CURRICULUM VITAE

Robert W. Benim

Location: Boulder, CO
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Employment History

- Assistant Teaching Professor, University of Colorado, Boulder, 2022 - Present
- Lecturer, University of Colorado, Boulder, 2020 - 2022
- Community Faculty, Metropolitan State University, 2019-2020
- Online Instructor, Johns Hopkins Center For Talented Youth, 2019-2021
- Instructor, Augsburg University, Fall 2020
- Lecturer, University of Georgia, 2016-2019. (Equivalent to Assistant Teaching Professor at the University of Colorado)
- Visiting Assistant Professor, Pacific University, 2014-2016.
- Teaching Assistant, North Carolina State University, 2010-2014.
- Teaching Assistant, Portland State University, 2008-2010.

Education History

- Ph.D. Mathematics, North Carolina State University, 2014.
- M.S. Mathematics, Portland State University, 2010.
- B.S. Mathematics, University of Portland, 2007.

Research Interests

I am interested in a few different areas of mathematics. More recently I have been looking at special functions and generalizations of the Euler-Mascheroni constant. The research that extends from my Ph.D. dissertation involves algebraic groups and symmetric varieties, specifically symmetric varieties which arise from orthogonal and symplectic groups. I have also studied finite group actions of topological surfaces.

Instructor of Record

University of Colorado (2020-present)

- *APPM 7400: Teaching Excellence*
- *APPM 3310: Matrix Methods (6 sections over 6 semesters)*
- *APPM 3170: Discrete Applied Mathematics (3 sections over 3 semesters)*
- *APPM 2350: Calculus 3 For Engineers (3 sections over 2 semesters)*
- *APPM 1360: Calculus 2 For Engineers (6 sections over 3 semesters)*
- *APPM 1350: Calculus 1 For Engineers (17 sections over 11 semesters)*

Metropolitan State University (2019-2020)

- *MATH 360: Topics in Linear Algebra and Topology (Independent Study)*
- *MATH 211 Calculus II*
- *MATH 120 Precalculus (3 sections over 3 semesters, in-person and online)*

Johns Hopkins Center for Talented Youth (2019-2021)

- *Multivariable Calculus (MVC)*
- *Linear Algebra (LIN)*
- *Differential Equations (DIF)*

Augsburg University (Fall 2020)

- *MAT 105 Applied Algebra*

University of Georgia (2016-2019)

- *MATH 3300 Applied Linear Algebra*
- *MATH 2250 Calculus I for Science and Engineering (14 sections over 5 semesters)*
- *MATH 1113 Precalculus (5 sections over 2 semesters)*

Pacific University (2014-2016)

- *MATH 311 Ordinary Differential Equations (2 sections over 2 semesters)*
- *MATH 227 Calculus II*
- *MATH 226 Calculus I (2 sections in 1 semester)*
- *MATH 165 Modern Topics in Mathematics (Included unit on statistics)(2 sections in 1 semester)*
- *MATH 125 Precalculus (5 sections over 3 semesters)*

North Carolina State University (2010-2014)

- *MA 405 Introduction to Linear Algebra*
- *MA 341 Applied Differential Equations I (3 sections over 3 semesters)*
- *MA 242 Calculus III*
- *MA 231 Calculus for Life and Management Sciences B*
- *MA 121 Elements of Calculus*

Portland State University (2008-2010)

- *MTH 261 Introduction to Linear Algebra (3 sections over 3 quarters)*
- *MTH 112 Introduction to College Mathematics II (2 sections over 2 quarters)*
- *MTH 111 Introduction to College Mathematics I (2 sections over 2 quarters)*

Journal Articles

- *An Euler Constant Based on Arctangent*, submitted for publication.
- *An initial study of the success of a Winter Break Calculus 1 Course* (with S. Chang), accepted for publication in PRIMUS.
- *Integrals of Functions of roots of* x, 2024, Series A: Mathematical Sciences, Vol. 34 23–26
- *Isomorphy Classes of Finite Order Automorphisms of* $\mathrm{SL}(2,k)$, (with M. Hunnel and A. K. Sutherland), 2017, *Communications in Algebra*, DOI: 10.1080/00927872.2017.1298770.
- *Isomorphy Classes of k-Involutions of* $\mathrm{SO}(n,k,\beta)$*,* $n>2$, (with C. Dometrius, A. G. Helminck, and L. Wu), 2016, *Journal of Lie Theory*, Volume 26, 383-438.
- *Isomorphy Classes of Involutions of* $\mathrm{SP}(2n,k)$*,* $n>2$, (with A. G. Helminck, and F. Jackson Ward), 2015, *Journal of Lie Theory*, Volume 25, 903-947.
- *Enumerating Quasiplatonic Cyclic Group Actions*, (with A. Wootton), 2013, *Rocky Mountain Journal of Mathematics*, Volume 43, Number 5.
- *Classification of Quasplatonic Abelian Groups and Signatures*, 2008, *The Rose-Hulman Undergraduate Mathematics Journal*, Volume 9, Issue 1.

Presentations

- Getting Caught Up: Winter Calculus 1, MAA Rocky Mountain Regional and ASEE Rocky Mountain Regional Conferences, 2024.
- Generalization of a Trick from Calculus 2, MAA Rocky Mountain Regional Conference, 2021.
- *Improper* Improper Integrals: An Introduction to the Cauchy Principle Value, MAA Southeast Regional Conference, 2018.
- Isomorphy Classes of Finite Order Automorphisms of $\mathrm{SL}(2,k)$, Joint Mathematics Meetings, AMS Session on Group Theory and Generalizations, 2016.
- Bilinear Forms, Orthogonal Groups, and Lorentz Transformations, Colloquium at the University of Portland, December 4, 2015.
- Symmetric Spaces, Orthogonal Groups, and Their Generalizations, Second Oregon Liberal Arts Mathematics Colloquium, September 26, 2015.
- Isomorphy Classes of Finite Order Automorphisms of $\mathrm{SL}(2,k)$, MAA Pacific Northwest Regional Conference, 2015.
- Isomorphy Classes of Involutions of $\mathrm{SP}(2n,k)$, MathFest 2014, Portland, Oregon, 2014.
- Involutions of $\mathrm{SO}(n,k,\beta)$ and $\mathrm{SP}(2n,k)$, Conference in Honor of 60th Birthday of Loek Helminck, NC State, 2014.
- Inner-Involutions of $\mathrm{SO}(n,k,\beta)$, $(n>2)$, Joint Mathematics Meetings, AMS Section on Group Theory, 2014.
- Isomorphy Classes of Inner-Involutions of $\mathrm{SO}(n,k,\beta)$, $(n>2)$, NC State Graduate Student Algebra Seminar, 2013.
- Enumerating Quasiplatonic Cyclic Group Actions, Portland State Master's Thesis Presentation, 2010.
- Classification of Quasiplatonic Abelian Groups and Signatures, MAA Pacific Northwest Regional Conference, 2007.
- An Introduction to the Tribonacci Sequence, MAA Pacific Northwest Regional Conference, 2005.

Awards

- *Mathematics Department Outstanding Teaching Assistant (North Carolina State University), 2012.*

  This is an annual award given to a select few of the teaching assistants in the NCSU math department.

- *F. S. Cater Prize in Mathematical Sciences (Portland State University), 2009.*

  This is awarded annually for outstanding academic achievements to masters students in the Portland State math department.

- *Ron Smit Award in Mathematics (University of Portland), 2007.*

  This is awarded annually to one outstanding graduating senior in the math department at the University of Portland.

Other Professional Activities

- *Calculus Course Coordinator*

  I have coordinated Calculus 1 in Fall 2022, 2023, and 2024, Calculus 2 in Spring 2023, and Calculus 3 in Spring 2025.

- *Department Undergraduate Committee Member, Fall 2022-Present*

  I serve on this department committee that is concerned with issues regarding the Applied Mathematics undergraduate major as well as the APPM undergraduate curriculum.

- *Natural Sciences Strategic Planning Committee, Fall 2025*

  This is part of the Division of Natural Sciences' first-ever strategic planning initiative. This process will begin with a two-day retreat, followed by comprehensive engagement with the entire division. The resulting strategic plan will define our division's priorities and outline a path to achieve them.

- *Department Awards and Communications Committee Member, Fall 2025-Present*

  I serve on this department committee that is concerned with assisting members of the department with award applications, and improving communication between the department and those outside of it. In fall 2025, I am working with a subcommittee that is coordinating with a group that will create promotional videos for the department.

- *Faculty Mentor, Spring 2025-Present*

  I provide advising for students in the Applied Mathematics Major, particularly when they are registering for courses.

- *Member of the Boulder Faculty Assembly (BFA), Fall 2024-Present*

  In the spring of 2024, I was elected as an At-large Arts & Sciences Representative of the BFA. Beginning in the fall of 2025, I am serving as that body's Parliamentarian.

- *Member of CU Boulder's Student Affairs Committee, Fall 2024-Spring 2025*

  In the fall of 2024, I was elected by the members of the BFA to serve on this committee.

- *MAA OPEN Math Fall Learning Community: Building Curriculum-Focused Interdisciplinary Faculty Partnerships, Fall 2024-Spring 2025*

  Along with my partners Dan Godrick and Matt Reichenbach, we are participating in this MAA program in an effort to make some of the APPM 1350 course materials best fit the curriculum of our Engineering students.

- *Co-organizer of session at 2024 MAA Rocky Mountain Regional Conference*

  Along with two colleagues at the University of Northern Colorado, I organized a session at the local regional MAA conference on the topic of innovative course updates.

- *Member of "CTL-OIT Canvas Gradebook Faculty Working Group," Fall 2023*

  I served on this working group which looked at the use of Canvas and its grade book throughout the campus as a whole. A best practices document for this tools was produced that will soon be provided to all course instructors on campus.

- *Successfully Completed "MAA Open Designing Professional Development Programs for Graduate Student Teaching Assistants ," July 2023*

  I was a participant in this workshop that focused on providing and designing tools to help graduate students be better educators. This workshop was an opportunity for faculty to learn how to build or refine a successful program, and gain access to a large collection of lessons, activities, and assignments to use at their institutions.

- *Successfully Completed "MAA Open Leveraging the IP Guide in Coordinating Large Multi-section Courses Workshop," July 2022*

  In this workshop, I learned about the MAA Instructional Practices (IP) Guide and some techniques for applying it to large lecture coordinated courses. As a deliverable, I helped design a Professional Development (PD) activity for newer TAs by modifying an existing PD activity.

- *Successfully Completed "Summer Online Teaching Academy," February 2022*

  I was a participant in the most recent iteration of the Summer Online Teaching Academy, a four-week course offered by some Instructional Designers of the Learning Design Group from Continuing Education at the University of Colorado. In this course, we learned some best practices for online courses, about some technology available to instructors at CU, as well as some best and modern practices regarding learning objectives, syllabi, and course maps. My participation was in preparation for again teaching a summer section of APPM 3310, but the tools I learned will be applicable to any class I teach.

- *Participant of "Introduction to Reproducible Data Science with R," August 2019*

  I attended this workshop that introduced the participants to the program R. This workshop was organized by the School of Statistics at the University of Minnesota.

- *Co-organizer of session at 2019 MAA Southeastern Regional Conference*

  Along with one of my colleagues, I organized a session at the local regional MAA conference on the topic of innovative teaching methods in mathematics. This was an opportunity for educators to share their new and clever ideas with others in the mathematical community.

- *Member of UGA Department of Mathematics Teaching Award Committee, 2018-2019*

  This committee was charged with determining the parameters for a new teaching award within the department, and also on determining the winner of the inaugural award.

- *UGA Department of Mathematics Instructional Faculty Ombudsperson, 2018-2019*

  I served as an advocate for the instructional faculty within the UGA Math Department. I communicated with the department administration regarding issues of concerns to the instructional faculty.

- *Attendee of workshop on Omega Integrals at the MAA Southeast Regional Conference, 2018*

  At this conference, I learned about Omega integrals, which are a generalization of the more familiar Riemann integral.

- *AP Calculus Exam Reader, beginning 2017*

  Each June I spend a week with other mathematicians from around the country where we carefully grade AP Calculus exams. The grading process is very systematic and precise so that thousands of people can all grade the same problem in the exact same way.

- *Mentor For New Instructors, 2017-2019*

  I regularly served as a teaching mentor for graduate students and postdocs who are newer to teaching. I observed them, and then gave them feedback. In the case of postdocs, I was partly responsible for writing their annual evaluation.

- *Lecturer Hiring Committee 2018*

  I served on a search committee for a new permanent faculty member in our department.

- *Participant at the Park City Mathematics Institute, Summer 2017*

  I spent three weeks in a program designed for undergraduate faculty. There were about 20 faculty from various institutions around the country, and we were led by Victor Moll of Tulane University. During the three weeks, we studied some topics related to number theory, hypergeometric functions, and some very complicated integrals. It is the hope that in the next few years, we will publish a textbook based on these topics.

- *Mentor of Peer Learning Assistants, 2017*

  In the Spring and Fall 2017 semesters, I involved undergraduate students known as Peer Learning Assistants with my sections of Calculus 1. One day a week, they met with the class for an extra class period and they would lead the class through the activity. The activities were designed by myself of one of my colleagues. Each week I met with my Peer Learning Assistants to go over in detail their duties for the week. This program was a pilot program during the spring semester.

- *Attendee of workshop on Active Learning in Calculus at the Joint Mathematics Meetings, 2017*

  At the 2017 Joint Mathematics Meetings, I attended this workshop to learn more about active learning.

- *Textbook Reviewer, 2016*

  I was a reviewer of the second edition of *Calculus: Early Transcendentals* by Sullivan and Miranda.

- *Funded Attendee of 8th Southeastern Lie Theory Workshop on Algebraic and Combinatorial Representation Theory at North Carolina State University on October 9-11, 2015*

  I received travel funding through the conference organizers to attend.

- *Co-organizer of First Annual Oregon Liberal Arts Mathematics Colloquium, Spring 2015*

  I assisted in the organizing of this event that brought faculty mathematicians together from the seven liberal arts colleges in Oregon.

- *Paper Reviewer, On Request*

  I have reviewed for The Journal of Lie Theory, Communications in Algebra, and Collectanea Mathematica.

- *Mathematics Reviews (AMS), 2014-2018*

  On request, I wrote reviews for peer-reviewed mathematics articles for the AMS that can be seen at http://www.ams.org/mathscinet/.

- *Graduate School Panel (University of Portland), 16 September 2014*

  This was a panel session aimed at giving undergraduate STEM students information regarding graduate school. Specifically, the topics of applications, school choice, and graduate school student life were discussed.

- *Preparing for the Professoriate Program (North Carolina State University), 2012-2013.*

  This program gives a select few distinguished teaching assistants throughout the university the chance to shadow a faculty mentor as they teach an upper division course, and then to teach it themselves the following semester.