Aaron Goodwin
Mathematics, Riverside, CA
aarongoodwinemail[at]gmail[dot]com

Current Position

PhD Student, University of California, Riverside   09/2019 – 06/2025
Research Interests: Algebraic Geometry, Combinatorics   *Riverside, CA*

Education

University of California, Riverside   09/2019 – 06/2025
PhD in Mathematics   *Riverside, CA*
MA in Mathematics

Brandeis University   08/2014 – 06/2018
B.A. in Mathematics - Graduated with Honors   *Waltham, MA*
Additional Major: Anthropology
Minor: African and Afro-American Studies

Teaching Experience

Primary Instructor
University of California, Riverside

- **Course**: Math 10b - Vector Calculus - Summer 2022

  I utilized ed-tech to give students computational tools for visualizing mathematical objects in two and three dimensions and also to make lectures available to students remotely.

- **Course**: Math 153 - Set Theory -Summer 2024

  This course developed students' skills in formal logic and proof writing through iterative feedback. I implemented Universal Design for Learning guidelines by offering multiple options for the final assessment, allowing students' diverse learning styles to flourish.

Teaching Assistant
University of California, Riverside

Lower Division Courses: (20-35 students per section)

- **Precalc for Business and Social Sciences**: UCR Math 004, 1 section Spring 2020, 1 section Spring 2023.

- **Honors Precalc**: UCR Math 005, 1 section Fall 2021, 1 section Fall 2022, 1 section Spring 2023.

- **Precalc I**: UCR Math 006a, 2 sections Fall 2020, 2 sections Spring 2021.

- **Precalc II**: UCR Math 006b, 2 sections Spring 2021.

- **Calculus for Life Sciences I**: UCR Math 007a, 2 sections Spring 2020.

- **Calculus for Life Sciences II**: UCR Math 007b, 1 section Fall 2021.

- **Calculus II**: UCR Math 009b, 3 sections Winter 2023.

- **Calculus III**: UCR Math 009c, 2 sections Fall 2021.

- **Vector Calculus I**: UCR Math 010a, 2 sections Fall 2023.

- **Vector Calculus II**: UCR Math 010b, 1 section Winter 2022

- **Calculus for Business**: UCR Math 022 , 2 sections Winter 2020, 4 sections Winter 2024.

Upper Division Courses: (8-30 students per section)

- **Discrete Mathematics**: UCR Math 011/CS 011, 2 sections Fall 2020, 3 sections Spring 2022.

- **Applied Linear Algebra**: UCR Math 031, 2 sections Fall 2019.

- **Linear Algebra II**: UCR Math 132, 1 section Winter 2023

- **Introduction to Set Theory**: UCR Math 144, 2 Sections Fall 2022, 2 sections Fall 2023.

- **Introduction to Topology**: UCR Math 145a, 2 sections Winter 2021, 1 section Winter 2022.

- **History of Mathematics**: UCR Math 153, 2 sections Spring 2024.

- **Introduction to Modern Algebra**: UCR Math 171, 2 sections Winter 2021, 2 sections Winter 2022.

- **Modern Algebra**: UCR Math 172, 1 section Spring 2022, 1 section Spring 2024.

Pedagogical training
University of California, Riverside

- **Certification**: Art and Science of Healthy Pedagogy XCITE, Spring 2024. This workshop trained us in strategies for fostering caring, creative, and inclusive participation in the classroom, with sessions on accessible education technology, Culturally Responsive Teaching, and Trauma-Aware Teaching.

- **Pedagogy Workshops**: XCITE Information Literacy Assesment, Teaching Week Fall 2024; Student Disability Resource Center, Disability Ally Workshop, Fall 2024; Academy of Distinguished Teaching Workshop: Creating Assignments and Exams that Foster Learning and Growth, Fall 2024

- **Diversity Seminar**: Fall 2020, Winter 2022. We discuss evidence-based strategies for developing a culture of inclusivity and equity within the mathematical community.

- **Education Seminar**: Winter 2021. We discuss literature and research on mathematical education and teaching practices.

Mentorship

University of California, Riverside

- **Reading Courses**: Led courses on algebraic geometry, category theory, and sheaf theory; collaborated on a senior thesis project . We worked on reading the first two chapters of Vakil's lecture notes on algebraic geometry. Both of the undergraduate students transitioned to graduate programs in mathematics.

- **Research Project**: Led Math 197 project on Newton Polytopes of plane curves, Spring 2024. The students studied combinatorial aspects of algebraic geometry. They presented their work to the faculty and their peers.

Research

Invited Talks

- **JMM Seattle**: upcoming Winter 2024

- **AMS Western Sectional**: Fall 2024: Compactifications of Moduli Spaces of Marked Plane Curves

- **Oklahoma State University**: Spring 2024: Compactifications of Moduli Spaces of Marked Plane Curves

- **CAAGTus Symposium, Arizona State University**: Spring 2024: Moduli of Marked Plane Cubics

- **UCR Combinatorial Number Theory Seminar**: Fall 2023: Pointed Curves and Their Dual Graphs

- **UCR Combinatorial Number Theory Seminar**: Spring 2023: Compactifications of Moduli Spaces of Varieties: The Case of a Plane Cubic and a Point

- **UCR Algebraic Geometry Seminar**: Fall 2024: Moduli Spaces of Marked Plane Curves

- **UCR Algebraic Geometry Seminar**: Winter 2024: Hypersurface Singularities and Their Invariants

- **UCR Algebraic Geometry Seminar**: Fall 2023: Hark! A Geometric Quotient!

- **UCR Algebraic Geometry Seminar**: Fall 2022: Variational GIT and Pointed Plane Curves

- **Brandeis University**: Undergraduate Research Talk: Topos or Not Topos

Poster Presentations

- **Western Algebraic Geometry Symposium in Saint Louis**: Spring 2023

- **UCR Mathematical Pathways to an Excellent Future**: Spring 2023
- **MATH-AmSud School on Geometry Group Actions, Symmetries, Moduli and Beyond**: Winter 2023

Workshops and Professional Events

- **V ELGA Research School**: Summer 2024: w/ NSF Support
- **8th Iberoamerican Congress on Geometry**: Winter 2023: w/ NSF Support
- **GAeL XXX Workshop, University of Warwick**: Summer 2023
- **AGNES School on Higher Dimensional Moduli**: Summer 2022

Publications

- **GIT compactifications of the moduli space of plane cubics**: Submitted

Professional service

- Summer Associate Instructor Preparation Workshop - UCR, 2025, organizer
- How to Choose an Advisor Workshop - UCR, 2025, organizer
- Professional Support Committee for Teaching Assistants at UCR, 2024-2025.
- UCR Teaching Workshop, Inclusive and Engaging Teaching, Panelist 2024.
- UCR Teaching Workshop, Productive Teaching Teams, Panelist 2022.