Yasmeen S. Baki

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Education

University of California, Irvine — Irvine, CA

Ph.D., Mathematics — **Expected June 2025**

Advisor: Manuel Reyes
Research Interests:
Noncommutative algebra, graded ring theory, Calabi–Yau algebras, AS regular algebras
Advancement to Candidacy: **June 2022**
Grade EXTpectations: What should a G-graded Calabi–Yau algebra be?

M.S., Mathematics — **June 2021**

University of California, San Diego — La Jolla, CA

B.S., Applied Mathematics — **June 2019**

Publications and Posters

[1] Baki, Y. (2024). Group-Graded Twisted Calabi–Yau Algebras. arXiv preprint arXiv:2405.09025.

[2] Pi, J., Davis, C., **Baki, Y.**, & Pantano, A. (2024). Reflective Groupwork For Introductory Proof-Writing Courses. *PRIMUS*, 1–19.

[3] WiMSoCal 2024, *G-Graded Twisted Calabi–Yau Algebras* (Poster Session)

[4] SLMath Introductory Workshop: Noncommutative Algebraic Geometry, *G-Graded Twisted Calabi–Yau Algebras* (Poster Session)

[5] Pantano, Alessandra; Treuer, John; and **Baki, Yasmeen S.** (2022) "The UCI Math Circle: Building an online community of young math researchers," *Journal of Math Circles*: Vol. 2: Iss. 2, Article 5.

[6] Yasmeen Baki "Learn the Korean Alphabet," Wolfram Demonstrations Project, Published: July 11 2018

Invited Talks and Panels

AMS Fall Central Sectional Meeting. *G-graded twisted Calabi–Yau algebras.* Slides. **Sep 2024**

MAA MathFest 2023. *Math 13 at UC Irvine: An active, collaborative, and comprehensive approach to the teaching and learning of proof writing.* Slides. **Aug 2023**

CSU Channel Islands Graduate Seminar. *Grade EXTpectations* **Nov 2022**

MAA MathFest 2022. *The UCI Math Circle: Building an Online Community of Young Math Researchers*, with Alessandra Pantano and John N. Treuer. Slides. **Aug 2022**

UC Irvine Mathematics Graduate Student Colloquium *Grade EXTpectations.* **Jun 2022**

UC Irvine Algebra Seminar. Select talks.

- *Notes on Koszul Algebras* **Nov 2023**
- *Weyl this affect my grade?* **Feb 2022**
- *Subobject Classifiers* **Jan 2022**

Awards and Fellowships

University of California, Irvine

- **Rose Hills Foundation Science & Engineering Fellowship** Awards $10,000 to top graduate students in STEM. **Oct 2024**
- **Division of Teaching Excellence and Innovation Graduate Scholar.** Awarded $5,000 to work with Dr. Christopher Davis and Dr. Alessandra Pantano on increasing equity, accessibility, and inclusion in lower-division multi-variable/vector calculus courses, and the introduction to proofs course at UC Irvine. **Jul 2024**
- **School of Physical Sciences Diversity, Equity, and Inclusion Graduate Leaders Fellowship.** Awarded $6,000 over six months to work on a directed reading project meant to counter inequity observed in undergraduate introduction to proofs courses, and help foster a sense of community amongst undergraduate mathematics majors. **Jan–Jun 2024**
- **Summer Teaching Apprenticeship Program Fellow.** Received pedagogical training and faculty mentorship as preparation for serving as instructor of record. **2024**
- **School of Physical Sciences Diversity, Equity, and Inclusion Graduate Leaders Fellowship.** Awarded one quarter of support (tuition remission plus stipend) to work on transitioning lower division programming courses to use specifications grading. **2022–2023**
- **Division of Teaching Excellence and Innovation Graduate Fellow.** Awarded $5,000 to work with Dr. Christopher Davis on developing a hybrid curriculum, including a repository of video lectures and activities, for a lower-division programming course. **Jul 2022**
- **Outstanding Mathematics Teaching Assistant Award.** **Jun 2022**

Berkeley, California

- **SLMath Introductory Workshop in Noncommutative Algebraic Geometry.** Awarded $1,000 to be used towards attending the workshop. **Feb 2024**
- **SLMath (formerly MSRI) Sparsity of Algebraic Points.** Nomination from UC Irvine mathematics department to participate in this summer graduate school program. **Jun 2021**

Professional Development

Diversity, Equity, and Inclusion

BioCalculus Preparation, Engagement, and Application (PEA) **2024**
A joint project between UC Irvine, CSU Fresno, and CSU Fullerton to develop a complete, open-access biocalculus course. My role in the project involved taking existing textbook material and packaging it in a modern, student-facing document.

Noticing in Mathematics for Student Success Training, UC Irvine **2023**
NSF-funded project to develop video-annotation curriculum to improve instructors' noticing in proof-transition courses. This is a joint project between the School of Education and the Department of Mathematics.

Mentoring Excellence Certificate Program, UC Irvine **2023**

Inclusive Hybrid Pedagogy Certification, UC Irvine DTEI **2022**

Digital Learning Institute Certification (specifications grading), UC Irvine **2022**

Public Speaking

Improv for Teaching Certification, Activate to Captivate **2022**

Additional Training

QPR (Question, Persuade, Refer) Training for Suicide Prevention **2022**

Teaching Experience

University of California, Irvine

Instructor of Record

- Responsibilities as instructor of record are the same as those of a professor running a course. These include course design, syllabus writing, assignment and exam preparation, lecturing, and managing teaching assistants.
- As instructor of record, I've converted two of our lower division courses to use specifications grading, and will continue to use it in future iterations of the courses.

Courses Taught

- Math 10: Introduction to Programming for Data Science. Course Website. **Su23**
- Math 9: Introduction to Programming for Numerical Analysis Course Website. **Su24, Su23, F22**

Teaching Assistant

Graduate

During the 2023–2024 academic year, I served as Dr. Christopher Davis's TA for the year-long graduate algebra sequence Math 230ABC. This is a core sequence of the Ph.D. program at UC Irvine, and culminates in students taking a qualifying exam.

In Summer 2024 I was the teaching assistant for the algebra portion of JumpStart. JumpStart is a department program which provides lectures, discussion sections, and practice problems in algebra and analysis to help incoming first-year graduate school prepare for their transition to UC Irvine.

Undergraduate

Teaching assistants for undergraduate courses are responsible for holding four discussion sections a week, writing quizzes, grading exams and homework, and hosting weekly office hours. My experience in these courses ranges from broad lower-division general education calculus requirements, to specialized upper-division courses for mathematics majors.

Lower Division

- Math 2A: Calculus I **W20**
- Math 2D: Multi-variable Calculus **S20**
- Math 9: Introduction to Programming for Numerical Analysis **Su20**
- Math 10: Introduction to Programming for Data Science **F21, S22**
- Math 13: Introduction to Abstract Mathematics **S23**

Upper Division

- Math 113B: Introduction to Mathematical Modelling in Biology **W21**
- Math 147: Complex Analysis **S21, Su21, F21, W22**
- Math 184: History of Mathematics **S22**

Outreach Experience

University of California, Irvine

Directed Reading Program

- The Directed Reading Program (DRP) is an opportunity for graduate students to design and teach a quarter-long reading project for undergraduate students. The goal of the program is to introduce undergraduates to mathematics that they typically do not have the opportunity to see in their coursework, and can often serve as a gateway into mathematical research.
- As part of my 2024 Diversity, Equity, and Inclusion Graduate Leaders Fellowship, I've run a two-quarter long DRP with the intention of supporting students and building community in Math 13. Math 13 is typically a student's first introduction to proofs and mathematical writing, and serves as a crucial portion of the "math pipeline".

Research-focused Courses

- Introduction to Homological Algebra **S22**
  Students: Anthony Taneda and Yuhang Wu
- Introduction to Knot Theory **W21**
  Students: Phillip Kessler and Guogen Lan

Math 13-focused Courses

- Proof Reading and Writing with Yasmeen **S24**
  Students: Donghee Cho, Evelyn Ding, Ella Jobst, Sean Kim, Claire Li, Nina Li, Tyler Mittelholtz, Alexander Nguyen, Lily Nguyen, Ivonne Zhang
- Proof Reading and Writing with Yasmeen **W24**
  Students: Evelyn Ding, Ella Jobst, Nina Li, Tyler Mittelholtz, Ivonne Zhang

Math Circle and *Math CEO* Enrichment Programs

- **UCI Math Circle Program Coordinator** with John N. Treuer **2020—2021**
  UCIMC is a free mathematics enrichment program for students in grades K-12. During 2020-2021 we restructured the program to run online in response to the COVID-19 pandemic. Responsibilities included planning weekly activities, recruiting and training mentors to work with students, and hosting meetings.
- **UCI Math CEO** with Century High School in Santa Ana, CA **2019**
  UCI Math CEO is a free after-school mathematics enrichment program which serves grade 6-12 Latine students and their families. During Fall 2019 I served as one of the organizers and mentors of the activities held at Century High School.

Mentoring and Leadership Experience

Peer Mentor Program

I have served as a peer mentor to the following students during their first year as a graduate student in the mathematics department at UC Irvine.

1. Nick Moy (2022–2023)
2. Vignesh Iyer (2020–2021)

OCSP Cat Rescue

Vice President of Technology **2024**

- I've been involed with OCSP Cat Rescue since 2021 and took on the role of Vice President in 2024. I started as a kennel cleaner, and later fostered dozens of cats and kittens.
- Current responsibilities include database management of incoming and outgoing animals, submitting records to the state, medical record management and vet scheduling, reviewing adoption applications, and public outreach.