

ELLEN E. EISCHEN

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<http://www.elleneischen.com>

PRIMARY RESEARCH AREA

Algebraic number theory, automorphic forms, and L -functions, especially p -adic methods

EMPLOYMENT

- **University of Oregon**, 2015–present
 - Current: Associate Professor
 - Previous: Assistant Professor
 - **The University of North Carolina at Chapel Hill**, Assistant Professor, 2012–2015
 - **Northwestern University**, Ralph Boas Assistant Professor, 2009–2012
Postdoctoral mentor: Matthew Emerton (now at University of Chicago)
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EDUCATION

- **University of Michigan, Ann Arbor**, PhD in Mathematics, 2009
Dissertation advisor: Christopher Skinner (now at Princeton University)
 - **Princeton University**, A.B. *summa cum laude* in Mathematics, 2003
Senior thesis advisor: Andrew Wiles (now at University of Oxford)
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BIBLIOGRAPHY

- **Research papers**
 - *Archimedean zeta integrals for unitary groups*. E. Eischen and Z. Liu. 29 pages. Submitted. <https://arxiv.org/pdf/2006.04302.pdf>
 - *Entire theta operators at unramified primes*. E. Eischen and E. Mantovan. 42 pages. Submitted. <https://arxiv.org/pdf/2002.09450.pdf>
 - *An Introduction to Eisenstein Measures*. E. Eischen. 23 pages. Submitted. Earlier version at <https://www.dropbox.com/s/jeoe3a9ja5iuzs5/EisensteinBordeaux.pdf?dl=0>
 - *Differential operators mod p : analytic continuation and consequences*. E. Eischen, M. Flander, A. Ghitza, E. Mantovan, and A. McAndrew. 29 pages. Submitted. Earlier version at <https://arxiv.org/pdf/1902.10911.pdf>.
 - *p -adic families of automorphic forms in the μ -ordinary setting*. E. Eischen and E. Mantovan. 52 pages. To appear in the American Journal of Mathematics. Earlier version at <https://arxiv.org/pdf/1710.01864.pdf>.
 - *Applications of nonarchimedean developments to archimedean nonvanishing results for twisted L -functions*. E. Eischen. 20 pages. To appear in Mathematical Research Letters. Earlier version at <https://arxiv.org/pdf/1708.04026.pdf>

Research Papers, continued

- *p-adic L-functions for unitary groups*. E. Eischen, M. Harris, J.-S. Li, and C. Skinner. Forum of Mathematics, Pi. Volume 8 (2020), E9, 160 pages. <http://doi.org/10.1017/fmp.2020.4>.
- *A gallery of Gaussian periods*. E. Eischen and S. Garcia. Proceedings of Bridges 2020: Mathematics, Art, Music, Architecture, Education, Culture. Carolyn Yackel, Robert Bosch, Eve Torrence, and Kristóf Fenyvesi, eds., Tessellations Publishing (2020), 243–248. <http://archive.bridgesmathart.org/2020/bridges2020-243.html>
Associated computer app: <http://www.elleneischen.com/gaussianperiods.html>.
- *Bootstrapping estimates of stability for clusters, observations, and model selection*. H. Yu, B. Chapman, A. Di Florio, E. Eischen, D. Gotz, M. Jacob, and R. Hageman Blair. Computational Statistics. Volume 34 (2019), Issue 1, 349–372.
<http://doi.org/10.1007/s00180-018-0830-y>
Associated R package: <https://cran.r-project.org/web/packages/bootcluster/bootcluster.pdf>
- *Differential operators and families of automorphic forms on unitary groups of arbitrary signature*. E. Eischen, J. Fintzen, E. Mantovan, and I. Varma. Doc. Math. 23 (2018), 445–495. <http://doi.org/10.25537/dm.2018v23.445-495>
- *p-adic Eisenstein series and L-Functions of certain cusp forms on definite unitary groups*. E. Eischen and X. Wan. J. Inst. Math. Jussieu. 15 (2016), no. 3, 471–510.
<http://dx.doi.org/10.1017/S1474748014000395>
- *Differential operators, pullbacks, and families of automorphic forms*. E. Eischen. Ann. Math. Qué. 40 (2016), no. 1, 55–82. <http://dx.doi.org/10.1007/s40316-015-0049-z>
- *p-adic q-expansion principles on unitary Shimura varieties*. A. Caraiani, E. Eischen, J. Fintzen, E. Mantovan, and I. Varma. Directions in Number Theory: Proceedings of the 2014 WIN3 Workshop. Springer International Publishing (2016), 197–243.
http://dx.doi.org/10.1007/978-3-319-30976-7_7
- *A p-adic Eisenstein measure for unitary groups*. E. Eischen. J. Reine Angew. Math. 699 (2015), 111–142. <http://dx.doi.org/10.1515/crelle-2013-0008>
- *A p-adic Eisenstein measure for vector-weight automorphic forms*. E. Eischen. Algebra Number Theory. 8 (2014), No. 10, 2433–2469.
<http://dx.doi.org/10.2140/ant.2014.8.2433>
- *p-adic differential operators on automorphic forms for unitary groups*. E. Eischen. Ann. Inst. Fourier (Grenoble). 62, No. 1 (2012), 177–243.
<http://dx.doi.org/10.5802/aif.2704>
- *Decomposition of almost complete tripartite graphs into two isomorphic factors of fixed diameter*. E. Eischen. Discrete Math. 306 (2006), 745–761.
<http://dx.doi.org/10.1016/j.disc.2006.02.009>
- *Patterns, linesums, and symmetry*. E. Eischen, C. Johnson, K. Lange, and D. Stanford. Linear Algebra Appl. 357 (2002), 273–289.
[http://dx.doi.org/10.1016/S0024-3795\(02\)00417-2](http://dx.doi.org/10.1016/S0024-3795(02)00417-2)

- **PhD dissertation**

- *p-adic differential operators on automorphic forms for unitary groups*. E. Eischen. PhD dissertation. University of Michigan, 2009. 130 pages. http://deepblue.lib.umich.edu/bitstream/2027.42/63860/1/eeischen_1.pdf.

- **Non-technical articles I was invited to write for the broader community**

- *Moving Ahead in Your Research*. E. Eischen. Early Career section of the Research Issue of the *Notices of the American Mathematical Society*, February 2019. <http://dx.doi.org/10.1090/noti1791>.
- *Improv-ing a Mathematician's Professional Skills*. E. Eischen. MAA FOCUS. Dec 2016/Jan 2017. Vol. 36, No. 6, 22–24. <http://bit.ly/2ikwVg9>.
- *5 Key Takeaways from the Innovations Lab*. E. Eischen. August 2015. <http://bit.ly/2igAjwK>. Report on the first NIH/NSF Innovations Lab collaborative research workshop.

FUNDING AWARDED

Unless otherwise indicated, I am the sole PI on each grant listed below.

- **National Science Foundation grants awarded**

- NSF Grant DMS-1751281, \$400,000, CAREER grant, 2018–2023
- NSF Grant DMS-1559609, \$135,000, number theory research grant, 2015–2019
- NSF Grant DMS-1249384, \$98,035, number theory research grant, 2012–2015
- NSF Grant DMS-1557642, \$100,000 (\$19,500 to E. Eischen, with rest divided among other PIs: B. Chapman, D. Gotz, R. Hageman Blair, M. Jacob), QuBBD (Quantitative Approaches to Biomedical Big Data) grant through NIH Big Data to Knowledge (BD2K) initiative in partnership with the NSF Division of Mathematical Sciences, 2015–2017
- NSF Grant DMS-1601959, \$22,840, number theory conference grant, 2016–2017

- **Additional funding awarded**

- Williams Fund, \$7,530, University of Oregon, 2019–2020
- Awarded NSA-AMS Young Investigators Award (declined, to accept NSF grant), 2015
- Awarded Simons Collaboration Grant (declined, to accept NSF grant), 2015
- Served as faculty advisor on Kenan-Biddle Grant, \$5,460, led by student organizers H. Diaz, C. Hsu, and D. Muckerman, UNC and Duke University, 2015
- US Junior Oberwolfach Fellow, 450 euros, July 2014
- Junior Faculty Development Award, \$7,500, UNC, 2013
- AWM-NSF Travel Grant, \$1,087, Association for Women in Mathematics, June 2012
- Bell Labs (Lucent Technologies) Graduate Research Fellowship, \$152,416.21, 2003–2008

HONORS AND AWARDS

- Excellence in Teaching Award, Mathematics Department, Northwestern University, 2011
- *Phi Kappa Phi* (awarded to top 10% of grad students at University of Michigan), 2008
- *Phi Beta Kappa*, Princeton University, 2003
- The Peter A. Greenberg '77 Prize (awarded to a senior “for outstanding accomplishments in mathematics”), Princeton University, 2003
- *Sigma Xi* (research honor society), Princeton University, 2003

UPCOMING AND RECENT PRESENTATIONS

- **Invited lecture series**

- Arizona Winter School, March 2022 (4 lectures on automorphic forms beyond GL_2)
- Iwasawa 2019, Bordeaux, France, June 2019 (4 lectures on p -adic L -functions)
- Introductory Workshop on Euler Systems and Special Values of L -functions, EPFL, Switzerland, 2017 (3 lectures on p -adic L -functions)

- **Invited research talks during past 6 years**

Talks since March 2020 are remote, due to the pandemic.

- Colloquium, Penn State, February 2021
- Conference on automorphic forms, automorphic representations, Galois representations, and related topics, RIMS, Kyoto, Japan, January 2021
- Colloquium, University of Arizona, October 2020
- Conference on Serre Weights Conjectures and Geometry of Shimura Varieties, Centre de Recherches Mathématiques, Montréal, Canada, September 2020
- Pacific Rim Conference in Mathematics, UC Berkeley, August 2020
- Colloquium, Rice University, February 2020
- Joint Colloquium, Harvard University, November 2019
- Algebra and Number Theory Seminar, Brown University, November 2019
- Automorphic p -adic L -functions and Regulators conference, Lille, France, October 2019
- Heilbronn Number Theory Seminar, University of Bristol, England, October 2019
- AMS special session on Recent Developments in Automorphic Forms (45-minute talk), Spring Central and Western Joint Sectional Meeting, University of Hawaii, March 2019
- AMS special session on Advances in Iwasawa Theory, Spring Central and Western Joint Sectional Meeting, University of Hawaii, March 2019
- Number Theory Seminar, Caltech, November 2018
- Workshop on Special Values of Automorphic L -functions and Associated p -adic L -Functions, BIRS-CMO, Oaxaca, Mexico, October 2018
- Number Theory Seminar, Stanford University, May 2018
- BC-MIT Number Theory Seminar, MIT, May 2018
- Bellairs workshop on Unitary Shimura Varieties & Modular Forms, Barbados, May 2018
- Number Theory Seminar, University of Chicago, March 2018
- Paul J. Sally Midwest Representation Theory Conference in honor of Freydoon Shahidi's 70th birthday, Purdue University, October 2017
- Colloquium, University of Southern California, September 2017
- Special Cycles on Shimura Varieties and Iwasawa Theory conference, EPFL, Switzerland, August 2017
- Mathematical Congress of the Americas, special session on Galois Representations and Automorphic Forms, Montreal, Canada, July 2017

Invited Research Talks During Past 6 Years, continued

- The Quebec-Vermont Number Theory Seminar, McGill University, May 2017
- Special session on Automorphic Forms and Arithmetic, AMS sectional meeting, New York, NY, May 2017
- Number Theory Seminar, Caltech, March 2017
- Number Theory Seminar, Oregon State University, October 2016
- Clay Mathematics Institute workshop on Recent Developments on Elliptic Curves, Mathematical Institute of the University of Oxford, England, September 2016
- Plenary speaker, Galois Representations and Automorphic Forms Conference, Bedlewo, Poland, August 2016
- Topic contributed paper session on The NSF/NIH/SAMSI Workshop on Interdisciplinary Approaches to Biomedical Data Science Challenges, JSM, Chicago, August 2016
- Invited lecture, Canadian Number Theory Association Conference (CNTA XIV), University of Calgary, Canada, June 2016
- Number Theory Seminar, University of Chicago, May 2016
- Number Theory Seminar, Northwestern University, May 2016
- Plenary lecture, Alberta Number Theory Days, Banff International Research Station, Canada, April 2016
- Southern California Number Theory Day, UCSD, February 2016
- Number Theory Seminar, UCLA, February 2016
- Special session on Number Theory and Cryptography, JMM, Seattle, January 2016
- AMS special session on The Langlands Program and Related Topics, Central Fall Sectional Meeting, Loyola University, Chicago, October 2015
- Pacific Northwest Number Theory Conference, Eugene, Oregon, May 2015
- Philadelphia Area Number Theory Seminar, Bryn Mawr College, April 2015
- Colloquium, University of Washington, January 2015
- Special session on Recent Developments in Algebraic Number Theory, JMM, San Antonio, TX, January 2015

• Invited expository talks (for students, etc) during past 6 years

- Open Neighborhood Seminar, Harvard University, November 2019
- Applied Science Program, The Pennington School, NJ, September 2019
- REU, Oregon State University, July 2019
- Faculty Perspectives, IntroDUCKtion, U. Oregon, June 2018 and July 2019
- The North Star Lectures, University of Oregon, May 2019
- Undergraduate Math Club, Occidental College, Los Angeles, November 2018
- Colloquium, Reed College, October 2018
- College Scholars Freshman Colloquium, U. Oregon College of Arts & Sciences, Feb. 2016
- Distinguished Lecture for Students, MAA Southeastern Section Meeting, March 2015

- **Poster presentations during past 6 years**

- Selected to co-present poster at NSF/NIH Big Data to Knowledge (BD2K) All Hands Grantee Meeting, Bethesda, Maryland, November 2016 (Co-presented with R. Hageman Blair.)
- Presented poster at NSF/NIH Big Data to Knowledge (BD2K) All Hands Grantee Meeting, NIH, Bethesda, Maryland, November 2015 (Co-presented with R. Hageman Blair, B. Chapman, and D. Gotz.)

PARTICIPATION IN COLLABORATIVE RESEARCH WORKSHOPS

- Leader of a project associated with my lectures at the Arizona Winter School, March 2022
- SQuaRE collaborative research meeting on an algebraic number theory project, American Institute of Mathematics, San Jose, CA, October 2021
- SQuaRE collaborative research meeting on an algebraic number theory project, American Institute of Mathematics, San Jose, CA, January 2018
- Selected participant at the NSF/NIH “Data Science Innovation Lab 2016: Mobile Health,” UCLA Lake Arrowhead Conference Center, June 2016
- Selected participant at the NSF/NIH/SAMSI Innovation Lab on “Interdisciplinary Approaches to Biomedical Data Science Challenges,” SAMSI, Raleigh, North Carolina, July 2015
To learn more, see the blogpost I was invited to write for SAMSI’s blog:
<http://samsiatrtp.wordpress.com/2015/08/14/5-key-takeaways-from-the-innovations-lab/>
- Collaborated with (and co-organized) Focused Research Group on “Geometric aspects of p -adic automorphic forms,” Banff International Research Station, Banff, Canada, October 2014
- Designed and led research project in number theory (co-leader: A. Caraiani) at WIN3, Banff International Research Station, Banff, Canada, April 2014

TEACHING RECORD DURING PAST 6 YEARS

- **Course development**

- Designed Math and the Creative Process: A Participatory Exploration of Number Theory, undergraduate course Math 199, first offered in Spring 2020
<https://pages.uoregon.edu/eeischen/CreativityCounts/course/>

- **Courses taught during past 6 years through future**

- Graduate Algebraic Number Theory (Math 607), U. Oregon, 2-quarter sequence, fall 2020 and winter 2021
- Math and the Creative Process: A participatory exploration of number theory (Math 199), U. Oregon, spring 2020 (new course I developed and designed from scratch: <https://pages.uoregon.edu/eeischen/CreativityCounts/course/>)
- Introduction to Abstract Algebra III (Math 445/545), U. Oregon, winter 2020
- Graduate Algebraic Number Theory (Math 607), U. Oregon, 2-quarter sequence, winter and spring 2019

Courses Taught During Past 6 Years, continued

- Introduction to Abstract Algebra (Math 444/544, 445/545, 446/546), U. Oregon, 3-quarter sequence 2017–2018
- Introduction to Abstract Algebra III (Math 446/546), U. Oregon, spring quarter 2017
- Linear Algebra (Math 441/541), U. Oregon, spring quarter 2017
- Mathematical Methods of Statistics I (Math 461/561), U. Oregon, fall quarter 2016
- Introduction to Mathematical Cryptography (Math 458), U. Oregon, spring quarter 2016
Scavenger hunt: <http://www.elleneischen.com/cryptography-scavenger-hunt.html>
- Multivariable Calculus: Integration (Math 282), U. Oregon, winter quarter 2016
- Multivariable Calculus: Differentiation (Math 281), U. Oregon, fall quarter 2015
- Algebra (Math 677), UNC, spring semester 2015
- Algebraic Structures (Math 578), UNC, spring semester 2015

- **Reading courses**

I supervise graduate reading courses nearly every term.

SUPERVISING RECORD

- **Postdoctoral scholars supervised**

- Maria Fox, Paul Olum Postdoctoral Scholar, U. Oregon, 2019–2022
- Vivek Pal, Postdoctoral Scholar in Number Theory, U. Oregon, 2016–2017

- **PhD dissertations supervised**

- Sean Haight, University of Oregon, current PhD student
- Jon Aycock, University of Oregon, current PhD student
*Awarded UO College of Arts and Sciences Dissertation Research Fellowship, 2020–2021
(1 of 4 awarded across all the natural sciences departments)
- Catherine Hsu, University of Oregon, PhD 2018
First position: Heilbronn Research Fellow, University of Bristol (England), 2018–2020
Present position: Visiting Assistant Professor, Swarthmore College, Fall 2020–present
*Awarded the UO Doctoral Research Fellowship (the university’s most prestigious fellowship, awarded to 1 student university-wide), AAUW American Dissertation Fellowship, AWM’s Most Outstanding Graduate Student Research Poster award JMM 2017

- **Masters project supervised**

- Catherine Hsu, The University of North Carolina at Chapel Hill, 2015

- **Undergraduate students supervised**

- Robert Macy, data science project, University of Oregon, spring 2016
Graduate school: University of Michigan’s computer science program
- Max Dickinson, data science project, University of Oregon, spring 2016
- Heidi van Batenburg-Stafford, senior honors thesis, Northwestern University, 2012

EDITORIAL WORK AND REVIEWING DURING PAST 6 YEARS

- Member of Editorial Board for the research journal *Research in Number Theory*, 2020–present
<https://www.springer.com/journal/40993/editors>
- Co-editor of *Directions in Number Theory: Proceedings of the 2014 WIN3 Workshop*. Springer International Publishing (2016). <http://dx.doi.org/10.1007/978-3-319-30976-7>
- Reviewer for funding agencies and research journals (more information available upon request)

CONFERENCE AND WORKSHOP ORGANIZATION

- Co-organizing (with H. Darmon, B. Howard, D. Loeffler, C. Skinner, S. Zerbes, W. Zhang) semester program on Euler Systems and Special Values of L -functions, MSRI, Spring 2023
- Co-organizing (with H. Darmon, B. Howard, E. Mantovan) Introductory Workshop on Euler Systems and Special Values of L -functions, MSRI, Spring 2023
- Co-organizing (with H. Darmon, B. Howard, E. Mantovan) Connections for Women on Euler Systems and Special Values of L -functions, MSRI, Spring 2023
- Organizing 2 weeklong workshops: collaborative research workshop to promote diverse collaborations and instructional workshop on recent developments, U. Oregon, July 2022
<https://sites.google.com/view/automorphic2021>
- Co-organizing (with S.W. Shin, L. Xiao) session on number theory and arithmetic geometry at the Pacific Rim Mathematical Association Congress, Vancouver, Canada, December 2021
- Co-organizing (with D. Barrera Salazar, L. Alberto Lomelí, A. Pacetti, C. Sorensen) session on Galois representations and automorphic forms, Mathematical Congress of the Americas, Buenos Aires, Argentina, July 2021
- Co-organizing (with M. Dimitrov, A. Jorza) weeklong instructional workshop and weeklong conference on p -adic L -functions and eigenvarieties, Notre Dame, June 2021
- Co-organized (with J. Kamnitzer, A. Kontorovich, K. Stange) Illustrating Algebra and Number Theory workshop, week-long workshop as part of the semester-long ICERM program Illustrating Mathematics, Brown University, Providence, RI, October 2019
- Co-organized (with Y. Liu, L. Xiao, W. Zhang) AMS Special Session on Special Values of L -functions and Arithmetic Invariants in Families, Spring Eastern Sectional Meeting, University of Connecticut, Hartford, CT, April 2019
- Co-organized (with A. Bucur) the AMS/MAA Joint Mathematics Meetings AWM Workshop (special session on number theory), Atlanta, GA, January 2017
- Co-organized (with J. Rouse, K. Thompson) the 30th Automorphic Forms Workshop, Wake Forest University, Winston-Salem, NC, March 2016

SELECT SERVICE DURING PAST 6 YEARS

For editorial work, reviewing, and conference/workshop organization, see previous page.

• National committees

- Appointed to AMS Liaison Committee with the American Association for the Advancement of Science (AAAS), 2020–2022
- Appointed to AMS Committee on the Profession, 2020–2023
 - Subcommittee to analyze the report from Committee on Professional ethics (COPE)
- Served on AWM Joint Mathematics Meetings committee, 2016

• University committees

- Member of Search Committee for Director of McNair Scholars Program, UO, Fall 2018
- Served on UNC’s selection committee for Rhodes & Marshall Scholarships, August 2014

• Department committees

- Faculty supervisor, Oregon Undergraduate Mathematics Club, 2018–present
- Graduate Advising Committee, UO Math Department, 2019–2021
- PhD Committee, UO Math Department, 2019–2020
- Open Tenure-Track Search Committee, UO Math Department, 2018–2019
- Executive Committee, UO Math Department, 2018–2019
- Graduate Affairs Committee, UO Mathematics Department, 2018–2019
- PhD Comprehensive Exam Committee (responsible for writing and grading algebra comprehensive exams), UNC, Summer 2013 to Winter 2015

• Thesis and dissertation committees

- Math graduate students’ PhD committees (for PhD students Jon Aycock, Corey Brooke, Christophe Dethier, Sean Haight, Catherine Hsu, Sarah Frei, Greg Knapp, Leila Vaden), Oregon, 2015–present
- Outside committee member for 2 UO Chemistry Department PhD candidates (Jenna Mancuso, Augie Witkowski), 2018–present
- Outside committee member for UO Computer Science Department PhD candidate (Nicole Marsaglia), 2020
- Committee member for senior theses (Sasha Shmakov, UO Math Department; Sam Calvert, UO Honors College), 2018

• Seminar organization at the University of Oregon

- Started and organize The Oregon Distinguished Mathematics Lectures for Students, U. Oregon, 2015–present (website: <http://blogs.uoregon.edu/mathisawesome/>)
- Co-organized (as committee chair) the Niven and Moursund Distinguished Lectures, U. Oregon, 2017–2018
- Co-organize the University of Oregon Number Theory Seminar, 2016–present

MAJOR OUTREACH AND EDUCATIONAL ACTIVITIES

Additional activities in which I have taken a leadership role or contributed substantial time

- **Museum exhibit**

- Organizing exhibit *Creativity Counts: Possibilities Shaped by Constraints of Arithmetic* to share the beauty of mathematics with the public, opening Spring 2021 at the Jordan Schnitzer Museum of Art
<https://pages.uoregon.edu/eeischen/CreativityCounts/>

- **Integrating principles of improv to build community in undergraduate classes**

- Collaborating with Heather Barnes (Improv@Work, Second City, Museum of Science and Industry, Shedd Aquarium), consultant on my NSF CAREER grant, on adapting tools from improv for STEM pedagogy and communication, 2018–present
- Panelist on webinar Building a Community of Learners (in remote math classes), TPSE/AMATYC, August 2020 https://www.youtube.com/watch?v=P_EhnoK8_Ms
- Design remote and in-person workshops on improv exercises for building community and engagement in undergraduate classes, e.g. *Whose Math Is It Anyway? Interactive Engagement in Remote Classes* (Bowling Green State University), *Engaging Students and Building Community in Remote Classes* (Idaho State University), *Yes And! Improvisation as a Tool for Enhancing Teaching and Learning* (upcoming, joint with Barnes for UO’s Teaching Engagement Program), 2019–present

- **STEM communication**

- STEM penpal, Letters to a Prescientist (<https://www.prescientist.org>), 2019–present
- Participant, UO Science Literacy Program communication workshops, spring 2017

- **Reading room**

- Spearheaded efforts to create reading room for women in math and facilitate reading room discussions about gender and math, U. Oregon, 2017–present

OTHER APPOINTMENTS AND AFFILIATIONS

- **Long-term visits (at least two weeks)**

- Invited Research Fellow, program on Illustrating Mathematics, ICERM, fall 2019
- Invited guest, Caltech, November–December 2018
- Invited academic guest, special program on “Euler systems and special values of L -functions,” EPFL, Switzerland, August and December 2017
- Visiting Scholar, Columbia University, spring 2014 and 2006–2008 (except fall 2007)
- Visiting Student Research Collaborator, Princeton University, 2008–2009

- **Other employment**

- Graduate research fellow, Bell Labs (Lucent Technologies) Mathematical Sciences Research Center, Murray Hill, NJ, summer 2003
- Researcher, The Duluth Undergraduate Mathematics Research Program, summer 2002
- Intern, Applied Computer Science and Math Group, Merck Research Labs, Merck & Co, Rahway, NJ, summer 2001

- **Additional affiliations**

- Faculty Affiliate, Phil and Penny Knight Campus for Accelerating Scientific Impact, U. Oregon, 2019–present
- Faculty Affiliate, Center for the Study of Women and Society, U. Oregon, 2019–present

PROFESSIONAL MEMBERSHIPS

AMS, MAA, AAAS, AWM, NAM