CURRICULUM VITAE

CRISTINA BALLANTINE
Professor of Mathematics
College of the Holy Cross
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Research Interests

Number Theory, Automorphic Forms and Representation Theory, Buildings, Algebraic Combinatorics, Graph Theory, Visualization of Complex Functions.

Education

Ph.D.	University of Toronto, Canada (November 1998) Advisor: Professor James Arthur Thesis: *Hypergraphs and Automorphic Forms*
M.Sc.	University of Toronto, Canada (November 1992)
Diplom	University of Stuttgart, Germany (1988)

Academic Appointments

Sept. 2014 – Present	College of the Holy Cross: *Professor* on sabbatical 2009-2010, 2016-2017 expected sabbatical 2023-2024
Sept. 2015 – Dec. 2015	ICERM (Brown University): *Visiting Researcher*
Sept. 2007 – Aug. 2014	College of the Holy Cross: *Associate Professor*
Jan. 2013 – May 2013	ICERM (Brown University): *Visiting Researcher*
Sept. 2002 – Aug. 2007	College of the Holy Cross: *Assistant Professor*
Sept. 2004 – July 2005	Universität Münster: *Fulbright Research Scholar*
Sept. 2000 – Aug.2002	Dartmouth College: *J.W. Young Research Instructor*
Sept. 1999 – Aug. 2000	Bowdoin College: *Visiting Assistant Professor*
Sept. 1998 – Aug. 1999	University of Wyoming: *Visiting Assistant Professor*
Sept. 1996 – Jan. 1998	University of Toronto, Canada: *Instructor*
Aug. 1994 – Dec. 1994	Santa Rosa Junior College, CA: *Instructor*

Research and Publications

Refereed Research Papers

1. Quasisymmetric Power Sums (with Zajj Daugherty, Angela Hicks, Sarah Mason and Elizabeth Niese), submitted

2. Bisected Theta Series, Least r-Gaps in Partitions, and Polygonal Numbers (with Mircea Merca), submitted

3. Combinatorial Proofs of Two Truncated Theta Series Theorems (with Mircea Merca, Donny Passary, and Ae Ja Yee), submitted

4. Jacobi's Four and Eight Squares Theorems and Partitions into Distinct Parts (with Mircea Merca), submitted

5. On lacunary recurrences for Fibonacci numbers (with Mircea Merca), submitted

6. The Euler-Riemann zeta function and Chebyshev-Stirling numbers of the first kind (with M. Merca), submitted

7. Finite differences of Euler's zeta function (with Mircea Merca), to appear in *Miskolc Math. Notes*

8. Parity of sums of partition numbers and squares in arithmetic progressions (with Mircea Merca), *Ramanujan J.* 44 (2017), no. 3, 617–630

9. Inequalities involving the generating function for the number of partitions into odd parts (with Mircea Merca), *Quaest. Math.* 40 (2017), no. 3, 319–332

10. New convolutions for the number of divisors (with Mircea Merca), *J. Number Theory* 170 (2017), 17–34

11. Padovan numbers as sums over partitions into odd parts (with Mircea Merca), *J. Inequal. Appl.* 2016, Paper No. 1, 14 pp.

12. Stability of coefficients in the Kronecker product of a hook and a rectangle (with William T. Hallahan), *J. Phys. A: Math. Theor.* 49 (2016), no. 5, 055203 (21pp)

13. Explicit construction of Ramanujan bigraphs (with B. Feigon, R. Ganapathy, J. Kool, K. Maurischat and Amy Wooding). In *Women in Numbers Europe: Research Directions in Number Theory*, Association for Women in Mathematics Series, Springer Verlag, September 2015, 1–16, ISBN 978-3-319-17986-5.

14. Schur positivity in a square (with Rosa Orellana), *Elec. Journal of Combinatorics*, Vol 21, Issue 3 (2014), #P3.46, 1-36.

15. Connections: Graphs through Number Theory, *CMS Notes*, Vol. 44, No 4, Sept. 2012, 16–17.

16. Powers of the Vandermonde determinant, Schur functions and recursive formulas, *J. Phys. A: Math. Theor.* 45, No. 31 (2012)

17. Powers of the Vandermonde determinant, Schur functions, and the dimension game, 23rd International Conference on Formal Power Series and Algebraic Combinatorics (FPSAC 2011), Proceedings of the conference held in Reykjavik, June 13–17, 2011. *Discrete Mathematics & Theoretical Computer Science Proceedings (DMTCS)*, 87–98.

18. Ramanujan bigraphs associated with SU(3) over a p-adic field (with D. Ciubotaru), *Proc. Amer. Math. Soc.* **139**, 6 (2011), 1939–1953.

19. Colour visualization of Blaschke product mappings (with D. Ghisa), *Complex Var. Elliptic Equ.* **55** (2010), no. 1-3, 201–217.

20. Global mapping properties of rational functions (with D. Ghisa), *Progress in analysis and its applications*, 13–22, World Sci. Publ., Hackensack, NJ, 2010.

21. Color visualization of Blaschke self-mappings of the real projective plane (with D. Ghisa), *Rev. Roumaine Math. Pures Appl.* **54** (2009), no. 5–6, 375–394.

22. A mathematical analysis of some indices used to classify ammonite shells, Lethaia Seminar, *Lethaia*, Vol. 40, 2007, 197–198.

23. A Combinatorial Interpretation for the Coefficients in the Kronecker Product $s_{(n-p,p)} * s_\lambda$ (with R. Orellana), *Séminaire Lotharingien de Combinatoire* **54A**, 2006, Article B54Af.

24. Determinants Associated to Zeta Matrices of Posets (with S. Frechette and J. Little), *Linear Algebra and its Applications* **411**, 2005, 364-370.

25. On the Kronecker Product $s_{(n-p,p)} * s_\lambda$ (with R. Orellana), refereed abstract, on CD-ROM: FPSAC (Formal Power Series and Algebraic Combinatorics) 2005, Taormina, Italy.

26. On the Kronecker Product $s_{(n-p,p)} * s_\lambda$ (with R. Orellana), *Elec. Journal of Combinatorics*, Vol 12, 2005, R28, 1-26.

27. Hecke Operators for GL_n and Buildings (with T. Shemanske and J. Rhodes), *Acta Arithmetica* **112**, 2004, 131-140.

28. Ramanujan Type Graphs and Bigraphs, Dynamical systems and differential equations (Wilmington, NC, 2002), *Discrete and Continuous Dynamical Systems*, 2003, suppl., 78–82.

29. A Simple Proof of Rolle's Theorem for Finite Fields (with J. Roberts), *The American Mathematical Monthly*, Vol. 109 (1), 2002, 72-74.

30. A Hypergraph with Commuting Partial Laplacians, *Canad. Math. Bull.*, Vol. 44 (4), 2001, 385-397.

31. Ramanujan Type Buildings, *Canad. J. Math.*, Vol. 52 (6), 2000, 1121-1148.

Research Papers In-Progress

32. Computationally explicit constructions of Ramanujan Bigraphs (with S. Evra, B. Feigon, K. Maurischat, O. Parzanchevski), in preparation

33. A Combinatorial proof of an Euler identity type theorem of Andrews (with Richard Bielak), in preparation

Non-refereed Publications

34. Rolle's Theorem over Local Fields (with. T. Shemanske), preprint

35. Math Mom, *The Funnel* (the news magazine of the German-American Fulbright Commission), Number 1, Volume 42, Winter 2005, 16–17.

Translations

36. Early Cretaceous microfacies and algae from the central - eastern sectors of the Moesian Carbonate Platform, by Ovidiu Dragastan, Ion Stefan Popescu, Aida Popescu, *Acta Paleontologica Romaniae*, Vol. 5, 2005, 141–162 (translation from Romanian into English).

Mathematical Reviews

1. Andrianov, A. Interaction of Hecke-Shimura rings and zeta functions. Zap. Nauchn. Sem. S.-Peterburg. Otdel. Mat. Inst. Steklov. (POMI) 449 (2016), Analiticheskaya Teoriya Chisel i Teoriya Funktsii. 32, 5–14; translation in J. Math. Sci. (N.Y.) 225 (2017), no. 6, 841–847

2. Leven, Emily. Two special cases of the rational shuffle conjecture. 26th International Conference on Formal Power Series and Algebraic Combinatorics (FPSAC 2014), 789–800, Discrete Math. Theor. Comput. Sci. Proc., AT, Assoc. Discrete Math. Theor. Comput. Sci., Nancy, 2014.

3. Blasiak, J. What makes a D_0 graph Schur positive? J. Algebraic Combin. 44 (2016), no. 3, 677–727.

4. Amdeberhan, Tewodros; Moll, Victor H. A by-product of an integral evaluation. Ramanujan J. 37 (2015), no. 1, 219 – 222.

5. Idei, Hokuto; Oda, Fumihito. The table of marks, the Kostka matrix, and the character table of the symmetric group. J. Algebra 429 (2015), 318 – 323.

6. Lubotzky, Alexander; Meshulam, Roy. Random Latin squares and 2-dimensional expanders. Adv. Math. 272 (2015), 743 – 760.

7. González-Sánchez, Jon; Jaikin-Zapirain, Andrei; Klopsch, Benjamin. The representation zeta function of a FAb compact p-adic Lie group vanishes at 2. Bull. Lond. Math. Soc. 46 (2014), no. 2, 239 – 244.

8. Miyauchi, Michitaka; Stevens, Shaun. Semisimple types for p-adic classical groups. Math. Ann. 358 (2014), no. 1-2, 257 – 288.

Grants, Awards, Honors

2012 – 2018	Simons Foundation Collaboration Grant ($35,000)
2012	O'Leary Faculty Recognition Award
2012	Marfuggi Research Award
2011	Research and Publication Grant ($1600)
2009	AWM-NSF Travel Grant ($887)
2008	Research and Publication Grant ($3000)
2006	Batchelor Ford Foundation Summer Fellowship ($3,500)
2004 – 2005	Fulbright Junior Research Award to Germany ($21,700)
2004	Batchelor Ford Foundation Summer Fellowship ($3,500)
2003	Research and Publication Grant ($500)
2002	AWM-NSF Travel Grant ($700)
1996	Daniel B. DeLury Teaching Award (University of Toronto)
1992–1994, 1995–1997	University of Toronto Open Fellowship
1991–1992	Simcoe Fellowship

Invited Presentations

Jan. 2018 *Bisected Theta Series, Least r-Gaps in Partitions, and Polygonal Numbers,* Special Session on a Showcase of Number Theory at Liberal Arts Colelges, Joint Mathematics Meetings, San Diego, CA

Apr. 2017 *Ramanujan Graphs,* AIM Workshop on Arithmetic Golden Gates, San Jose, CA

Jan. 2017 *Explicit constructions of Ramanujan Bigraphs,* AWM Workshop: Special Session on Number Theory, Joint Mathematics Meetings, Atlanta, GA

Oct. 2016 *Ramanujan graphs,* IMAR (Institute of Mathematics of the Romanian Academy), "Nicolae Popescu" Number Theory Seminar, Bucharest, Romania

Sep. 2016 *Easy to state, hard to prove,* 8-th annual NEMATYC dinner meeting, Worcester, MA

Sep. 2016 *Ramanujan graphs and bigraphs,* WPI Discrete Mathematics Seminar, Worcester, MA

Sep. 2016 *Stability of coefficients in the Kronecker product of a hook and a rectangle,* AMS Fall Eastern Sectional Meeting, Bowdoin College, Brunswick, ME

Jan. 2016 *Graphs and Number Theory,* AWM Distinguished Lecture Series, University of Oregon, Eugene, OR

Jan. 2016 *Rolle's Theorem for Polynomials over Finite Fields,* AWM Distinguished Lecture Series, University of Oregon, Eugene, OR

May 2015 *The Kronecker product for symmetric group representations indexed by a hook and a rectangle,* Representation Theory and Related Topics, University of Connecticut, Storrs, CT

Mar. 2015 *Ramanujan bigraphs - explicit constructions,* 29th Automorphic Forms Workshop, Ann Arbor, MI

Feb. 2015 *Rolle's Theorem for Polynomials over Finite Fields,* Colloquium, Amherst College, Amherst, MA

Jan. 2015 *Schur Positivity in a Square,* Joint Mathematics Meetings, San Antonio, TX, Special Session in Algebraic Combinatorics and Representation Theory

Sept. 2014 *Decomposing mathematical objects,* Faculty lunch series, College of the Holy Cross, Worcester, MA

June 2014 *Expander graphs: algebraic and combinatorial constructions,* SUMRY, Yale University, New Haven, CT

Oct. 2013 *Explicit Constructions of Ramanujan Bigraphs,* Women in Numbers, CIRM, Luminy, France

June 2013 *Ramanujan Bigraphs,* Special Session on Discrete Mathematics and Theoretical Computer Science, Joint AMS-Romanian Mathematical Society Meeting, Alba Iulia, Romania

Apr. 2013 *The Iwahori-Hecke Algebra, the Ramanujan Conjecture, and Expander Graphs,* Workshop on Combinatorics, Multiple Dirichlet Series and Analytic Number Theory, ICERM, Providence, RI

Dec. 2012 *The Vandermonde Determinant Plays Tetris,* Undergraduate Research Colloquium, University of North Texas, Denton, TX

Dec. 2012 *Graphs and Number Theory,* Millican Colloquium, University of North Texas, Denton, TX

Mar. 2012 *Ramanujan bigraphs,* Collaborative Number Theory Seminar, CUNY Graduate Center, New York, NY

Dec. 2011 *Ramanujan bigraphs,* Algebra seminar, Wesleyan University, Middletown, CT

Sept. 2011 *Ramanujan bigraphs associated with $SU(3)$ over a p-adic feld,* AWM Anniversary Conference, Brown University, Providence, RI

Mar. 2011 *Powers of the Vandermonde determinant, Schur functions and the dimension game,* post-baccalaureate student seminar, Smith College, Northampton, MA

Oct. 2010 *Powers of the Vandermonde determinant, Schur functions and the dimension game,* colloquium, Dartmouth College, Hanover, NH

June 2009 *Expander graphs - algebraic and combinatorial constructions,* Potsdam, NY, REU at SUNY Potsdam

Apr. 2009 *Blaschke Product Mappings: Visualization and Automorphic Properties*, Worcester, MA, Special Session on Number Theory, AMS Eastern Sectional Meeting

Nov. 2008 *Expander graphs - Algebraic and combinatorial constructions,* Bard College, NY, Discrete Math Days in the Northeast

Mar. 2008 *Biregular expanders and the Ramanujan Conjecture,* Montreal, QE, Québec-Vermont Number Theory Seminar

Mar. 2008 *Combinatorics and representation theory of p-adic groups,* New York, NY, Special Session on L-Functions and Automorphic Forms, AMS Eastern Sectional Meeting

Feb. 2008 *Biregular expanders and the Ramanujan Conjecture*, Los Angeles, CA, IPAM Workshop on Expanders in Pure and Applied Mathematics

Jan. 2008 *Determinants associated to Zeta matrices of posets and their relation to graph theory*, San Diego, CA, Special Session on Zeta Functions of Graphs, Ramanujan Graphs, and Related Topics, Joint Meetings of the AMS

Sept. 2007 *Biregular expanders and the Ramanujan Conjecture,* Orono, ME
Maine/Québec Number Theory Conference

Jan. 2007 *Combinatorics and Representation Theory of p-adic Groups*, Ottawa, Canada
Workshop on the Representation Theory of Reductive Algebraic Groups

Apr. 2007 *The Zeta Function and the Riemann Hypothesis for Graphs*, Worcester, MA
Worcester Undergraduate Mathematics Symposium

July 2006 *Combinatorics and Representation Theory of p-adic Groups*,
University of Victoria, BC

Oct. 2005 $GL_n(\mathbb{Q}_p)$ - *From Buildings to Representations and Back*, Orono, Maine
Maine/Québec Number Theory Conference

Nov. 2004 *On the Kronecker Product* $s_{(n-p,p)} * s_\lambda$, Hannover, Germany
Algebra Seminar, Universität Hannover

Feb.2004 *Ramanujan Type Graphs and Bigraphs*, IPAM, Los Angeles
Workshop on Automorphic Forms, Group Theory and Graph Expansion

May 2002 *Ramanujan Type Graphs and Bigraphs*, Wilmington, NC
Fourth International Conference on Dynamical Systems
and Differential Equations

Apr. 2001 *Spectra of Graphs and Automorphic Forms*
Univ. of Massachusetts Amherst

Oct. 2000 *Hypergraphs and Automorphic Forms*
Five College Number Theory Seminar

Oct. 1999 *Expander Graphs and Automorphic Forms*, Orono, Maine
Second Annual Maine-Québec Number Theory Conference

Other Presentations

Nov. 2018 *Bisected theta series,* WPI Discrete Mathematics Seminar, Worcester, MA

Apr. 2017 *The Kronecker product for symmetric group representations indexed by a hook and a rectangle,* WPI Discrete Mathematics Seminar, Worcester, MA

Feb. 2017 *A brief introduction to integer partitions (biased toward parity results),* WPI Discrete Mathematics Seminar, Worcester, MA

July 2016 *A brief introduction to integer partitions,* Clavius Seminar, College of the Holy Cross

Apr. 2015 *Partitions and Divisors,* Faculty Seminar, College of the Holy Cross

July 2014 *Easy to state, hard to prove,* Summer Research Program, College of the Holy Cross

July 2014 *Polynomials over finite fields vs. polynomials over the reals,* Summer Research Seminar, College of the Holy Cross

Feb. 2014 *Schur Positivity in a Square,* Faculty Seminar, College of the Holy Cross

Aug. 2012 *Unitary groups over p-adic fields and biregular Ramanujan graphs,* Building Bridges: 1^{st} EU-US Conference on Automorphic Froms and Relates Topics, Aachen, Germany

June 2011 *Powers of the Vandermonde determinant, Schur functions and the dimension game,* (poster) FPSAC11, Reykjavik, Iceland

June 2010 *Infinite families of regular expanders of arbitrary constant degree obtained via the modified zig-zag product*, Conference on $\mathbf{0}-\mathbf{1}$ Matrix Theory and Related Topics, University of Coimbra, Portugal

Apr. 2010 *Combinatorial results about* $\langle \mathbf{a}_{\delta}^{\mathbf{2k}}, \mathbf{s}_{\lambda} \rangle$, University of Seville, Department of Algebra, Seville, Spain

July 2009 *Global Mapping Properties of Rational Functions*
ISAAC, Imperial College, London, UK

Mar. 2008 *Biregular expanders and the Ramanujan Conjecture*
College of the Holy Cross

June 2007 *Ramanujan Graphs and Representation Theory of p-adic Groups*
6th Congress of Romanian Mathematicians, Bucharest, Romania

July 2006 *Combinatorics and Representation Theory of p-adic Groups*
College of the Holy Cross, Clavius Seminar

July 2006 *From Buildings to Representations and Back Via Hecke Operators*
Canadian Number Theory Association IX Meeting, Vancouver, BC

May 2006 *Zeta Functions of Graphs, Buildings and Ramanujan Graphs*, IAS, Princeton Program for Women and Mathematics

Mar. 2006 $GL_n(\mathbb{Q}_p)$ - *From Buildings to Representations and Back Via Hecke Operators*
20th Annual Workshop on Automorphic Forms, Boulder, CO

Mar. 2006 *Zeta Functions of Finite Graphs, the Graph Theoretic Riemann Hypothesis and Ramanujan Graphs*, College of the Holy Cross

June 2005 *On the Kronecker Product* $s_{(n-p,p)} * s_\lambda$ (poster), Taormina, Italy
17th Annual International Conference on Formal Power Series and Algebraic Combinatorics

June 2005 *On the Kronecker Product* $s_{(n-p,p)} * s_\lambda$, Mainz, Germany
Joint Meetings of the AMS, DMV and ÖMG

June 2005 *Towards a p-adic Langlands Program*, Münster, Germany
Oberseminar, Universität Münster

Apr. 2005 *Bounded Spherical Functions for* $GL_2(\mathbb{Q}_p)$, Münster, Germany
Number Theory Seminar, Universität Münster

Nov. 2004 *p-adic Differential Equations*, Münster, Germany
Oberseminar, Universität Münster

Oct. 2004 *Ramanujan Graphs*, Münster, Germany
Number Theory Seminar, Universität Münster

Nov. 2003 *Rolle's Theorem Over Finite and Local Fields*, Wellesley, MA
MAA/NES regional meeting

Oct. 2002 *Rolle's Theorem over Finite and Local Fields*, College of the Holy Cross

Jan. 2002 *A Simple Proof of Rolle's Theorem for Finite Fields*, San Diego
Joint Mathematics Meetings, General Contributed Paper Session

Nov. 2001 *Expander Graphs and Automorphic Forms*, Dartmouth College

Mar. 2001 *Spectra of Graphs and Automorphic Forms*, Palo Alto, CA
15th Annual Workshop on Automorphic Forms and Related Topics

Apr. 2000 *The Langlands Program*, Bowdoin College

Jan. 2000 *Ramanujan Type Buildings*, Joint Mathematics Meetings, Washington, D.C.
Special Session on Modular Forms and Elliptic Functions

Dec. 1999 *The Endoscopy Theory for the Unitary Group in Three Variables*
Waldspurger Seminar (held at Harvard University)

Dec. 1999 *Ramanujan Type Buildings*, Bowdoin College

Nov. 1999 *Buildings*, Bowdoin College

Sept. 1999 *Characterization of Nilpotent and Regular Orbits in Classical Lie Algebras*
Waldspurger Seminar (held at Harvard University)

Mar. 1999 *Ramanujan Type Buildings*, Santa Barbara, CA
13th Annual Workshop on Automorphic Forms and Related Topics

Mar. 1999 *Applications of Number Theory to Subjects From Music to Physics*
University of Wyoming

Feb. 1999 *The Hecke Algebra and the Satake Isomorphism*
Algebra–Combinatorics Seminar, University of Wyoming

Nov. 1998 *Affine Buildings*
Joint Seminar on Algebraic Combinatorics, Colorado State University

Oct. 1998 *Buildings as Hypergraphs and Their Spectra*
Joint Seminar on Algebraic Combinatorics, Colorado State University

Oct. 1998 *On the Problem of Classifying Automorphic Representations* (after J. Arthur)
Algebra–Combinatorics Seminar, University of Wyoming

Sept. 1998 *Partial Laplacians, Hypergraphs and Telephone Networks*
Colloquium, University of Wyoming

Panels

Feb. 2013 *Job Applications in Academia*
ICERM, Providence, RI

Feb. 2013 *Hiring Process*
ICERM, Providence, RI

Feb. 2005 *The Role of the Exchanging Scholar*
Fulbright Berlin Seminar, Berlin, Germany

Jan. 2001 *Keeping Active in Research*
Joint Meetings of the AMS, New Orleans, LA

Conference Organization and Administration

June 2015 *Special Session on Algebraic Combinatorics and Representation Theory* (with O. Azenhas, University of Coimbra, Portugal) AMS-EMS-SPM International Meeting, Porto, Portugal

Oct. 2014 *Special Session on Combinatorial Representation Theory*
(with R. Orellana and M. Rosas) AMS Fall Sectional Meeting, Halifax, Canada

Apr. 2011 *Special Session on Combinatorial Representation Theory*
(with R. Orellana) AMS Spring Sectional Meeting, Worcester, MA

Nov. 2006 *Discrete Math Day in the Northeast*
(with S. Frechette and J. Little), College of the Holy Cross

Mar. 2006 *20th Annual Workshop on Automorphic Forms*, Boulder, CO (session chair)

Jan. 2003 *Special Session on Elliptic Curves, Modular Forms and Related Topics*
(with S. Frechette and H. Rosson) Joint Meetings of the AMS, Baltimore, MD

Other Conferences Attended

2016-18	*Discrete Mathematics Seminar*, WPI, Worcester MA (regular participant)
May 2017	*Algebraic Combinatorixx 2*, BIRS, Banff, Canada (all local expenses funded by the institute)
Apr. 2017	*Arithmetic Golden Gates*, AIM, San Jose, CA (fully funded)
Apr. 2016	*Discrete Math Days in the Northeast*, Smith College, Northampton, MA
Sept. 2015	*WIMIN15*, Smith College, Northampton, MA
Sept. 2015	*Discrete Math Days in the Northeast*, WPI, Worcester, MA
Aug. 2015	*Arithmetic 2015: Silvermania*, Brown University, Providence, RI
May 2015	*Automorphic Forms: Advances and Applications*, Luminy, France (all local expenses funded by the institute)
Nov. 2014	*Combinatorics and Complexity of Kronecker Coefficients*, AIM, Palo Alto, CA (fully funded)
Sept. 2014	*WIMIN14*, Smith College, Northampton, MA
June 2014	*Stanley@70*, MIT, Cambridge, MA
May 2014	*Workshop on Polynomials over Finite Fields*, CRM, Barcelona, Spain
Apr. 2014	*Discrete Math Days in the Northeast*, Dartmouth College, Hanover, NH
Oct. 2013	*WIN-E (Women in Numbers, Europe)*, Luminy, France (fully funded)
Sept. 2013	*WIMIN13*, Smith College, Northampton, MA
Dec. 2012	*Rational Catalan Combinatorics*, AIM, Palo Alto, CA (fully funded)
Sept. 2012	*WIMIN12*, Smith College, Northampton, MA
Sept. 2012	*Discrete Math Day in the NE*, Middleburry College, Ripton, VT
March 2012	*New York Women in Mathematics and Computing, "Forward to Professorship Workshop"*, City Tech, CUNY, New York
March 2007	*Buildings and Combinatorial Representation Theory*, AIM, Palo Alto, CA (fully funded)
March 2006	*Discrete Math Day*, SUNY, Albany, NY
Nov. 2005	*Lie Groups, Representations and Discrete Mathematics* IAS, Princeton, NJ (partially funded)
Sept. 2005	*Discrete Math Day*, WPI, Worcester, MA
Oct. 2004	*Conference on Automorphic Forms and the Trace Formula,* in honor of James Arthur on the occasion of his 60th birthday, Toronto, Canada (fully funded)

Courses Taught

At Holy Cross:

MATH 110: Topics in Discrete Mathematics
MATH 136: Advanced Placement Calculus
MATH 135: Calculus for the Physical and Life Sciences I
MATH 136: Calculus for the Physical and Life Sciences II
MATH 241: Multivariable Calculus
MATH 242: Principles of Analysis
MATH 243: Algebraic structures
MATH 244: Linear Algebra
MATH 357: Combinatorics
MATH 351: Abstract Algebra I
MATH 352: Abstract Algebra II
MATH 353: Number Theory
MATH 392: Seminar on Expander Graphs
MATH 392: Seminar on the Theory of Partitions
Passport - Functions
ITQ (Improving Teacher Quality)

At Dartmouth College:

Calculus, Honors Calculus, Multivariable Calculus, Honors Multivariable Calculus, Honors Number Theory, Topics in Algebra (graduate)

At Bowdoin College:

Integral Calculus, Advanced Topics in Algebra, Statistical Reasoning

At the University of Wyoming:

Finite Mathematics, Multivariable Calculus, Theory of Numbers

At the University of Toronto:

Calculus

At Santa Rosa Junior College:

Finite Mathematics

Tutorials, Internships, Honor Theses

At Holy Cross:

Honors Thesis, HNRS 494-495: Amy Borbely '07
The Mathematics of Patterns: Symmetry in the Plane (2006-2007)

Honors Thesis, HNRS 494-495: Clarice Ferolito '09
Analogue of the Littlewood Conjecture (2008-2009)

Honors Thesis, HNRS 494-495: Kate Donovan '09
A Combined Graph Theory and Number Theory Approach to Ramanujan Graphs (2008-2009)

Honors Thesis, HNRS 494-495: Bill Hallahan '15
Stability of Coefficients in the Kronecker Product of a Hook and a Rectangle (2014-2015)

Honors Thesis, HNRS 494-495: Sarah Ober '15
On the Theory of Partitions (2014-2015)

Directed Reading, MATH 400: Courtney Jason '03, and Kathleen Leahy '04
Cryptography and Number Theory (Spring 2003)

Directed Reading, MATH 400: Jonathan Root '10
Groups, Rings, Fields (Fall 2007)

Directed Reading, MATH 400: Lauren Chenarides '08
Combinatorics (Spring 2008)

Directed Reading, MATH 400: James Antonio '09
Groups, Rings, Fields (Fall 2008)

Directed Project, MATH 410: Sarah Orchard '13
Combinatorics and Biology (Fall 2012)

At Dartmouth College: Independent Reading: Gabriela Dumitrascu (Master student)
Lie Groups (Spring 2002)

College, Department and Professional Service

College Service:

Committee on Tenure and Promotion (Sept. 2013 - May 2015)

Faculty Compensation Committee (January - May 2013)

Committee on Faculty Scholarship (Sept. 2010 - June 2012; chiar in 2011 - 2012)

Committee on Graduate Studies and Fellowships (Sept. 2006 - June 2009, Sept. 2017 - June 2020)

Committee on Faculty Affairs (Sept. 2005 - August 2007)

Committee on the Economic Status of the Faculty (Sept. 2005 - May 2006)

Curriculum Committee on Capstone Experiences (January-May 2004)

Committee on Study Abroad (Sept. 2003 - August 2006)

Search Committee - Director of Sponsored Research (July-September 2013)

Search Committee - Director of Libraries (January-March 2016)

Mentor in the *Reach One Teach One* program (Judicial Affairs) (2003-2004)

Gateway Advising (2003, 2006, 2007, 2008, 2009, 2011, 2012, 2013, 2014)

Mentor in the *Faculty Mentorship* program (2007-2008, 2011-2012, 2015-2016)

Mentor in the *Student Mentorship* program (2008-2009)

Mock interviews for the Truman scholarship (Graduate Studies and Fellowships) (March 2016)

Department Service:

Hewlett-Mellon - Assessment of project courses (June 2016)

Search Committee (visiting position) (April - May 2016)

Session leader (with Steven J. Miller) at the meeting of the Committee on Education of the AMS (Oct. 2015)

Y2O Extravaganza department representative (2015)

Departmental Honors advisor (2010 - 2016)

Leonard C. Sulski Memorial Lecture Committee (2007, 2011-2016)

Graduate Fellowships Program Liaison (2014-2016)

Student Engagement in Conferences (2014-2015)

Faculty Seminar organizer (2010-2012, fall 2013)

Departmental liaison for the Study Abroad program (2007-2008, 2012-2013)
Graduate studies / Departmental Honors advisor (2005-2009)

Departmental Representative to AMS, MAA, AWM (2005-2007)

Library liaison for the Mathematics and Computer Science Department
(2002 - 2004, 2007-2008, 2016)

Interviewer for the Study Abroad Program (April 2003, January 2007)

Avon Scholarship Committee (May 2003, May 2004)

Departmental representative for the United Way/Holy Cross giving campaign (2003)

Examiner for the German exam (Ph.D. requirement), Dartmouth College (2000 - 2003)

Service to the Profession:

AWM mentor at the Joint Mathematics Meetings

Mathematical Reviews contributor

Research group leader at WINE - Women in Numbers, Luminy France, Oct. 2013)

Subject Reviewer for the Fulbright Commission (2011-2013)

External examiner for two Ph.D. thesis at Dartmouth College
Alison Setyadi (April 2007) and Christopher Storm (May 2007)

Mentor in the *Program for Women and Mathematics*
Institute for Advanced Study, Princeton, NJ (May 2006)

Knobelaufgaben in kleinen Gruppen (Challenge problems in small groups)
Theresien Grundschule, Münster, Germany (January-May 2005)

Interviewee for *AWM Essay Contest on Biographies of Contemporary Women in Mathematics* (2003, 2005)

Judge for the Science Fair at the University of Wyoming (Spring 1999)

Co-organizer *Discover Science Day*
an event for female high school students at the University of Toronto (April 1997)

Refereeing: Acta Arithmetica, Discrete Mathematics, FPSAC,
Annals of Combinatorics, American Mathematical Monthly,
Journal of Algebra, Acta Mathematica U, Electronic Journal of Combinatorics,
Illinois Journal of Mathematics, Journal of Algebraic Combinatorics,
Journal of Combinatorial Theory, Series A, European Journal of Combinatorics
Journal of Number Theory, Linear and Multilinear Algebra,
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