

Curriculum Vitae

John Schmitt
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Education:

Ph.D. in Mathematics, Emory University, 2005

M.S. in Mathematics, University of Vermont, 1998

B.A. in Mathematics, *cum laude* and Honors Program, Providence College, RI, 1994

Research:

Research Area: Combinatorics, Graph Theory (particularly extremal problems), Discrete Mathematics

Thesis: *On Potentially P-Graphic Degree Sequences and Saturated Graphs*, advisor Ron Gould

Teaching Experience:

Middlebury College, Middlebury, VT: *Assistant Professor*, July 2008 -present. *Visiting Assistant Professor*, July 2005-June 2008. Courses taught: Calculus, Multivariable Calculus, Graph Theory, Combinatorics, Linear Algebra, Combinatorial Games and Puzzles, and Statistics. Supervised undergraduate theses and research.

Emory University, Atlanta, GA: *Dean's Teaching Fellow*, September 2004-June 2005. Responsible for teaching Linear Algebra with Applications.

Emory University, Atlanta, GA: *Graduate Teaching Associate (Assistant)*, September 2001 - August 2004 (September 2000-August 2001). Responsible for teaching one undergraduate course each semester, including Calculus I, Calculus II, Business Calculus, and Probability and Statistics.

The Maret School, Washington, DC: *Teacher and Coach*, September 1998 - June 2000. Responsible for teaching four courses of high school mathematics, including AP Calculus, and coaching cross country and track and field.

University of Vermont, Burlington, VT: *Graduate Teaching Fellow*, September 1996 - May 1998. Taught Pre-Calculus and Calculus.

Phillips Academy, Andover, MA: *Faculty*, Summer 1997.

Visiting Appointment:s

Carnegie Mellon University, Pittsburgh, PA: *Visiting Assistant Professor*, July 2009-June 2011.

Institute for Pure and Applied Mathematics, University of California Los Angeles, CA: *Invited Participant* in Combinatorics: Methods and Applications in Mathematics and Computer Science, September 2009-December 2009.

Publications:

A Constructive Upper Bound for Cycle Saturated Graphs of Minimum Size, (with R. Gould, T. Luczak), *Electronic Journal of Combinatorics* **13** (2006) R29, 19pp.

Minimum Degree and the Minimum Size of K_2^t -saturated graphs, (with R. Gould), *Discrete Mathematics*, **307** (2007) 9-10, 1108-1114.

Graphic Sequences with a Realization Containing a Friendship Graph, (with M. Ferrara, R. Gould), *Ars Combinatoria*, **85** (2007), 161-171.

A note on minimum $K_{2,3}$ -saturated graphs, (with O. Pikhurko), *Australasian Journal of Combinatorics* **40** (2008), 211-215.

Degree Sum Conditions in Graph Pebbling, (with undergraduate student A. Blasiak), *Australasian Journal of Combinatorics* **42** (2008), 83-90.

Graphic Sequences with a Realization Containing a Complete Multipartite Subgraph, (with G. Chen, M. Ferrara, R. Gould), *Discrete Mathematics* **308** (2008) 23, 5712-5721.

Graphic Sequences with a Realization Containing a Generalized Friendship Graph, (with Gang Chen, J. Yin), *Discrete Mathematics* **308** (2008) 24, 6226-6232.

Using Edge Exchanges to Prove the Erdős-Jacobson-Lehel Conjecture, (with M. Ferrara, R. Gould), *Bulletin of the Institute of Combinatorics and its Applications* **56** (2009), 73-80.

Potentially H -Bigraphic Sequences, (with M. Ferrara, M. Jacobson, M. Siggers), to appear in *Discussiones Mathematicae Graph Theory*.

A General Lower Bound for Potentially H -Graphic Degree Sequences, (with M. Ferrara), *SIAM Journal on Discrete Mathematics* **23** (2009) 1, 517-526.

Extended Abstract:

An Erdős-Stone Type Conjecture, (with M. Ferrara), *Electronic Notes in Discrete Mathematics* (Proceedings of 6th Czech-Slovak Symposium, Prague) **28** (2006) 131-135.

Presentations given:

- British Combinatorics Conference, St. Andrew's, Scotland, UK, July 2009, "Graph pebbling in sparse graphs".
- Discrete Mathematics Day of the Northeast, Burlington, VT, June 2009, *and* Dartmouth College Combinatorics Seminar, October 2008, "A dual to the Turán problem".
- VT EPSCoR Annual State Meeting, June 2009, poster presentation of "Constructing Cost-Efficient Networks for the Transportation of Scarce and Consumable Resources".

- 2nd Canadian Discrete and Algorithmic Mathematics Conference, May 2009, “A Lower Bound for Potentially H -Graphic Sequences”.
- American Mathematical Society Sectional Meeting, Urbana-Champaign, Illinois, March 2009, “Potentially H -bigraphic degree sequences”.
- Arizona State University, Discrete Mathematics Seminar, March 2009, *and* University of Vermont / St. Michael’s College Discrete Mathematics Seminar, November 2008, “The generalized degree sequence problem”.
- Governor’s Institute in Mathematical Sciences, University of Vermont
 - “How to Beat your Friends at the Dots-and-Boxes Game”, June 2008.
 - “The game of hex”, June 2009.
- SIAM Conference on Discrete Mathematics, Burlington, VT, June 2008, “Minimum Size of a Graph of Given Diameter”.
- AMS-MAA Joint Meetings, San Diego, CA, Jan. 2008 and Summer Combinatorics in Vermont Conference, St. Michael’s College, July 2008, “Degree Sum Conditions in Graph Pebbling”.
- 21st British Combinatorial Conference, Reading, UK, July 2007, “Minimum Size of Bipartite-Saturated Graphs”.
- 20th Cumberland Conference, Atlanta, GA, May 2007, “Sum Degree of No Class”.
- University of Vermont Mathematics Colloquium, April 2007, “Extremal Problems on Bipartite Graphs”.
- Middlebury College Mathematics Seminar, March 2007, “Erdős, an Extreme Character”.
- University of Colorado, Denver, Discrete Mathematics Seminar, September 2006, “Recent Results and Open Problems on Saturated Graphs of Minimum Size”.
- Horizons of Combinatorics, Lake Balaton, Hungary, July 2006, “On a Relationship of Two Extremal Functions”. (Support from the European Mathematical Society.)
- 6th Czech-Slovak International Symposium on Combinatorics, Graph Theory, Algorithms and Applications, Prague, Czech Republic, July 2006, “An Erdős-Stone Type Conjecture”. (Partial support from DIMATIA of Charles University.)
- SIAM Conference on Discrete Mathematics, Victoria, Canada, June 2006, “A Lower Bound on Potentially F -Graphic Degree Sequences”.
- Middlebury College Mathematics Seminar, October 2005, “The Efficiency of the Bicycle Wheel”.
- University of Vermont / St. Michael’s College Discrete Mathematics Seminar, October 2005, “The Minimum Size of Saturated Graphs”.
- Workshop on Extremal Graph Theory, Carnegie Mellon University, May 2005, “Cycle-saturated graphs of minimum size”.

- University of Vermont/ St. Michael's College Discrete Mathematics Seminar, April 2005, "On a Problem in Extremal Graph Theory".
- 36th Southeastern Intl. Conference on Comb., Graph Theory, Computing, Boca Raton, FL, March 2005, " K_2^t -saturated graphs of minimum size".
- AMS-MAA Joint Meetings, Atlanta, GA, Jan. 2005.
- Emory Mathematics Graduate Student Seminar, Atlanta, GA, June 2003, "Degree Sequences".
- Workshop on Extremal Graph Theory, Csopak, Hungary, June 2003, "Potentially K_s^t -Graphic Degree Sequences".

Grants

- National Science Foundation Research Opportunity Award (DMS0758057) for collaborative work with Oleg Pikhurko (PI) of Carnegie Mellon University on "Turán Problem for Graphs and Hypergraphs".
- Supervised work of Daniel Crow who was awarded Nelson R. Easton '41 Research Fellowship, for "Constructing Realistic Complex Networks Given Degree Sequences and Specific Imposed Conditions"
- Ada Howe Kent Fund, Middlebury College, 2009-2010, "Combinatorics and Extremal Graph Theory"
- Vermont Experimental Program to Stimulate Competitive Research (VT-EPSCoR) Award, Summer 2008, "Constructing Cost-efficient Networks for the Transportation of Scarce and Consumable Resources".
- Undergraduate Collaborative Research Fund, Middlebury College
 1. Summer 2009, "Problems in Extremal Graph Theory" - to support undergraduate Ying (Daisy) Zhuo, '12.
 2. Summer 2008, "Constructing Cost-efficient Networks for the Transportation of Scarce and Consumable Resources" - to support undergraduate Angelo Fu, '10.
 3. Spring 2007, "Saturated graphs of minimum size" - to support undergraduate Sarri Al-Nashashibi, '08.

Activities and Service:

- *Local Organizer*, Discrete Mathematics Days of Northeast (a one day conference), Middlebury, VT, September 2007
- *Referee*, Journal of Graph Theory, Discrete Mathematics, Discrete Applied Mathematics, Discussiones Mathematicae Graph Theory, Designs, Codes and Cryptography, Electronic Journal of Combinatorics, Australasian Journal of Combinatorics, and Graphs and Combinatorics
- *Reviewer*, Mathematical Reviews Database

- *Host*, Middlebury College's Friends of International Students Program, 2006-
- *Founder, President* of Emory University Society of Industrial and Applied Mathematics (SIAM) Student Chapter, September 2003-May 2005
- *Organizer*, Emory Mathematics Graduate Student Seminar, 2001-2003
- *Graduate Student Representative*, Emory Student Health Insurance Advisory Committee, 2002- 2005
- *Volunteer Cross Country Coach*, U. Vermont, Fall 1996-97

College Committee Service

- Curriculum Committee, 2008-2009

Awards:

- 2008 Perkins Award for Excellence in Teaching, Middlebury College
- Marshall Hall, Jr., Award (Mathematics Department of Emory University Teaching Award), April 2004
- Dean's Teaching Fellowship, Emory University, 2004-2005
- "Excellence in Teaching", U. Vermont Mathematics Dept., March 1998
- Nominated Graduate Teaching Fellow of the Year, U. Vermont, March 1998
- Junior Year Abroad, Cambridge University, Homerton College, 1992-1993
- Graduate of Liberal Arts Honors Program, Providence College
- Academic All-Big East, 1992
- Member of Pi Mu Epsilon

Undergraduate Theses Directed:

- Benjamin Liang, "The Probabilistic Method in Combinatorial Applications", Fall 2008
- Benjamin Molberger, "Combinatorial Game Theory: Choosing the Right Move", Fall 2008
- Sarri Al-Nashashibi, "Coding Theory and the Pathological Liar Game", Fall 2007
- Anna Blasiak, "Graph Pebbling", Fall 2006 - winner of departmental thesis prize
- Benjamin Rowe, "Consequences of the Axiom of Choice", Spring 2006
- Timothy Bahls, "A Variation of Multi-Color Ramsey Numbers", Fall 2005
- Anthony Santolupo, "On the Minimum Size of Q_2 -Saturated Hypercubes", Fall 2005

Memberships:

- Society of Industrial and Applied Mathematics
- Institute of Combinatorics and its Applications

Computing skills:

Knowledge of: maple, matlab, unix, latex

References:

Professor Ron Gould (thesis advisor)
Goodrich C. White Professor
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