture
- Fall 2006: Calculus I, Combinatorics
- Spring 2006: Linear Methods (2 sections), Applied Calculus, Abstract Algebra II (reading course)
- Fall 2005: Linear Methods (2 sections), Abstract Algebra I
- Spring 2005: Cálculo II, Universidad de Talca
- Fall 2004: Cálculo II, Universidad de Talca
- Spring 2004: Cálculo Aplicado (Applied Calculus in Spanish), Linear Methods (2 sections)
- Fall 2003: Combinatorics, Calculus I, Linear Methods
- Spring 2003: Discrete Structures for Computer Science, Linear Methods (2 sections)
- Fall 2002: Calculus I (2 sections), Linear Methods
- Spring 2002: Combinatorics (reading course), Abstract Algebra II, Linear Methods (2 sections)
- Fall 2001: Abstract Algebra I, Calculus II, Linear Methods
- Spring 2001: Mathematical Programming (reading course), Linear Algebra, Linear Methods (2 sections)
- Fall 2000: Combinatorics, Calculus I, Calculus II
- Spring 2000: Mathematical Probability and Statistics II, Calculus II, Linear Methods
- Fall 1999: Mathematical Probability and Statistics I, Calculus I, Applied Calculus
- Spring 1999: Linear Algebra, Linear Methods, Applied Calculus
- Fall 1998: Automata Theory, Differential Equations, Applied Calculus
- *Senior projects supervised:*
 - 2008-2009: Combinatorial games on partitions (Whitney DuVal)
 - 2003-2004: Power indices (Jaime Eubanks)
 - Hamiltonian cycles in certain subgraphs of n-dimensional cubes (Adam Richardson)
 - 2002-2003: Minimally rigid braced grids are three colorable (Jonathan Hulgan)
 - Some special cases of Seymour's conjecture (Michael Kelley)
 - 2001-2002: Mathematical programming (Carrie Wright)
 - 2000-2001: Game theory (Zack Kinlaw)

- A Web-based GIS application for the study of a neighborhood (Wes Brooks)
 - 1999-2000: Algebraic graph theory (Burke White)
 - 1998-1999: Error correcting codes (John Quigley)
- *Service to the mathematical community:*
 - Tutored and mentored Justin Campbell, a mathematically gifted high school student, fall 2007 – spring 2008
 - Tutored and mentored Greg Burnham, a mathematically gifted high school student, spring 2006 – spring 2007
 - Project NExT consultant, fall 2006 – spring 2007.
 - Judge, 11th and 13th Annual Student Research Forums, University of Memphis
 - Panelist, Bridging the Gap, University of Memphis, 2000 and 2001.
 - Organizer of the career fair for the Southeastern Sectional Meeting of the MAA held at Rhodes, March 1999
- *Service to Rhodes:*
 - Faculty Professional Interest Committee (2005-present, Chair Fall 2006 – 2008)
 - Chair of the Department of Mathematics and Computer Science (2006-2008)
 - Committee for the Minor in Environmental Science (2005-present)
 - Advisor to the Rhodes Math Club (2005-2006)
 - Academic Symposium, October 2005, *Mathematics in the Land of Fruit and Wine*
 - Sou'wester column for Constitution day on Constitutional issues, 2005
 - High Top, September 2005, *Living and Learning in another country*
 - Participated in Parents' Council lunch (2003)
 - Individualized Studies Committee (2002-2004)
 - Rhodes' Representative to ACS Technology Committee (2002-2004)
 - Planning Committee for URCAS (2002-2004)
 - Hiring Committee for position in Chemistry (2002-2003)
 - Participated in numerous Admissions Open Houses and Department Previews
 - Planning Committee for successful proposal to Mellon Foundation (2002)
 - Lectured on geodesic domes as part of Parents' Day (2002)
 - Participated in numerous math study skills workshops at the request of Student Academic Support
 - Faculty advisor to the Rhodes chess club (2002-2004)
 - Proposed and supervised math faculty and students in refurbishing of Rhodes geodesic dome (2002-2003)
 - Recycling coordinator for Ohlendorf (2001-2004)
 - Participant in Greek/faculty dinner discussions (2001-2002)
 - Organizer of AfterMath, the department's weekly problem session and social hour (2000-2004)
 - Admissions Committee (1999-2002)

Designed the department mug and organized a student competition to design a department T-shirt (1999)

Advisor to dozens of students (1999-present)

Editor of the department newsletter (1998-2003)

Search committee for ten positions in mathematics (1998-present)

Successfully supervised searches for computer scientists (2006 – 2007 and 2007 – 2008)

Teaching Assistant, Department of Mathematics and Computer Science, University of Miami, fall 1992 - spring 1995. Taught or ran quiz sections for courses ranging from remedial mathematics through Calculus I; taught at all levels in tutoring center; led computer-based calculus labs.

Teaching Assistant, Department of Mathematics, University of Washington, fall 1990 - spring 1992. Ran quiz sections for or taught courses ranging from remedial mathematics through Calculus III; taught at all levels in tutoring center.

Instructor of Mathematics, Miami-Dade Community College, summers 1991 – 1994. Taught remedial mathematics.

Geologist, Technos, Inc., Miami, FL, fall 1997 – summer 1999.

- Gathered data using a variety of field equipment, including downhole geophysical probes and video, ground penetrating radar, and surface electromagnetic sensors.
- Analyzed geophysical data.
- Prepared reports for internal use and for clients.

Co-operative education student, Antioch College, spring 1984 - summer 1986.

Held numerous positions with employers including:

- Paleoichthyology at the Field Museum of Natural History, Chicago, IL
- Environmental engineering at the Massachusetts Department of Environmental Quality Engineering, Boston, MA
- Environmental impact studies at the Savannah River Ecology Labs, Aiken, SC
- Archeology with the University of NV in Rio Rancho, NM
- Teaching assistant at the Catlin-Gabel School, Portland, OR

Salmon fisherman, Bristol Bay, AK, summers 1980 -1983

Personal

- Born 17 February 1965 in Miami, FL.

- Married to Rebecca Terrell since 26 November 1993.
- Father to Augustus James Terrell Gottlieb and Samuel Crichton Terrell Gottlieb, born 10 June 1997.
- First place, Rhodes Faculty Dessert Cookoff, 2000, 2001, and 2002.
- Hobbies include speaking Spanish, chess, go, and home improvement.