

Amir Barghi

Mathematics Program
Bard College, 30 Campus Rd
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Curriculum Vitæ

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Employment

- **Bard College**, Visiting Assistant Professor July 2013 - Present
- **State University of New York at New Paltz**, Lecturer August 2011 - August 2013

Education

- **Dartmouth College** Hanover, NH
 - Ph.D., Mathematics June 2011
Thesis Advisor: Peter Winkler
 - Master of Arts, Mathematics June 2009
- **Rochester Institute of Technology** Rochester, NY
 - Master of Science, Industrial and Applied Mathematics May 2006
Thesis Advisor: Hossein Shahmohamad
- **University of Tehran** Tehran, Iran
 - Bachelor of Science, Pure Mathematics July 2003

Teaching Experience

- **Visiting Assistant Professor - Bard College**
 - MATH 102: Elementary Statistics (2 sections) Fall 2017
 - MATH 245: Intermediate Calculus Fall 2017
 - MATH 102: Elementary Statistics Spring 2017
 - MATH 329: Mathematical Statistics Spring 2017
 - MATH 213: Linear Algebra and ODEs (2 sections) Fall 2016
 - MATH 261: Proofs and Fundamentals Fall 2016
 - MATH 213: Linear Algebra and ODEs Spring 2016
 - MATH 332: Abstract Algebra Spring 2016
 - MATH T200: Problem Solving Tutorial Spring 2016
 - MATH 213: Linear Algebra and ODEs (2 sections) Fall 2015
 - MATH 328: Probability Fall 2015
 - MATH 261: Proofs and Fundamentals Spring 2015
 - MATH 142: Calculus II (2 sections) Spring 2015

- MATH T200: Probability Tutorial Spring 2015
- MATH 328: Probability Fall 2014
- MATH 141: Calculus I (2 sections) Fall 2014
- MATH 142: Calculus II (2 sections) Spring 2014
- MATH 261: Proofs and Fundamentals Spring 2014
- MATH T300: Advanced Probability Tutorial Spring 2014
- MATH 141: Calculus I (2 sections) Fall 2013
- MATH 315: Combinatorics Fall 2013
- MATH T200: Graph Theory Tutorial Fall 2013
- **Lecturer** - State University of New York at New Paltz
 - MAT 363: Combinatorics Spring 2013
 - MAT 253: Calculus III Spring 2013
 - MAT 252: Calculus II (2 sections) Spring 2013
 - MAT 363: Combinatorics Fall 2012
 - MAT 251: Calculus I (3 sections) Fall 2012
 - MAT 381: Introduction to Probability and Statistics I Spring 2012
 - MAT 251: Calculus I (5 sections) Spring 2012
 - MAT 252: Calculus II (3 sections) Fall 2011
 - MAT 181: Precalculus Fall 2011
- **Lecturer** - Dartmouth College
 - Math 20: Discrete Probability Fall 2009
 - Math 13: Calculus of Vector-valued Functions Spring 2009
- **Teaching Assistant** - Dartmouth College
- **Teaching Assistant** - Rochester Institute of Technology

Publications

- A. Barghi, P. Winkler, Firefighting on geometric graphs with density bounds, *Ars Combinatoria*, vol. 131, p. 63, 2017.
- A. Barghi, J. Cullinan, On the solution to a generalized Fermat equation: arithmetic and combinatorics, *Journal of Combinatorics and Number Theory*, vol. 7, no. 3, p. 157, 2015.
- A. Barghi, P. Winkler, Firefighting on a random geometric graph, *Random Structures and Algorithms*, vol. 46, p. 466, 2015.
- A. Barghi, H. Shahmohamad, Revisiting chromatic polynomials of some sequences of graphs, *Ars Combinatoria*, vol. 97, p. 413, 2010.

- A. Barghi, H. Shahmohamad, Chromatic polynomials of $C_4 \times P_n$ and $C_5 \times P_n$, *Journal of Combinatorial Mathematics and Combinatorial Computing*, vol. 70, p. 107, 2009.
- A. Barghi, H. Shahmohamad, On partial chromatic ordinomials, *Journal of Combinatorial Mathematics and Combinatorial Computing*, vol. 62, p. 129, 2007.

Undergraduate Research Advised (Senior Projects at Bard College)

- Finnegan Muller-Hardy
The Expectation for the Center of Mass of Finite Integer Grids May 2017
- Xiangying (Shar) Shuai
Radical Recognition in Off-Line Handwritten Chinese Characters Using Non-Negative Matrix Factorization (co-advised with Sven Andreson) May 2016
- Zexi Song
Cutoff for Lamplighter Markov Chains on Prisms May 2016
- Xinge Zhang
Aye or Nay: A Study of Opinion Exchange Dynamics May 2015
- Nicole Rosato
Fire Containment on Layered Infinite Grids May 2014

Invited Talks

- Math & CS Seminar, Dept. of Math. and Comp. Sci., Adelphi University
A Combinatorial Variation of Fermat's Last Theorem April 2016
- Pi Mu Epsilon Induction Ceremony, Department of Mathematics, Marist College
A Combinatorial Variation of Fermat's Last Theorem April 2016
- Theory Group Seminar, Department of Computer Science, Rensselaer Polytechnic Institute
Firefighting on Geometric Graphs April 2011
- SMC/UVM Joint Combinatorics Seminar
Fighting Fires on a Flat Terrain April 2011

Contributed Talks

- SIAM Conference on Discrete Mathematics
Fighting Fires on Layered Grids June 2014
- Joint Mathematics Meetings
Firefighting on Random Geometric Graphs January 2011
- AMS Eastern Sectional Meeting
Firefighting on Random Geometric Graphs October 2010

- 37th Southeastern International Conference on Combinatorics, Graph Theory, and Computing
Chromatic Polynomials of Some Chains of Graphs and Some Infinite Graphs March 2006

Departmental Talks

- Mathematics Program, Bard College
Seating Arrangements, Domino Tilings, and Graph Factorials Spring 2017
- SIAM & AWM Student Chapters, State University of New York at New Paltz
What Is a One-dimensional Random Walk? Fall 2012
- Combinatorics Seminar, Dartmouth College
 - Firefighting on Random Geometric Graphs Fall 2010
 - On the Chromatic Polynomials of Some Sequences of Graphs Fall 2006
- Graduate Student Seminar, Dartmouth College
 - Plane-like Graphs Winter 2011
 - Chernoff Bound and Hoeffding's Inequality Fall 2010
 - The Ising Model Summer 2010
 - Revisiting Gauss's Circle Problem Spring 2010
 - Moment Generating Functions Winter 2010
 - $\sqrt{3}/3 +$ a Bit of Topology and a Bit of Geometry Fall 2009
 - Beasts, Skeletons, and Other Horrible Beings Winter 2009
 - Firefighting on the Infinite Hexagonal Grid Fall 2008
 - Cartesian Products of Graphs Spring 2008

Outreach Talks

- AMC 10/12 (Organized by Bard Math Circle)
A Mathematical Walk on a Topographic Map February 2016
- Lifetime Learning Institute at Bard College
A Mathematical Walk on a Topographic Map October 2015

Conferences

- Discrete Math Day of the Northeast
 - Dartmouth College May 2017
April 2014
October 2007
 - Smith College April 2016

- Worcester Polytechnic Institute September 2015
- Middlebury College September 2014
- September 2012
- September 2007
- Wesleyan University October 2013
- University of Vermont March 2009
- Skidmore College September 2006
- Summer Combo in Vermont - Saint Michael's College July 2016
- Spuyten Duyvil Undergraduate Mathematics Conference
 - Manhattan College April 2015
 - April 2013
 - Marist College (jointly with Hudson River Undergrad. Math. Conf.) April 2014
 - Ramapo College April 2012
- Hudson River Undergraduate Mathematics Conference
 - Union College April 2015
 - Marist College (jointly with Spuyten Duyvil Undergrad. Math. Conf.) April 2014
 - Western New England University April 2012
- Mid-Hudson Mathematics Conference for Undergraduates - Bard College November 2013
- October 2011
- Cornell Probability Summer School July 2013
- Joint Mathematics Meetings, San Diego January 2013
- Permutation Patterns 2010 - Dartmouth College August 2010
- Midwest Conference on Combinatorics, Cryptography, and Computing
 - 23rd, Rochester Institute of Technology October 2009
 - 19th, Rochester Institute of Technology October 2005
 - 18th, Rochester Institute of Technology October 2004
- Graph Theory with Altitude - University of Colorado Denver May 2005

Refereeing

- SIAM Undergraduate Research Online (SIURO)
- Internet Mathematics
- Computers and Operations Research

- Online Journal of Analytic Combinatorics
- 25th ACM-SIAM Symposium on Discrete Algorithms (SODA 2014)
- 21st International Symposium on Algorithms and Computation (ISAAC 2010)

Conferences and Panels Organized

- Discrete Math Day of the Northeast at Bard College 03/28/2015
- Graduate School Panel (4th Mid-Hudson Math. Conf.) 11/02/2013

Service

- **Bard College**

- Academic Advisor Fall 2014 – Present
- Proctor, Putnam Mathematical Competition 12/05/2015
12/06/2014
12/07/2013
- Super-advisor (Advising Incoming First-years) Fall 2015
Fall 2014
- Proctor, AMC 10/12 (Organized by Bard Math Circle) 02/25/2015
- Panelist, The ISO Career Panel (Organized by Bard ISO) 11/22/2014
- Proctor, AMC 8 (Organized by Bard Math Circle) 11/18/2014
11/19/2013
- Organizer & Instructor, GRE Subject in Math Preparatory Sessions Fall 2014

- **State University of New York at New Paltz**

- Judge, Integration Bee (Organized by SIAM & AWM Student Chapters) 04/17/2013
12/11/2012
- Organizer, Math Trivia (Hosted by SIAM & AWM Student Chapters) 10/17/2012
- Instructor, Calculus Refresher (Organized by AMP & CSTEP Community) 09/08/2012
- Judge, Integration Bee (Organized by SIAM Student Chapter) 05/03/2012
12/07/2011

- **Dartmouth College**

- Organizer, Graduate Student Seminar (Dept. Math.) Summer 2009 - Spring 2010