

Brendan Kelly

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| CONTACT INFORMATION | Harvard University Department of Mathematics Cambridge, MA 02138 USA | (703) 300-0795 kelly@math.harvard.edu |
| PROFESSIONAL INTERESTS | Math instruction, supporting students, educational leadership, induction of math graduate students into teaching, teacher professional training, curriculum design, math for social justice, technology in the classroom, preservice teacher training | |
| EMPLOYMENT | Harvard University , Cambridge, MA Senior Preceptor of Mathematics Harvard University , Cambridge, MA Preceptor of Mathematics | |
| EDUCATION | Harvard Graduate School of Education , Cambridge, MA Coursework in Educational Leadership University of Utah , Salt Lake City, Utah Ph.D. Mathematics, 2014 Adviser: Kevin Wortman The College of New Jersey , Ewing, New Jersey B.A., Mathematics, May, 2008 | |
| HONORS AND AWARDS | Harvard Initiative for Teaching Learning SPARK Grant, Spring 2019 Bok Center Certificate of Teaching Excellence, Many Joseph R. Levenson Memorial Teaching Prize, Spring 2015 Bok Center Certificate of Teaching Excellence, Fall 2014 Research Training Grant Support, Summer 2013 University Teaching Award Spring 2013 National Science Foundation VIGRE Fellow, 2008-2010 | |
| TEACHING EXPERIENCE | <i>Senior Preceptor</i> Harvard, July, 2017 - Present Coordinating, teaching, designing undergraduate level courses: Calculus 1&2, Multivariable Calculus, and Calculus with Pre-calculus. Teaching a graduate seminar on secondary mathematics instruction. Training new graduate student instructors. Mentoring and hiring new preceptors and lecturers. Teaching a study abroad calculus class as a component of the Emerging Scholars Program. <i>Preceptor</i> Harvard, July, 2014 - June 2017 Coordinating, teaching, designing undergraduate level courses: Calculus and Calculus with Pre-calculus. Teaching a graduate seminar on secondary mathematics instruction. Teaching and designing a course on Groups and Symmetry for high school teachers. Facilitating a course on undergraduate math instruction. Designing HarvardX precalculus modules. <i>Visiting Faculty</i> University of Utah, May, 2016 Teaching and designing transitional mathematics courses. Building coherence in curriculum. | |

Graduate Student Instructor **University of Utah, September, 2009 - 2014**
Taught undergraduate level courses, having full responsibility for lectures, exams, homework assignments, and grades: Intermediate Algebra, College Algebra, and Business Algebra.

Facilitator **University of Utah, August 2010 - August 2013**
Facilitated annual workshop for new teaching assistants in the mathematics department.

Research Experience for Undergraduates - Teaching Assistant **PCMI, Summer, 2012**
Engaged undergraduate students with problems focusing on arithmetic groups.

Research Experience for Undergraduates - Teaching Assistant **Utah, Summer, 2011**
Engaged undergraduate students with problems focusing on discrete subgroups of Lie groups.

BOOKS Kelly, Alibegovic, Noonan-Heale, Cangelosi, Intermediate Algebra: A Functional Approach, Ed 2
CreateSpace Press 2018

Kelly, Alibegovic, Noonan-Heale, Cangelosi, Intermediate Algebra: A Functional Approach, Ed 1
CreateSpace Press 2017

Chen, Gottlieb, Kelly, and the Math Department Preceptors, Functions and their Rates of Change

PAPERS Kelly, B., A finite index subgroup of $\mathbf{B}_n(\mathcal{O}_S)$ with infinite dimensional cohomology, Preprint.

Cesa, M., B. Kelly, Congruence subgroups of $\mathbf{SL}_n(\mathbb{Z}[t])$ with infinite dimensional cohomology, Accepted.

SELECTED PRESENTATIONS Building Academic Pathways and Supports: An Integrated Precalculus Calculus Course and Concurrent Emerging Scholars Program, NorthEast Consortium for Quantitative Literacy XXII Meeting, April 2019

Diversity Matters College Mathematics Instructor Development Source, Knoxville, TN, March 2019

Intermediate Algebra: A Retelling of an Old Story, Joint Mathematics Meetings, Baltimore, MD, January 2019

Supporting Students in Introductory Courses, Bunker Hill Community College, October 2018

Supporting Students in Introductory Courses, University of Utah, June 2018

Improving Feedback to Students, Joint Mathematics Meetings, San Diego, CA, January 2018 Active Learning in Calculus, Cornell University, October 2017

Geometry of Gerrymandering, Math Teachers' Circle, Cambridge, MA, March 2018

Award Ceremony Colloquium, University of Connecticut, April 2017

Building Number Sense, Harvard Foundation's Einstein Conference, March 2017

Working with students' misconceptions, Harvard Calculus Workshop, August 2016

Counting on the binomial theorem, Math Teachers Circle, Cambridge, MA, September 2015

Are most triangles obtuse?, Math Teachers Circle, Cambridge, MA, Fall 2016

Exploring Patterns, Big Picture School, Seattle, WA, January 2016

Counting on the binomial theorem, Math Teachers Circle, Cambridge, MA, September 2015

The importance of questions in mathematics, TCNJ Math Department Colloquium, Fall 2015.

Active Learning in STEM, Derek Bok Center for Teaching and Learning, Fall 2015.

Active Learning in STEM, Preceptor Retreat, Summer 2015

Quality math instruction, Texas Graduate Center, Mercedes, Texas, Spring 2015.

Comparing developmental math programs, MSRI, Berkeley, CA, March, 2015.

Aligning teaching strategies with learning outcomes, Harvard Calculus Workshop, August 2014.

Redesigning intermediate algebra with students in mind, MAA Sectional, Spring 2014

Finiteness properties of arithmetic groups, AMS Special Session, Baltimore, MD, January, 2014.

The Dehn function for $\mathbf{SL}_n(\mathbb{Z})$. Summer Workshop on Filling Functions, Bloomington, IN, 2011.

Guards, graphs, and geography, Utah's Teacher Circle, Salt Lake City, Utah, Spring 2013.

Hairy ball theorem, Project Youth, Salt Lake City, Utah, May 2013.

Isoperimetric spectrum of snowflake groups, Stallings Seminar, Salt Lake City, UT , Spring 2013.

Dehn functions on different spaces, Graduate Student Colloquium, Salt Lake City, UT , Spring 2011.

Solvability is not geometric. Graduate Student Colloquium, Salt Lake City, UT, Spring 2011.

(Fermat's little theorem)⁵, Undergraduate Student Colloquium, Salt Lake City, UT, Fall 2010.

Zero divisor graphs, Undergraduate Student Colloquium, Salt Lake City, UT, Spring 2010.

PROFESSIONAL
SERVICE

Preceptor Hiring Committee **Cambridge, MA, Fall 2015 - Present**
Reviewed applications, interviewed candidates, and helped in selection process.

Bok Center Active Learning Seminar- Facilitator **Cambridge, MA, Fall 2016**
Organized a seminar for graduate students and post docs across STEM in active learning.

Board of Freshman Advisers **Cambridge, MA, Fall 2015 - Present**
Provide holistic advising to freshmen in their transition to Harvard.

Teacher Math Circle - Facilitator **Cambridge, MA, Fall 2014 - Present**
Organized a monthly math circle for middle school math teachers.

Math Instructional Consultant **Cambridge, MA, 2014**
Worked for Boston public schools in the training of precalculus teachers.

Graduate Student Colloquium - Chairman **Utah, Fall 2010 - Spring 2014**
Organized a weekly colloquium for all mathematics graduate students.

Intermediate Algebra - University Teaching Fellowship **Utah Fall 2013 - Spring 2014**
Redesigned course materials for intermediate algebra.

What is math? - Organizer **Utah Spring 2012 - Spring 2014**
Organized a day long event to pique high school students' curiosity in mathematics.

Teacher Training Workshop - Facilitator **Utah Fall 2009 - Fall 2013**
Organized and facilitated a training workshop for new math instructors at the University of Utah.

Teacher Professional Development - Facilitator **Utah Summer 2013**
Facilitated a week long retreat for Utah secondary math teachers.

Graduate Student Recruitment - Organizer **Utah Summer Spring 2011- Spring 2014**
Coordinated recruitment week to show accepted graduate students the opportunities in the program.

CONFERENCES AND WORKSHOPS MSRI Critical Issues in Math Education, Observing for Access, Power, and Participation in Mathematics Classrooms, Berkeley, CA, Spring 2017

Joint Mathematics Meetings, Atlanta, Georgia, January 2017

NES/MAA Vermont Workshop on Teaching Calculus, Colchester, VT, Fall 2016

Bok 40, Cambridge, MA, Spring 2016

MSRI Critical Issues in Math Education, Observing Teaching, Berkeley, CA, Spring 2016 Joint Mathematics Meetings, Seattle, WA, January 2016

Legacy of R.L. Moore, Austin, TX, June 2015.

NCTM, Boston, MA, Spring 2015.

MSRI Critical Issues in Math Education, Developmental Math, Berkeley, CA, Spring 2015.

Joint Mathematics Meetings, San Antonio, TX, January 2015.

MAA Mountain West Sectional, Orem, Utah, Spring 2015.

Joint Mathematics Meetings, Baltimore, MD, January 2014.

Math Research Communities, Geometric Group Theory, Snowbird, UT, Summer 2013.

Banff International Research Station, Arithmetic Groups, Banff, Canada, Spring 2013.

Park City Math Institute, Geometric Group Theory, Park City, UT, Summer 2012.

Summer Workshop on Filling Functions, Bloomington, IN, Summer 2011.

Examples in Geometry Summer School, Columbus, OH, Summer 2011.