

# Curriculum Vitae, David P. Roberts

## Addresses

Division of Science and Mathematics  
University of Minnesota, Morris  
Morris, Minnesota, 56267

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   [www.davidproberts.net](http://www.davidproberts.net) (homepage)

## Employment

2009-present	University of Minnesota, Morris	Professor
2003-2009	University of Minnesota, Morris	Associate Professor
1999-2003	University of Minnesota, Morris	Assistant Professor
1996-1999	Rutgers University	Assistant Professor
1994-1996	Caltech	Bateman Instructor
1991-1994	University of Toronto	Assistant Professor
1988-1991	University of Chicago	Dickson Instructor

## Education

1983-1989	Harvard University	Ph. D.	1989
		M. A.	1985
1979-1983	Princeton University	A. B. <i>summa cum laude</i>	1983

## Sabbaticals and leaves of absence

2020-2021	Sabbatical
2012-2013	Sabbatical
Spring 2009	Single semester leave
2005-2006	Sabbatical

## Professional honors and awards

2007    UMM Faculty Distinguished Research Award

## Graduate honors and awards

1987-1988    Sloan Dissertation Fellowship  
1983-1986    NSF Graduate Fellowship

## Undergraduate honors and awards

1983    Phi Beta Kappa  
          George B. Covington Prize (Outstanding Senior in Math Dept)  
          Princeton Putnam team (5th place nationally)  
1982    Andrew H. Brown Prize (Outstanding Junior in Math Dept)  
          Princeton Putnam team (2nd place nationally)  
1981    Class of 1961 Prize (Highest underclass Putnam score)

## Professional societies

Mathematical Association of America  
American Mathematical Society

## Teaching

### Courses given at UMM

Math 1011	Precalculus	S08, F07
Math 1012	Precalculus I: Functions	F11, F09
Math 1013	Precalculus II: Trigonometry	F23, F18, F16, S11, S10
Math 1021	Survey of Calculus	S16, S15, S14, S12, S11, F09, F03
Math 1101	Calculus I	F23, F22, F21, S20, S19, S18, S17, S16, S16, F14, F13, F13, F11, F10, F09, F08, S07, F06, S05, F03, F02, F01, F00, F99
Math 1102	Calculus II	F23, S23, S22, F19, F17, F17, F16, S08, S04, S03, S02, S01, S00
Math 2111	Linear Algebra	F01, F99
Math 2201	Pure Mathematics I	F00
Math 2202	Mathematical Perspectives	S12, S11, S10, S08, S07, S05, S04, S03, S02
Math 2211	History of Mathematics	F22, F18, F16, F14, F10, F08, S08, F04, F02
Math 3201	Pure Mathematics II	S01
Math 3221	Real Analysis I	F18, F02
Math 3231	Abstract Algebra I	S24, S23, S22, S20, S19, S18, S17, S15, S14
Math 4201	Complex Analysis	S00, F99
Math 4231	Abstract Algebra II	S00
Math 4241	Number Theory	S24, S20, F17, S16, S14, F11, S10, F07, F03, F01
IS 1001	FYS: Math across cultures	F04, F04
IS 3206H	Introduction to Game Theory	F08, F06

### Courses given in previous jobs (full year, except where noted)

At Rutgers University:

1998-1999	Calculus (two sections) Liberal Arts Mathematics (fall semester)
1997-1998	Calculus (two sections) Multivariable Calculus (fall semester)
1996-1997	Calculus (two sections) Liberal Arts Mathematics

At Caltech:

1995-1996	Algebra
1994-1995	Graduate Algebra

At the University of Toronto:

1993-1994	Multivariable Calculus (two sections, course head)
1992-1993	Multivariable Calculus (two sections)
1991-1992	Multivariable Calculus (two sections)

At the University of Chicago:

1990-1991 Honors Calculus  
Plane Algebraic Curves (spring quarter)  
1989-1990 Honors Algebra  
Representations of Finite Groups of Lie type (spring quarter)  
1988-1989 Algebra  
Introduction to Analysis (winter quarter)

At Harvard:

1986-1987 Linear Algebra and Multivariable Calculus

## Senior seminars advised

2023-2024	Nathan Fronk	Burnside's Theorem
2022-2023	Ellie Gunderson	Efficiency in Symmetric $2 \times 2$ games
2021-2022	Chineng Veng	The simplex method in game theory
2019-2020	Tucker Johnson Arya Uphoff	The Alabama paradox The $3x + 1$ problem
2018-2019	Nathan Beneke Denis Ostrousko	Complexity analysis of three graph-theoretic problems Analysis of a two-player game
2017-2018	Logan Brion Emily Schaeffer Shenning Zhang	Conjugacy classes in groups Pollard's $p - 1$ and $\rho$ Prime races
2016-2017	Austin Keller Jinhyung Kim	Frobenius Coin Problem Riemann zeros
2014-2015	Emily Auch Sae Sun Kim Sean Stockholm	Bernoulli numbers and Faulhaber's formula Dessins d'enfants Visualizing quadratic forms
2013-2014	Peter Ehlers Zeyun Lin	Solutions to Schrödinger's equation for a trapezoidal well Gauss sums as random walks
2011-2012	Jared Chang Christine Hoffman	Random Rational Functions Generation of Permutation Groups
2010-2011	Tony Bjorkland Nathan Christensen Chad Siebert	Prime Certification Criteria for the Riemann Hypothesis The Quadratic Sieve
2009-2010	Joy Heysse Danielle Schatschneider Melissa Helgeson Yue Li	Aliquot Sequences Random Power Law Graphs ElGamal Encryption ESSes in Random Games

2008-2009	Kevin Scharber	Continued fractions
2007-2008	Nicole Gallagher Jason Eckert	The game of Hex The Mandelbrot set
2006-2007	Rachel Carlson Zachary Juhnke	The Fibonacci numbers The prisoner's dilemma
2004-2005	Lisa Holloway Ben Peterson	Congruent numbers A factoring algorithm
2003-2004	Eric Hansen Susie Hanson Stacy Nordgren Amanda Quammen Dan Wespel	Colossally abundant numbers Iterating $x^2 + c$ Game theory Intertwining of eigenvalues Approximating $\pi$
2002-2003	Joanie Lofgren Shawna Beaudry Jessi Gurr Jeff Nelson	The Fourier series of the devil's staircase Pascal's triangle with entries from groups The $3x + 1$ problem Stieltjes polynomials
2001-2002	Jason Smith Chad Ollestad Chris Esterly Hyung Kim	RSA encryption Eigenvalues of graphs Random matrices Spanning trees and determinants
2000-2001	Greg Perry	GCD and factorization

### **Curricular innovations at UMM**

Mathematical Perspectives and Introduction to Game Theory are entirely new courses at UMM. Math Across Cultures was a new section of First Year Seminar. Abstract Algebra II and Number Theory are topics courses and content is most commonly new each offering. Long units based on my own materials rather than a text include "A peek at multivariable calculus" in Calculus I, "Fractals" in Mathematical Perspectives, "Fourier Analysis" in Pure Math II. The various offerings of Number Theory are mostly different from each other, with much of the courses being based on my own materials.

Most homework in 1000-level courses is done online via *WeBWork*, which I introduced to UMM. *Mathematica* is incorporated into upper-level courses as well as the Calculus sequence. Many courses involve writing assignments and/or group presentations, as well as traditional homework.

### **Curricular innovations in previous jobs**

Plane Algebraic Curves and Representations of Finite Groups of Lie Type at Chicago were entirely new courses. Units in Multivariable Calculus at Toronto based on my own materials included "Fourier Analysis" and "Differential Forms and Integration."

## Research

### Posted preprints ([B]-[A]), Published papers ([44]-[1]), and Thesis ([T])

(almost all available on my homepage.)

**B.** *Chebyshev covers and exceptional number fields*, 22 pages.

**A.** *Rigid Jordan tuples*, 17 pages.

**44.** *The landscape of  $L$ -functions: degree 3 and conductor 1*, with David W. Farmer, Sally Koutsoliotas, and Stefan Lemurell.

To appear in LuCaNT: LMFDB, Computation, and Number Theory. 26 pages

**43.** *Efficiency in Symmetric  $2 \times 2$  games.*, will Ellie Gunderson.

To appear in Involve: a journal of mathematics. 34 pages.

**42.** *Variedades Abelianas, una introducción*, with Marc Hindry and Marusia Rebolledo. Publicaciones Matemáticas del Uruguay, 18, 2023, 287-365.

**41.** *Hypergeometric motives*, with Fernando Rodriguez Villegas.

Notices of the American Mathematical Society, June/July 2022, 914–929.

**40.** *Abelian Surfaces with fixed three torsion*, with Frank Calegari and Shiva Chidambaram ANTS 14, The Open Book Series 4 (2020), 91-108. 15 pages.

**39.** *Quadratic relations between Feynman integrals*, with David Broadhurst

Loops and Legs in Quantum Field Theory, 2018. Proceedings of Science, 8 pages.

**38.** *Mixed degree number field computations*, with John Jones

Ramanujan Journal, 47, 2018, 47–66

**37.**  *$L$ -series and Feynman integrals*, with David Broadhurst

Matrix Annals 2017, 3 pages.

**36.** *Hypergeometric supercongruences*, with Fernando Rodriguez Villegas

Matrix Annals 2017, 4 pages

**35.** *The explicit formula and a motivic splitting.*

Matrix Annals 2017, 4 pages

**34.**  *$PGL_2(\mathbf{F}_\ell)$  number fields with rational companion forms.*

International Journal of Number Theory 14 (2018), no. 3, 825–845

**33.** *Newforms with rational coefficients.*

Ramanujan J. 46 (2018) no 3., 835-862.

**32.** *Artin  $L$ -functions of small conductor*, with John Jones.

Research in Number Theory 3 (2017), Art. 16, 33 pages.

- 31.** *A three-parameter clan of Hurwitz-Belyi maps.*  
Publications Mathématiques de Besançon, Algèbre et Théorie des Nombres (2018), 69–83
- 30.** *Hurwitz-Belyi maps.*  
Publications Mathématiques de Besançon, Algèbre et Théorie des Nombres (2018), 25–67
- 29.** *Hurwitz number fields.*  
New York Journal of Mathematics 23 (2017) 227–272.
- 28.** *Serre weights and wild ramification in two-dimensional Galois representations,*  
with Lassina Dembélé and Fred Diamond  
Forum Math. Sigma 4 (2016), e33, 49 pages.
- 27.** *Hurwitz monodromy and full number fields,* with Akshay Venkatesh.  
Algebra and Number Theory 9 (2015), no. 4, 1115–1148.
- 26.** *Division polynomials with Galois group  $SU(3).2 = G_2(2)$ .*  
Advances in the theory of numbers, 169–206, Fields Inst. Commun., 77.
- 25.** *Polynomials with prescribed bad primes.*  
International Journal of Number Theory 11 (2015), no. 4, 1115–1148.
- 24.** *Lightly ramified number fields with Galois group  $S.M_{12}.A$*   
J. Théor. Nombres Bordeaux 28 (2016), no. 2, 435–460.
- 23.** *A database of number fields,* with John Jones.  
London Journal of Mathematics and Computation, 17 (1) (2014) 595–618.  
Database at <http://hobbes.la.asu.edu/NFDB/>.
- 22.** *The tame-wild principle for discriminant relations for number fields,* with John Jones  
Algebra and Number Theory 8 (2014), no. 3., 609–645
- 21.** *A nonsolvable polynomial with field discriminant  $5^A$ .*  
International Journal of Number Theory 7 (2011), no. 2, 289–322.
- 20.** *Octic 2-adic fields,* with John Jones.  
Journal of Number Theory 128 (2008), 1410–1429.
- 19.** *Number fields ramified at one prime,* with John Jones.  
ANTS VIII, Springer Lecture Notes in Computer Sciences 5011 (2008), 226–239.
- 18.** *Intersection numbers of Heegner divisors on Shimura curves,* with Kevin Keating.  
Pure and Applied Mathematics Quarterly, Vol. 4 Num. 4 (2008), 1165–1204.
- 17.** *Wild partitions and number theory.*  
Journal of Integer Sequences, Vol. 10, (2007), Article 07.6.6, 34 pages.

- 16.** *Nash equilibria in Cauchy-random zero-sum and coordination matrix games.*  
International Journal of Game Theory, 34 (2006), 167–184.
- 15.** *Galois number fields with small root discriminant,* with John Jones.  
Journal of Number Theory, 122 (2007), 379–407.
- 14.** *Fractalized cyclotomic polynomials.*  
Proceedings of the American Mathematical Society, 135 (2007), 1959–1967.
- 13.** *A database of local fields,* with John Jones.  
Journal of Symbolic Computation, Volume 41 no. 1 (2006), 80–97.  
Database at <http://math.la.asu.edu/~jj/localfields>
- 12.** *Pure Nash equilibria of coordination matrix games.*  
Economics Letters, Volume 89, Issue 1 (2005), 7–11.
- 11.** *Number fields with discriminant  $\pm 2^a 3^b$  and Galois group  $A_n$  or  $S_n$ ,*  
with Gunter Malle.  
London Math. Soc. Journal of Computation and Mathematics, 8, (2005). 80–101.
- 10.** *Nonic 3-adic fields,* with John Jones.  
Algorithmic Number Theory: 6th International Symposium, ANTS-VI,  
Burlington, VT, USA, June 13-18, 2004.  
Springer Lecture Notes in Computer Science, 3076, 293–308
- 9.** *An ABC construction of number fields.*  
Seventh Canadian Number Theory Conference, CNTA-VII.  
CRM Proceedings and Lecture Notes, 36 (2004), 237–267.
- 8.** *Frobenius elements in alternating groups,*  
Rocky Mountain Journal of Mathematics, 34 (2004), 1483–1496.
- 7.** *Septic fields with discriminant  $\pm 2^a 3^b$ ,* with John Jones,  
Mathematics of Computation, 72 (2003), 1975–1985.



- 6.** *Discriminants of some Painlevé polynomials*,  
Number Theory for the Millennium III, AK Peters, (2002), 205–221.
  - 5.** *Density of cubic field discriminants*,  
Mathematics of Computation, 70 (2001), 1699–1705
  - 4.** *Sextic number fields with discriminant  $-j2^a3^b$* , with John Jones,  
Centre de Recherches Mathématiques  
CRM Proceedings and Lecture Notes, 19 (1999), 141–172
  - 3.** *Timing analysis of targeted Hunter searches*, with John Jones,  
Algorithmic Number Theory (ANTS-III),  
Lecture Notes in Computer Science, 1423 (1998), 412–423.
  - 2.** *Twin sextic algebras*,  
Rocky Mountain Journal of Mathematics, 28 (1998), 341–368.
  - 1.** *Composita of sextic fields, theory and examples*,  
Communications in Algebra, 24 (1996), 3311–3334.
- Thesis:** *Shimura curves analogous to  $X_0(N)$* , (1989), 97 pages.

## Presentations on my research and related mathematics

(most recent talks have slides available on my homepage.)

2023	Joint Meetings Boston	L-functions of semihypergeometric motives
2022	Logroño, Spain MIT/ICERM	Motivos hipergéometricos Modularity problems for hypergeometric motives
2021	Vantage Online Seminar Arizona State University	Hurwitz-Belyi Maps Improving the local database
2020	Moscow <i>dessins</i> seminar	Hypergeometric Belyi Maps
2019	Joint Meetings Baltimore	Quadratic relations between Feynman integrals
2018	U of Washington MIT Córdoba, Argentina Dartmouth College Dartmouth College HIM, Bonn, Germany	Explicit Plancherel Measures for Counting $L$ -Functions Collecting lightly ramified $L$ -functions Aritmética de variedades abelianas (3 lectures) Shioda Polynomials for Beukers-Heckman covers General $L$ -functions A hypergeometric exploration of the geography of pure motives
2017	U. of Melbourne, Australia U. of Melbourne, Australia Arizona State UCLA Edinburgh, Scotland Harvard U ICTP Trieste, Italy U of Minnesota TC	Numerically confirming Deligne's conjecture for HGMs The explicit formula and a motivic splitting Some Feynman Integrals and their motivic interpretations $PGL_2(\mathbf{F}_\ell)$ number fields with rational companion forms Icosahedral Hurwitz-Belyi Maps and braid intransitivity Braid monodromy An inverse Hodge problem and solutions from hypergeometric motives Monodromy for a large class of Hurwitz-Belyi maps
2016	King's College London	$PGL_2(\mathbf{F}_\ell)$ number fields with rational companion forms
2015	ICERM, Brown U ICERM, Brown U ICERM, Brown U ICERM, Brown U ICERM, Brown U Oberwolfach, Germany U of Wisconsin, Madison NY Number Theory Sem. U of Bonn, Germany	Motives with small conductor Mod $\ell$ congruences and $p$ -adic ramification Complete hypergeometric $L$ -functions Hypergeometric motives What is a motive? Hurwitz-Belyi maps Hurwitz-Belyi maps Division polynomials with Galois group $SU_3(3).2 = G_2(2)$ Some Belyi covers unexpectedly defined over $\mathbf{Q}$
2014	ICTP, Trieste, Italy CNTA XIII, Ottawa U of Warwick, England U of Nebraska, Omaha U of Nebraska, Omaha Oberwolfach, Germany	Numerical verification of Deligne's conjecture for HGMs Division polynomials with Galois group $SU_3(3).2 = G_2(2)$ An LMFDB perspective of motives Primitive extensions of $\mathbf{Q}_p$ A database of number fields Lightly ramified number fields (with an eye to automorphic forms)

2013	U of Chicago Northwestern U Oberwolfach, Germany U of Sydney, Australia UNC Greensboro UNC Greensboro UNC Greensboro UNC Greensboro Arizona State Arizona State	Hypergeometric motives and their wild ramification Hypergeometric motives and their wild ramification Hurwitz number fields Motivic computations in <i>Magma</i> Hurwitz number fields Computing Galois Groups II Computing Galois Groups I Introduction to number fields Number fields coming from covers of $M_{0,5}$ The exotic dodecahedron $M_{0,5}$
2012	Collège de France Stanford ICTP, Trieste, Italy (same trip) U of Wisconsin, Madison Arizona State	Hypergeometric motives and their division polynomials Covers of $M_{0,5}$ and number fields Hypergeometric motives and their division polynomials The Inverse Galois Problem Lightly ramified $S.M_{12}.A$ number fields Lightly ramified $S.M_{12}.A$ number fields
2011	Stanford	Hurwitz Number Fields
2010	CNTA-11, Nova Scotia Stanford	Ramification in moduli fields Chebyshev covers and exceptional number fields
2009	U of Calgary Arizona State	Nonsolvable polynomials with discriminant $5^A$ Arboreal dessins d'enfants
2008	ANTS VIII, Banff, Canada Arizona State U of Nebraska, Omaha	Number fields ramified at one prime Chebyshev covers and exceptional number fields Chebyshev covers and exceptional number fields
2007	U of Texas, Austin SJTN Madrid Arizona State	Chebyshev covers and exceptional number fields Una conjetura de finitud para cuerpos de números Wild partitions and number theory
2006	Brandeis U of Florida (same trip) Arizona State (same trip)	(research collaboration) Fractalized cyclotomic polynomials A database of local fields Fractalized cyclotomic polynomials Octic 2-adic fields
2005	U of Wisconsin, Madison U of Nebraska, Omaha Brandeis	Fractalized cyclotomic polynomials A database of local fields (research collaboration)
2004	CNTA-8 Toronto Brandeis	Singular primes for three point covers (research collaboration)
2003	Arizona State	Generic polynomials with small discriminant
2002	CNTA-7 Montreal	An ABC construction of number fields

2001	Arizona State	Discriminants of some Painlevé polynomials
2000	Millennial NT conf., UIUC	Roots of generalized Jacobi polynomials
1999	AMS meeting, San Antonio	Number fields with prescribed ramification
1998	Arizona State ANTS-III, Portland	Three point covers and remarkable polynomials Searches for number fields
1996	U of California at Irvine CNTA-5 Ottawa	Motivic Galois groups of some genus two curves Sextic number fields with discriminant $-j2^a3^b$
1995	Arizona State AMS meeting, Chicago U of Southern California	Character measures Computing motivic Galois groups Computing motivic Galois groups
1994	U of Chicago	A motivic inverse problem and some solutions
1993	U of Saskatoon	Motives and de Rham cohomology
1992	Arizona State (same trip)	Motivic Galois groups Numerical computation with motivic L-functions
1991	CMS meeting, Montreal	Equidistribution in motivic Galois groups
1990	U of Illinois	Motives and Langlands reciprocity
1988	U of Chicago U of Michigan	Gross-Zagier formula for Shimura curves Gross-Zagier formula for Shimura curves

### Further research talks at my home institution

2015	UMM	A database of number fields
2008	UMM	Dessins d'enfants
2006	UMM	A new result in game theory
2002	UMM	Discriminants of Yablonsky-Vorobiev polynomials
1999	UMM	Rigid matrix tuples
1998	Rutgers	ABC construction of PQ fields
1997	Rutgers Rutgers	Modular forms with conductor $2^a$ Number fields with prescribed ramification

1995	Caltech	Character measures III
	Caltech	Character measures II
	Caltech	Character measures I
1993	U of Toronto	Equidistribution in motivic Galois groups II
	U of Toronto	Equidistribution in motivic Galois groups I
1990	U of Chicago	Introduction to motives V
	U of Chicago	Introduction to motives IV
	U of Chicago	Introduction to motives III
	U of Chicago	Introduction to motives II
	U of Chicago	Introduction to motives I

## Other conferences attended

2024	Simons Meeting on Arith. Geom. and Computation	New York, NY
2023	Simons Meeting on Arith. Geom. and Computation AIM Square in Galois Representations AIM Square in $p$ -adic fields LuCaNT Conference	New York, NY San José, CA by Zoom San José, CA Providence RI
2020	Simons Meeting on Arith. Geom. and Computation ICERM Workshop on Arithmetic Geometry 14th ANTS AIM Square in Galois Representations	New York, NY Providence, RI by Zoom Auckland, New Zealand, by Zoom San José, CA by Zoom
2019	Simons Meeting on Arith. Geom. and Computation IPAM Conference on Braids and Hilbert's 13th LMFDB general meeting LMFDB Workshop on Groups ICERM Conference on Abelian Varieties LMFDB Workshop on Artin Representations LMFDB Workshop on Galois Representations LMFDB Workshop on HGMs	New York, NY Los Angeles, CA Princeton, NJ San José, CA Providence, RI Bristol, England Warwick, England San José, CA
2018	Explicit Methods in Number Theory AIM Square on Galois Representations MAA Sectional Meeting	Oberwolfach, Germany San José, CA Morris, MN
2017	SAGE Days on $p$ -adics LMFDB Workshop Arizona Winter School on Perfectoid Spaces	Burlington, VT Warwick, UK Tuscon, AZ
2015	Number Theory and Physics Coleman conference on $p$ -adic methods Chow Groups and Motives	Rio, Brazil Berkeley, CA Princeton, NJ
2014	Arizona Winter School on Arithmetic Statistics	Tuscon, AZ
2012	Arizona Winter School on Ramification and Geometry Joint Mathematics Meetings	Tuscon, AZ Boston, MA
2011	AIM Cohen-Lenstra Workshop Abel Conference for John Tate	Palo Alto, CA Minneapolis, MN
2010	Gross 60th Birthday Conference Joint AMS-MAA meeting	Cambridge, MA San Francisco, CA

2009	Joint AMS-MAA meeting Arizona Winter School in Quadratic Forms	Washington, DC Tuscon, AZ
2007	Joint AMS-MAA meeting Arizona Winter School in $p$ -adic geometry	New Orleans, LA Tuscon, AZ
2006	MAA Sectional meeting	Morris, MN
2005	Joint AMS-MAA meeting	Atlanta, GA
2002	25th Pi Mu Epsilon Conference NDSU Graduate Program Open House	Collegeville, MN Fargo, ND
2001	Joint AMS-MAA meeting	New Orleans, LA
2000	MAA Sectional meeting	Morris, MN
1999	Andre Weil Conference	Princeton, NJ
1998	Barry Mazur Conference	Cambridge, MA
1996	AMS Sectional Meeting Robert P. Langlands Conference Number Theory Conference Olga Taussky-Todd Conference	Lawrenceville, NJ Princeton, NJ Washington, DC Pasadena, CA
1993	Representation Theory Conference	Columbus, OH
1991	Motives Conference	Seattle, WA
1990	US-Russian Math Conference	Chicago, IL
1987	Hermann Weyl Conference	Durham, NC
1986	International Congress of Mathematicians	Berkeley, CA
1985	Algebraic Geometry Conference	Bowdoin, ME

### **Student research in the context of directed studies**

Spring 2009	Tyler Sable	Monodromy of some Painlevé polynomials (Presented at St. John's)
Spring 2005	Ben Peterson	Roots of certain Taylor polynomials
Spring 2001	Jesse Alama	Triality polynomials (Presented in Budapest)

### **Student research in the context of Morris Academic Partners**

Summer, Fall 2008	Tyler Sable	Monodromy of some Painlevé polynomials
Fall 2001	Joanie Lofgren	Developing course materials on applications of Fourier analysis to light and sound

### **Student research under a grant-in-aid**

2000-2001	Greg Oswald	Quartic polynomials with discriminant $\pm 2^a 3^b$ (Presented at St. John's)
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### **Grants in support of research**

2020	\$6,000 UMM funds for sabbatical supplement
2016	\$140,000 NSF Research grant, September 1, 2016-August 31, 2021
2012	\$7,000 UMM funds for sabbatical supplement
2011	\$35,000 Simons Collaboration Grant, for July 1, 2011-August 31, 2016 \$750 UMM funds for Jones to visit Morris
2010	\$800 UMM funds for Jones to visit Morris
2005	\$5000 UMM funds for sabbatical supplement
2000	\$3500 UM grant-in-aid to support Jones-Roberts travel and a student



## Service

### Regular refereeing for journals and conferences

Among others: Algebra and Number Theory, ANTS conferences, Bulletin of the LMS, Compositio Mathematica, Experimental Mathematics Games and Economic Behavior, Integers, International Game Theory Review, International J of Number Theory, International Mathematics Research Notices, J of London Math. Soc., J of Pure and Applied Algebra, LuCaNT conference, Mathematics of Computation, Number Theory and Physics, Pacific J of Mathematics, Proceedings of the AMS, Research in Number Theory, Transactions of the AMS

### Reviews for MathSciNet (32 available online)

### Reviews of grant proposals

Simons Foundation and National Science Foundation

### Reviews of book proposals

American Mathematical Society, CRC Press, Cambridge University Press, Princeton University Press

### External valuator in tenure and promotion cases

Bard College, Brigham Young, Lehigh, North Carolina Greensboro

### External evaluator of Ph. D. candidates

Arizona State and Dartmouth College

### MAA Online book reviews

(almost all available on my homepage.)

- 2020 28. *The Story of Algebraic Numbers in the First Half of the 20th Century: From Hilbert to Tate*, by Wladslaw Narkiewicz
- 2014 27. *The Mathematics of Frobenius in context*, by Thomas Hawkins
- 2009 26. *Discriminants, Resultants, and Multidimensional Determinants*, by I. M. Gelfand, M. M. Kapranov, and A. V. Zelevinsky
25. *The Princeton Companion to Mathematics*, edited by Timothy Gowers
- 2008 24. *Rational Algebraic Curves: A Computer Algebra Approach*, by J. Rafael Sendra, Franz Winkler, and Sonia Pérez-Díaz
23. *Euler at 300: An Appreciation*, edited by Robert E. Bradley, Lawrence A. D'Antonio, and C. Edward Sandifer.

- 2007 22. *Experimental Mathematics in Action*, by David H. Bailey, Jonathan M. Borwein, et al.
21. *Game Theory: Decisions, Interaction and Evolution*, by James N. Webb.
- 2006 20. *Teichmüller Theory, Volume I*, by John Hubbard.
19. *SPES I: The Kronecker-Duval Philosophy* and *SPES II: Macaulay's Paradigm and Gröbner Technology*, by Teo Mora.
18. *Matrix Groups for Undergraduates*, by Kristopher Tapp.
- 2005 17. *The Geometry of Syzygies*, by David Eisenbud.
16. *Elementary Number Theory and its Applications*, by Kenneth H. Rosen.
15. *Mathematics by Experiment*, by Jonathan Borwein and David Bailey, and *Experimentation in Mathematics*, by Jonathan Borwein, David Bailey, and Roland Girgensohn.
- 2004 14. *A Mathematical Bridge: An Intuitive Journey in Higher Mathematics*, by Stephen Fletcher Hewson. 2004.
13. *Grothendieck-Serre Correspondence: Bilingual Edition*, by Alexandre Grothendieck and Jean-Pierre Serre (short review in “briefly noted” section).
- 2003 12. *The CMI Millennium Meeting Video Collection*, directed by François Tisseyre.
11. *Doing Mathematics: Convention, Subject, Calculation, Analogy*, by Martin H. Krieger.
10. *The Millennium Problems*, by Keith Devlin.
9. *What's Happening in the Mathematical Sciences, Volume 5*, by Barry Cipra.
- 2002 8. *Matrix Groups: An Introduction to Lie Group Theory*, by Andrew Baker.
7. *Mathematical Mountaintops*, by John L. Casti.
- 2001 6. *Mathematics: Frontiers and Perspectives*, edited by V. Arnold, M. Atiyah, P. Lax, and B. Mazur, and *Mathematics Unlimited—2001 and beyond*, edited by Björn Engquist and Wilfried Schmid.
5. *Computational Number Theory*, by David Bressoud and Stan Wagon.

- 2000 4. *Proofs and Fundamentals, a First Course in Abstract Mathematics*,  
by Ethan D. Bloch.
3. *Bernhard Riemann, 1826-1866: Turning Points in the Conception of Mathematics*,  
by Detlef Laugwitz.
- 1999 2. *Modern Mathematics in the Light of the Fields Medals*,  
by Michael Monastyrsky.
1. *The French Mathematician*, by Tom Petsinis.

### **Editorial boards**

- 2019-present L-functions and Modular Forms Database  
 2016-2019 Carus Mathematical Monographs  
 2013-2016 Carus Mathematical Monographs  
 2007-2010 Carus Mathematical Monographs

### **Service within the University**

- 2023-2024 Finance Committee (chair)
- 2022-2023 University Senator  
 Finance Committee (chair)  
 Latterell visit coordinator
- 2021-2022 University Research Committee  
 Finance Committee
- 2019-2020 University Research Committee  
 Steering Committee  
 Level II Committee  
 Research Award Committee  
 Math Discipline Coordinator
- 2018-2019 University Research Committee  
 Steering Committee  
 Grants Director Search Committee  
 Level II Committee  
 Research Award Committee
- 2017-2018 University research committee  
 Steering Committee  
 Grants advisory board

2016-2017 University research committee

2015-2016 Grants advisory board  
Research Award Committee (chair)

2016-2017 University research committee

2015-2016 Grants advisory board  
Research Award Committee (chair)

2014-2015 Faculty Affairs committee (chair)  
Math discipline coordinator  
Grants advisory board

2013-2014 Faculty Affairs committee  
Research Award Committee (chair)

2012-2013 Research Award Committee

2011-2012 Membership Committee (chair)  
Math discipline tenure-track search committee  
FREF award committee  
Research award committee

2010-2011 Curriculum Committee  
General education subcommittee  
Honors Program Review Committee (chair)  
FREF award committee  
Assisted with fall faculty retreat  
Math discipline tenure-track search committee  
Math discipline temporary search committee (chair)  
Research Award committee (chair)  
University Senate Alternate

2009-2010 Curriculum Committee  
First year experience subcommittee  
FREF award committee  
Math discipline tenure-track search committee  
Research Award committee  
University Senate Alternate

2008-2009 Co-coordinator of the tenure-tracking seminar  
Temporary mathematics position search committee (chair)  
Assisted with fall faculty retreat  
Research Award committee  
Math discipline coordinator (Fall)

- 2007-2008 Executive Committee (secretary)  
 Constitution revision small group (chair)  
 Assisted with fall faculty retreat
- 2006-2007 Student Services Committee (chair)  
 Coordinator of the tenure-tracking seminar  
 Assisted with the fall faculty retreat
- 2004-2005 Curriculum Committee  
 Student Behavior Committee  
 Post tenure review committee  
 Digital Coordinator Librarian Search Committee  
 Coordinator of the tenure-tracking seminar  
 Assisted with the fall faculty retreat
- 2003-2004 Curriculum Committee  
 Student Behavior Committee  
 Student Activities Director search committee  
 Post tenure review committee
- 2002-2003 Student academic integrity committee (all University)  
 Academic Support Services Committee  
 Math discipline tenure track search committee (chair)  
 Math discipline coordinator (Spring)
- 2001-2002 Activities Fee Review Committee  
 Tenure-track mathematics position search committee  
 First Year Seminar review committee  
 Student Behavior Committee  
 Temporary mathematics position search committee (chair)
- 2000-2001 Activities Fee Review Committee  
 Student Behavior Committee  
 Math discipline coordinator (Spring)
- 1999-2000 Math discipline member responsible for teaching licensure issues