Steve Balady

sbalady@oberlin.edu
www.stevebalady.com

Mathematics, Oberlin College
United States Citizen, Ph.D.

Professional Experience

2018 - 2020   Oberlin College. Visiting Assistant Professor of Mathematics.

2019   Oberlin College. Calculus I Coordinator.
Redesigned placement exam and supervised Calculus I placement, coordinated with Student Academic Success, professor for all sections of first-semester Calculus

2014 - 2018   University of Maryland. Lecturer, Mathematics.

Education

2017   University of Maryland, College Park. Ph.D., Mathematics.
Advisor: Lawrence C. Washington. "Families of Cyclic Cubic Fields."

2011   University of Maryland, College Park. M.A., Mathematics.
Advisor: Jonathan Rosenberg. "Cobordism of Manifolds with Singularities."

2008   University of Chicago. B.A. with Honors, Mathematics.
Advisor: J. Peter May.

Research Areas

Undergraduate math education, algebraic number theory

Research Publications

2019   "Comparing Student Attitudes in Introductory Mathematics and Computer Science Courses." (working title) Joint with Cynthia Taylor. In preparation.

2019   "Active Learning in an Undergraduate Precalculus Course: Insights from a Course Redesign." Joint with Sean Gruber, Raluca Rosca, Daniel Chazan, Elizabeth Fleming, Catherine VanNetta, and Kasso Okoudjou. Submitted to PRIMUS June 10.

2019   "A family of cyclic quartic fields with explicit fundamental units."
Joint with Larry Washington. *Acta Arithmetica* 187 (2019), 43-57.

2016   "Families of Cyclic Cubic Fields."
J. Number Theory 167 (2016), 394-406.

2015   "We Started a Directed Reading Program (And So Can You!)."
AMS Blog On Teaching and Learning Mathematics, June 20, 2015.

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Research Presentations

2019   Oberlin Mathematics IFS Talks.
"Measuring Student Attitudes in an Active Learning Calculus I Classroom."

2019   Ohio State University. Invited Speaker.
"Student-Oriented Grading: Rethinking Precalculus at Maryland and Beyond."

2018   Oberlin Mathematics IFS Talks.
"Calculus I and the Persistence Gap."

2016 - 2017   Maryland Student Algebra and Number Theory Seminar.
"An Introduction to Elliptic Surfaces." "Families of Cyclic Cubic Fields." (two talks)

2014 - 2016   Monroe Martin Spotlight on Student Research.
"The Cult of Desmos." "Persistent Homology." "Poincaré Conjectures." (three talks)

2012   Mathematisches Forschungsinstitut Oberwolfach.
"A Poincaré Space Not Homotopy Equivalent to a Manifold."

2012   University of Maryland Seminar on Algebraic K-theory.
"Topological and Algebraic K_0," "Algebraic K_1," "The Q-construction," and
"The K-theoretic Novikov Conjecture." (series of four talks).

2011   Maryland Seminar on Topological Quantum Field Theories.
"Lurie's Categorical Approach to the Cobordism Hypothesis." (series of three talks).

Professional Service

2019 - 2020   Peer Review.
American Mathematical Monthly, PRIMUS.

2019 - 2020   MAA Book Reviews.
J.S. Chahal, *Fundamentals of Linear Algebra.*
Gilbert Strang, *Linear Algebra and its Applications* (in preparation).

2019 - 2020   Oberlin College. Math Majors Committee Faculty Liaison.

2017 - 2018   Student Engagement in Mathematics through an Institutional Network for Active Learning (SEMINAL) Phase II. Maryland Leadership Team.

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2011 - 2018	**Directed Reading Program at UMD.** Founder. Committee Member 2011-2017. Committee President 2011-2014. DRP Mentor 2012-2018 (thirteen projects): Deena Postol. "Sums of Distinct Squares." Matt Kukla. "Bertrand's Postulate." Jon Bozzonetti. "Continuity and Connectedness." Melanie Abel. "Sums of Two Squares." Anthony Richardson. "e is Irrational." Anthony Richardson. "Cantor's First Uncountability Proof." Suyang Xu. "Ranking Methods." David Finder. "Homeomorphism and Topological Properties." Samuel Cunningham. "Continuity in Topology." Niko Schultz. "The Glue Function: How Mathematicians Think." Micah Goldblum. "Geodesics on the Torus." Tim Zulf. "Polynomial Interpolation." Ian Magee. "A Return to Calculus."
2013	**Monroe Martin Spotlight on Student Research.** Co-Organizer.
2011 - 2013	**University of Maryland.** Math Graduate Student Representative.

Professional Service Presentations

2019	**College of Wooster.** Speaker's Circuit Talks.
2019	**Kenyon College.** Speaker's Circuit Talks.
2019	**Joint Mathematics Meetings.** MAA Contributed Paper Session on Fostering Creativity in Undergraduate Mathematics Courses. *"How Creativity Influenced My Academic Work and Lifestyle / Running a Project-Based Linear Algebra Course Through MATLAB."* (two talks) Joint with Samuel Lee, undergraduate student, University of Maryland.
2014	**Joint Mathematics Meetings.** MAA Contributed Paper Session on Teaching Mathematics Beyond the Calculus Sequence. *"We Started a Directed Reading Program And So Can You."* Joint with Josh Ballew, Rebecca Black, and Elizabeth Fleming.

Teaching

Spring 2020	**Oberlin College. Linear Algebra.** 3×50-minute sessions, flipped classroom, MATLAB project-oriented
Fall 2019 - Spring 2020	**Oberlin College. Calculus Ia, Calculus Ib.** 38 students, 3×50-minute sessions, flipped classroom, project-oriented
Fall 2019	**Oberlin College. Calculus I.** 34×2 students, 4×50-minute sessions, flipped classroom
Fall 2018 - Spring 2019	**Oberlin College. Calculus Ia, Calculus Ib.** 22×2 students, 3×50-minute sessions, project-oriented

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Fall 2019	**Oberlin College. Linear Algebra.** 30 students, 3×50-minute sessions, flipped classroom, MATLAB project-oriented
Spring 2018	**Maryland. Applications of Linear Algebra.** 20 students, 3×50-minute sessions, MATLAB project-based
	Maryland. Linear Algebra for Scientists and Engineers. 60 students, one TA, 2×75-minute lectures, flipped classroom
	Maryland. Calculus II - Honors. 12 students, 4×50-minute sessions, flipped classroom
Fall 2017	**Maryland. Introduction to Mathematical Proof.** 25 students, 3×50-minute sessions, flipped classroom
Summer 2017	**Maryland. LSAMP Summer Bridge Program.** 12 students, 5×120-minute sessions, project-oriented
Spring 2017	**Maryland. Calculus I.** 200 students, five teaching assistants, 3×50-minute lectures
Summer 2016	**Maryland. LSAMP Summer Bridge Program.** 12 students, 5×120-minute sessions, project-oriented
2015 - 2017	**Maryland. Precalculus - Freshman Connection.** 25-33 students per section, 2×75-minute sessions, problem-based
2014	**Maryland. Calculus I - Freshman Connection.** 33 students, 3×75-minute sections, problem-based
2008 - 2016	**Maryland. Teaching Assistant.** 20-30 students per section, 50-75 minutes per session. Precalculus, Calculus I, Calculus II, Calculus III, Linear Algebra, Differential Equations.

Awards and Honors

2018	**Grant Co-Author. Student Engagement in Mathematics through an Institutional Network for Active Learning (SEMINAL) Phase II.** Awarded $93,300 to build active learning into Precalculus at Maryland.
2017	**Ralph P. Pass, III Number Theory Fellowship.**
2011	**Center for Teaching Excellence, University of Maryland. Distinguished Teaching Assistant Award.**
2011	**Mathematics Department, University of Maryland. Excellence in Teaching Award for Graduate Teaching Assistants.** "Made me want to get up for a 9 am precalculus class."