

# Curriculum Vitae

## PEYAM RYAN TABRIZIAN

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### Education

2010–2016 Ph.D. UC Berkeley, Mathematics (Advisor: Lawrence C. Evans)  
2006–2010 B.A. UC Berkeley, Mathematics (Highest Honors in Math)

### Employment

2022–Now Brown University, Lecturer of Applied Mathematics  
2022–2022 Columbia University, Summer Session Instructor  
2021–2022 Texas A&M University, Instructional Assistant Professor of Mathematics  
2020–2021 Arizona State University, Lecturer of Mathematics  
2017–2020 University of California, Irvine, Visiting Assistant Professor of Mathematics  
2016–2017 Williams College, Visiting Assistant Professor of Mathematics

### Awards

2021 **YouTube Silver Creator Award**, awarded to YouTube video producers who have surpassed 100,000 subscribers, as a way of recognizing the extraordinary effort creators put into their growing channels and to build thriving communities, responsibly.

2019 **Outstanding Contributions to Undergraduate Education**, awarded yearly to a faculty member from each department who has excelled in undergraduate education (School of Physical Sciences, UC Irvine)

2016 **Nikki Kose Memorial Teaching Prize**, awarded to the top Graduate Student Instructor (GSI) of the 2016 Mathematics graduating class for truly exceptional teaching performance (Department of Mathematics, UC Berkeley)

2013 **Teaching Effectiveness Award** University-wide prize designed to award 12 GSIs per year who have identified a particular teaching problem and have developed an effective response (Graduate Student Teaching and Achievement Center, UC Berkeley)

2012 **Outstanding GSI Award** Honors 200 GSIs per year for their work in the teaching of undergraduates (Graduate Student Teaching and Achievement Center, UC Berkeley)

2010 **Dorothea Klumpke Roberts Undergraduate Prize**: Awarded to a small number of mathematics undergraduates for their exceptional performance in their undergraduate studies (Department of Mathematics, UC Berkeley)

### Research interests

Partial Differential Equations (PDE), Calculus of Variations

**Publications**

- 2020 Asymptotics for scaled Kramers-Smoluchowski equations in several dimensions with general potentials (joint paper with Insuk Seo, *Calculus of Variations and PDE*, Vol. 59, Article 11, 2020)
- 2016 Asymptotics for the Kramers-Smoluchowski Equation (joint paper with Prof. Lawrence C. Evans, *SIAM Journal of Analysis*, Vol. 48 Issue 4, 2944-2961, 2016)
- 2016 Asymptotic PDE Models for Chemical Reactions (PhD Thesis, UC Berkeley)

**Teaching Experience****Brown University** (Instructor)

- Summer 2024 Applied Ordinary Differential Equations (APMA 0350)
- Spring 2024 Applied Ordinary Differential Equations (APMA 0350)
- Spring 2024 Asymptotic Methods in Applied Mathematics (APMA 1941G)
- Fall 2023 Applied Ordinary Differential Equations (APMA 0350)
- Fall 2023 Probability and Statistics (APMA 1650)
- Summer 2023 Applied Ordinary Differential Equations (APMA 0350)
- Spring 2023 Applied Ordinary Differential Equations (APMA 0350)
- Spring 2023 Applied Partial Differential Equations (APMA 0360)
- Fall 2022 Applied Ordinary Differential Equations (APMA 0350)
- Fall 2022 Operations Research: Deterministic Models (APMA 1210)

**Columbia University** (Instructor)

- Summer 2022 Introduction to Modern Analysis II (Math S4602)

**Texas A&M University** (Instructor)

- Spring 2022 Differential Equations (Math 308)
- Fall 2021 Real Analysis (Math 409)
- Fall 2021 Multivariable Calculus (Math 251)

**Arizona State University** (Instructor)

- Spring 2021 Multivariable Calculus (MAT 276)
- Spring 2021 Elementary Linear Algebra (MAT 242, online course)
- Fall 2020 College Algebra (MAT 117)
- Fall 2020 Precalculus (MAT 170, online course)

**UC Irvine** (Instructor)

- Spring 2020 Real Analysis (Math 140A)
- Spring 2020 Reading course: Partial Differential Equations (Math 199C)

Winter 2020 Vector Calculus (Math 2E)  
Fall 2019 Partial Differential Equations (Math 112A)  
Fall 2019 Elementary Linear Algebra (Math 3A)  
Spring 2019 Proof-Based Linear Algebra (Math 121A)  
Spring 2019 Reading course: Partial Differential Equations (Math 199C)  
Winter 2019 Elementary Linear Algebra (Math 3A)  
Fall 2018 Vector Calculus (Math 2E)  
Fall 2018 Integral Calculus (Math 2B)  
Spring 2018 Multivariable Calculus (Math 2D)  
Winter 2018 Integral Calculus (Math 2B)  
Fall 2017 Integral Calculus (Math 2B)

#### Williams College (Instructor)

Spring 2017 Partial Differential Equations (Math 453)  
Spring 2017 Discrete Mathematics (Math 200)  
Fall 2016 Asymptotic Methods in Applied Mathematics (Math 379)  
Fall 2016 Discrete Mathematics (Math 200)

#### UC Berkeley (Instructor/TA)

Spring 2016 Teaching Workshop (Math 375, Instructor)  
Fall 2015 Teaching Workshop (Math 375, TA)  
Spring 2015 Elementary Linear Algebra and Differential Equations (Math 54, TA)  
Fall 2014 Elementary Linear Algebra and Differential Equations (Math 54, TA)  
Fall 2013 Differential Calculus (Math 1A, TA)  
Spring 2013 Proof-Based Linear Algebra (Math 110, TA)  
Sum. 2012 Elementary Linear Algebra and Differential Equations (Math 54, Instructor)  
Fall 2011 Elementary Linear Algebra and Differential Equations (Math 54, TA)  
Sum. 2011 Differential Calculus (Math 1A, Instructor)  
Spring 2011 Differential Calculus (Math 1A, TA)  
Fall 2010 Differential Calculus (Math 1A, TA)

#### Service

2022–Now **UTA Recruitment and Leader** Responsible for hiring undergraduate teaching assistants (UTAs), whose primary duty is to hold office hours, answer questions on the class forums, and grade the assignments and exams. I also coordinate with the Director of Graduate Studies to assign the Graduate Teaching Assistants to their classes. Finally, I hold a semesterly UTA Orientation, where I go over the main responsibilities, as well as some case studies

- 2022–Now **Undergraduate Curriculum Committee** Member of the APMA Undergraduate Committee which discusses issues related to the undergraduate curriculum and climate. For example, in Spring 2023, we sent out a survey to students, faculty, and alumni, inquiring about what changes they'd like to see implemented in the curriculum. We're also working on splitting up our "Probability and Statistics" course in two separate courses
- 2022–Now **APMA Concentration Advising** Currently advising 37 APMA concentrators, the second highest advising load in the department. Responsible for meeting with concentrators and approving their class schedule, and making sure they are on track with their graduation requirements. I also coordinate with the Director of Undergraduate Services to apply concentration requirements equitably and fairly. In addition, I've been co-organizing several course advising sessions and volunteered to hold Open Advising Office Hours, where students can drop in and ask questions about their concentration and about classes they want to take.
- 2022–Now **APMA Lecturer Search Committee** Volunteered to be part of the APMA Lecturer Search committee, where we read through the Lecturer applications, and come up with a short-list of 8 candidates, which we then present at the Faculty Meeting in January. In addition, I attend the candidates' sample lectures and meet with them individually to answer any questions they may have.
- 2021–2022 **TAMU Math Circle Coordinator** Responsible for recruiting leaders for the three levels of the Discovery portion of the TAMU Math Circle. Co-teaching the Beginner Level of the Problem Solving part of the Math Circle, where I taught effective problem-solving strategies to a group of 20 pre-algebra students

### Undergraduate Research Projects Supervised

- 2023 Grant Landon, "Early Warning Signals of Tipping Points in Climate Change," supported by the NASA Rhode Island Space Grant Consortium.
- 2023 Michelle Zemlyak, "Waiting Times for Psychiatric vs. Non-Psychiatric atients" using data from the Rhode Island Hospital

### Additional Pedagogical Activities and Outreach

- 2017–Now **Dr Peyam Youtube Channel** Created a YouTube channel, where I post mathematics videos ranging from Calculus to Partial Differential Equations. It currently has over 162,000 subscribers and about 1000 videos. My Real Analysis course in Spring 2020 was taught entirely through YouTube.
- 2023 **APMA Gateway Course** Leader of a committee of about 6 faculty and graduate students, where we design a semester-long hybrid course that combines Multivariable Calculus and Linear Algebra, to be taught in Fall 2024. This would allow potential APMA concentrators to jump right into taking APMA courses, by bypassing some of the math prerequisites.
- 2023 **Brown APMA-Math Teaching Symposium** Along with the math department, we co-organize a semesterly two-hour long teaching workshop where we

- discuss current teaching issues. The first hour is dedicated to mini-talks while the second hour is a Q&A session. The first symposium was about general teaching topics, while the second one was about teaching tips and tricks
- 2023 **Large Lecture Special Interest Group** Part of a discussion group among Brown faculty who teach large lectures, where we compare best practices, present recent pedagogical changes/experiments and attend guest talks. For example, in October, Karen Andrews from Student Accessibility Services gave a presentation on inclusive teaching.
- 2023 **STEM Team** Part of a discussion group among Brown faculty who teach courses in the STEM departments. Each month we get together in person and discuss topics such as *The Meaning of Grades* or *When to assign Incompletes?*
- 2023 **APMA Summer Bridge Program in Analysis** Taught a two-week long workshop for incoming APMA graduate students, reviewing core concepts in Analysis
- 2023 **Topical Conversations about Teaching** Member of an informal group of faculty and graduate students in Spring 2023 where we discussed various issues related to teaching, such as grading styles and prerequisites.
- 2023 **ADOCH Open House** Co-organized Brown's *A Day on College Hill* event, where prospective Brown students visited the APMA department and we answered any questions that they may have
- 2020–2022 **Morning Star Institute Instructor** In cooperation with the Morning Star Institute in Irvine, taught a group of 8 grade 5 students how to solve math competition problems, taken from the AMC 8/10 competitions. Responsible for designing weekly lessons, homework assignments, and typing up course notes. The course was held online, via Zoom. In 2020, I taught a similar course, but with Kangaroo competition problems, and geared to grade 1 students.
- 2021–2022 **TAMU Math Teaching Seminar** I created and co-organized a *Teaching Trail Mix Table* Seminar in the math department at TAMU, where anyone interested in teaching meets on a monthly basis and shares their teaching ideas. Each meeting started with a 20 min presentation, followed by an open discussion of the seminar topic, or of general teaching topics. Some seminar topics were *Visualizations in Multivariable Calculus* and *Preparing for finals*.
- 2019–2020 **Reading course in PDE.** Led a reading course with 7 advanced undergraduates in Spring 2019, where we read through Chapter 2 of Evans' classic graduate PDE book. During the weekly meetings, we went through the main points of the reading and I answered students' questions. I led a similar reading course in Spring 2020 with 10 undergraduates
- 2019 **UCI Teaching Lunches** Created an informal teaching seminar at UCI, where a group of 6 faculty and graduate students meet on a weekly basis and share their teaching experience and teaching strategies. We discussed topics such as *How to increase student participation* and *How to write a good exam*
- 2017–2020 **UCI Math Circle Level 1 Coordinator and Webmaster.** Responsible for recruiting math circle leaders and providing feedback on class materials. Designed and led 4 math circle sessions, on the following topics: *The Towers of Hanoi*, *The Fibonacci sequence*, *Mission to Mars*, and *Numbers and Divisibility*. In charge of the Math Circle website and making sure all the information is up-to-date

**Diversity, Equity, and Inclusion**

- 2023 **DEI Undergraduate Working Group** Volunteered to be part of the DEI Working group which focuses on diversity, equity, and inclusion issues in the APMA undergraduate curriculum. We've been working on several projects, including inclusive UTA hiring, and the "APMA Connect" program, where we conduct interviews with undergraduate students, asking them how welcome they feel in the department. We're also piloting an "Introduction to APMA" course with minimal prerequisites, introducing the students to fun and accessible APMA topics.
- 2021 **TAMU Math Diversity Reading Group** Member of the *Diversity Reading Group* in the TAMU math department, where a group of graduate students and affiliates met monthly to discuss a reading on diversity issues. For example we discussed the article "Requiem for a Dream" which underlines the challenges faced by a former DACA Dreamer. In addition, I was actively recruiting speakers for the panel "Collaborating Across Diverse Backgrounds" organized by the Math Graduate Student Diversity Committee.
- 2021–2022 **TAMU Aggie Ally** Became certified as an Aggie Ally. Allies include staff, faculty, and students at TAMU, who are willing and certified to provide a safe haven, a listening ear, and support for lesbian, gay, bisexual, and transgender people or anyone dealing with sexual orientation issues.
- 2020 **Diversity Talks Co-organizer** In cooperation with the AWM at UCI, I helped organize a series of talks in Winter 2020, where a faculty member of an under-represented minority would speak about their experience in math academia. For example, Prof. Ron Buckmire from Occidental College spoke on "The Nonempty Intersection of LGBT and Mathematics" and Prof. Susan Friedlander from USC spoke about "Women in Applied Mathematics"

**Talks**

- 2024 Amherst College Math Colloquium: Chemical Reactions and Diffusions
- 2024 SIMIODE EXPO: The Factoring Method that will change your life!
- 2024 JMM AMS Special Session on Analysis and Differential Equations at Undergraduate Institutions: Making the analysis-experience an epsilon-bit more bearable
- 2024 JMM AMS Special Session on The Teaching and Learning of Undergraduate Ordinary Differential equations: The Factoring Method that will change your life!
- 2024 JMM ILAS Special Session on Innovative and Effective Ways to Teach Linear Algebra: If Eigendoit, then so can you!
- 2024 JMM AMS Contributed Paper Session on Mathematics Education, History, and Related Topics: Teaching with YouTube
- 2023 MAA Math Fest Session on Linear Algebra with Modern Applications and Computation: If Eigendoit, then so can you!
- 2023 Brown University APMA-Math Teaching Symposium: Teaching with YouTube
- 2022 Texas A&M Teaching Seminar: Using YouTube to promote student learning

- 2022 JMM Session on Math in New Media: Using YouTube to promote student learning (prerecorded talk)
- 2022 UC Irvine Special Colloquium: Using YouTube to promote student learning
- 2021 UC Irvine Science Communication Series: Spreading the Math: Using YouTube to communicate with the rest of the world
- 2021 UC Berkeley Math Advising Talk: How I Learned to Love Real Analysis
- 2020 SUNY Albany Math Teachers Workshop: Joy of Fractional Derivatives
- 2020 Fall 2020 ArizMATYC Conference: Using YouTube to promote student learning
- 2020 UChicago Undergraduate Math Club Talk: It's all about Chemistry!
- 2020 ASU Undergraduate Math Seminar: Using YouTube to promote student learning
- 2020 CSUSM Mathematics Undergraduate Colloquium: It's all about Chemistry!
- 2020 UWyoming Teaching Colloquium: Examples, Engagement, and YouTube
- 2020 KU Teaching Colloquium: Examples, YouTube, and Chain Rule
- 2020 CMU Undergraduate Math Club Talk: It's all about Chemistry!
- 2020 JMM MAA General Contributed Paper Session on Math and Technology, History, and Logic: Using YouTube to promote student learning
- 2019 UCI Nonlinear PDE Seminar: Chemical Reactions and Diffusions
- 2019 UCI Undergraduate Math Association: Chemical Reactions and Diffusions
- 2019 Fall 2019 SoCal-Nevada MAA Section Meeting Contributed Paper Session: Using YouTube to promote learning inside and outside the classroom
- 2019 CSULB Colloquium: Chemical Reactions and Diffusions
- 2017 Williams College Math/Stat Faculty Seminar: Chemical Reactions and Diffusions
- 2016 UCB Student PDE Seminar: Chemical Reactions and Diffusions
- 2016 UCB Student PDE Seminar: Admissible speeds of transition fronts for nonautonomous monostable equations
- 2016 UCB Student PDE Seminar: A homogenization approach for motor proteins
- 2015 UCB Student PDE Seminar: Reaction-Diffusion and Propag. in Inhom. Media
- 2015 UCB Student PDE Seminar: Introduction to Degree Theory
- 2015 UCB Student PDE Seminar: Periodic Sol. of the Forced Relativistic Pendulum
- 2014 UCB Student PDE Seminar: Chemical Reactions and Diffusions
- 2013 UCB Student PDE Seminar: Chemical Reactions and Diffusions
- 2013 UCB Student PDE Seminar: De Giorgi-Moser-Nash Estimates
- 2012 UCB Student PDE Seminar: Chemical Reactions and Diffusions

### Conferences attended and organized

- 2024 Joint Mathematics Meetings 2024, San Francisco, CA
- 2023 Second Brown APMA-Math Teaching Symposium, Providence, RI (organized)
- 2023 MAA Mathfest 2023, Tampa, FL
- 2023 First Brown APMA-Math Teaching Symposium, Providence, RI (organized)
- 2023 Joint Mathematics Meetings 2023, Boston, MA
- 2022 Houston-LSU-Tamu Undergrad Math Research Conference, UH, Houston, TX
- 2022 Celebration of Women in Mathematics, Arizona State University, Tempe, AZ
- 2021 LGBTQ+ Math Day, Fields Institute for Mathematical Research, Toronto, ON

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- 2020 Fall 2020 ArizMATYC Conference, AZ
- 2020 Joint Mathematics Meetings 2020, Denver, CO
- 2019 Fall 2019 SoCal-Nevada MAA Section Meeting, UNLV, Las Vegas, NV
- 2019 SCAPDE Conference: Reaction, Diffusion, and Homogenization, UCI, Irvine, CA
- 2018 IPAM Summer School: Mean Field Games and Apps., UCLA, Los Angeles, CA
- 2017 CIME Summer School: Geometry of PDE and Related Problems, Cetraro, Italy
- 2016 PIRE-CNA Summer School: New Frontiers in the Nonlinear Analysis of Materials, Carnegie-Mellon University, Pittsburgh, PA
- 2015 Eighth Summer School in Analysis and Applied Mathematics, Università di Roma, Rome, Italy
- 2015 Thirteenth Workshop on Interactions between Dynamical Systems and PDE, Universitat Politècnica de Catalunya, Barcelona, Spain
- 2014 CIME Summer School: PDE and Geometric Measure Theory, Cetraro, Italy
- 2013 CNA Summer School: Topics in Nonlinear PDE and Calculus of Variations, with Applications in Material Science, CMU, Pittsburgh, PA, USA
- 2009 Princeton Summer Program in Analysis and Geometry, Princeton, NJ, USA

**Languages Spoken**

- German (mother-tongue)
- Farsi (mother-tongue)
- French (native speaker)
- English (native speaker)
- Spanish (2 years experience)
- Arabic (2 years experience)



## References

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