Summer F. Al Hamdani

CONTACT INFORMATION

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EDUCATION

University of Wisconsin-Madison, Madison, Wisconsin — August 2022 – present

Ph.D. in Mathematics, minor in Statistics
Expected graduation: spring 2027

California State University, Fresno, Fresno, California — May 2021

M.S. in Mathematics, graduated with distinction
Thesis: *"Zero distribution of binomial combinations of Chebyshev polynomials of the second kind"*
Committee: Khang Tran (chair), Stefaan Delcroix, Michael Bishop

California State University, Fresno, Fresno, California — May 2019

B.S. in Biomedical Physics, B.A. in Mathematics, graduated summa cum laude

TEACHING EXPERIENCE

Teaching Associate (TA) — Fall 2022 – present
Department of Mathematics, University of Wisconsin-Madison — Madison, WI

† Spring 2024: MATH 222 (Calculus and Analytic Geometry II) with Soledad Benguria
Fall 2023: MATH 234 (Calculus–Functions of Several Variables) with Melissa Lindsey
⋆ Spring 2023: MATH 222 (Calculus and Analytic Geometry II) with Botong Wang
⋆ Fall 2022: MATH 222 (Calculus and Analytic Geometry II) with Brian Lawrence
◇ 90% of students agreed or strongly agreed with the statement, "The instructor was an effective teacher."

† : Served as TA Coordinator ("Head TA"); responsible for coordination and planning for all discussion sections.
⋆ : Awarded "Superior" TA ranking by the Mathematics department TA evaluation committee for being within the top 30% of all TAs in the department. This ranking was suspended after the Spring 2023 semester.

Grader — Spring 2021
Department of Mathematics, California State University, Fresno — Fresno, CA
MATH 151 (Modern Algebra) with Carmen Caprau

Tutor — Spring 2020 – Spring 2021
Department of Mathematics, California State University, Fresno — Fresno, CA
Calculus I-III, Differential Equations, Linear Algebra, Transition to Advanced Mathematics, Number Theory, Complex Analysis, Real Analysis I/II, Abstract Algebra

Supplemental Instruction Leader — Fall 2020
Department of Mathematics, California State University, Fresno — Fresno, CA

MATH 111 (Transition to Advanced Mathematics) with Oscar Vega

Graduate Teaching Associate Fall 2019 – Spring 2020
Department of Mathematics, California State University, Fresno Fresno, CA
Instructor of record for the following support courses: MATH 11L (Elementary Statistics), MATH 3L (College Algebra), MATH 10AL (Structure and Concepts in Mathematics I)

Upper Division Facilitator Spring 2019 – Fall 2019
Department of Mathematics, California State University, Fresno Fresno, CA
MATH 171 (Intermediate Mathematical Analysis I) with Tamás Forgács and Michael Bishop

Calculus Instructional Student Assistant Fall 2018 – Spring 2019
Department of Mathematics, California State University, Fresno Fresno, CA
MATH 75 (Calculus I) with multiple instructors

Publications

5. Al Hamdani S., Tran K., Zeros of a binomial combination of Chebyshev polynomials, *International Journal of Number Theory*, *17* (2021).
4. Al Hamdani, S. (2021). Zero distribution of binomial combinations of Chebyshev polynomials of the second kind (Publication No. 8336h707k) [Master's thesis, California State University, Fresno]. CalState ScholarWorks.
3. Gherase M.R., Al-Hamdani S., Improvements and reproducibility of an optimal grazing-incidence position method to L-shell x-ray fluorescence measurements of lead in bone and soft tissue phantoms, *Biomedical Physics and Engineering Express*, **4** 065024 (2018).
2. Gherase M.R., Al-Hamdani S., A microbeam grazing-incidence approach to L-shell x-ray fluorescence measurements of lead in bone and soft tissue phantoms, *Physiological Measurement*, **39** 035007 (2018).
1. Al-Hamdani S., & Leon A. (2018). On Classical Multiplier Sequences. *The PUMP Journal of Undergraduate Research*, *1*, 14-29.

Honors and Awards

University of Wisconsin-Madison: Finalist for Department nominee[1] for Campus-wide Early Excellence in Teaching Award (2023-2024).

California State University, Fresno (graduate): Department of Mathematics Outstanding Graduate Student 2021.

California State University, Fresno (undergraduate): Department of Physics Outstanding Undergraduate Student 2019, College of Science and Mathematics Standard Bearer 2019, inducted member of the Phi Kappa Phi (fall 2016) and Sigma Pi Sigma (spring 2019) honors societies, President's List for 7 semesters, Dean's List for 3 semesters.

[1] The Mathematics Department employs over 100 TAs.

Fellowships, Scholarships, and Grants

Summer 2023 | NSF RTG Analysis and Partial Differential Equations at Wisconsin
Aug 2022 | Graduate School Fellowship
Apr 2022 | Graduate Dean's Merit Scholarship (University of Nevada, Reno)
Jun 2020 | Miriam E. Long Memorial Scholarship - Graduate
Nov 2019 | Faculty Sponsored Student Research Award
Aug 2019 – May 2021 | CSU State University Grant
Jun 2019 | Carl E. Levin - Science & Math Scholarship
May 2018 | Downing Science Scholarship; James & Whitney McCurley Research Scholarship
May 2017 | Harry A. Heagy Outstanding Student in Mathematics Scholarship
Jan 2017 | Faculty Sponsored Student Research Award
Aug 2016 | PUMP Undergraduate Research Group Award
May 2016 | Professor Frank Morris Scholarship; Louise and Dick Avakian Scholarship
Jul 2014 | Fig Garden Rotary Scholarship

Skills

- **Programming, computation, data analysis:** Python, R, SQL, SAS, Mathematica, Excel, Numbers, MATLAB, OriginPro, Maple, C++, Ruby.
- **Document/presentation preparation:** Word, PowerPoint, Pages, Keynote, LaTeX, Tableau.
- **Web:** Git/Github, HTML, CSS, Jekyll.

Service

NSF-REU in Complex Analysis Graduate Mentor — Summer 2024
Department of Mathematics at University of Wisconsin-Madison — Madison, WI
Funded by NSF DMS-2037851.

Graduate Analysis & PDEs Seminar (GAPS) Organizer, Co-founder — Spring 2024 – present
Department of Mathematics at University of Wisconsin-Madison — Madison, WI

Committee for TA Policies and Procedures — Fall 2023 – Spring 2024
Department of Mathematics at University of Wisconsin-Madison — Madison, WI

Graduate Peer Mentor — Summer/Fall 2023
Department of Mathematics at University of Wisconsin-Madison — Madison, WI

NSF-REU in Complex Analysis Graduate Mentor — Summer 2023
Department of Mathematics at University of Wisconsin-Madison — Madison, WI
Funded by NSF DMS-2037851.

Mathematics Undergraduate Mentorship Program (UMP) Mentor — Fall 2022 – Spring 2023
Department of Mathematics at University of Wisconsin-Madison — Madison, WI

Sonia Kovalevsky Math Day Volunteer/Breakout Session Leader — Mar 2019, 2020, & 2021
Department of Mathematics at California State University, Fresno — Fresno, CA

Mathematics Department Peer Mentor Aug 2016 – May 2020
Department of Mathematics at California State University, Fresno Fresno, CA

President of Society of Physics Students (SPS) Chapter Aug 2018 – May 2019
Department of Physics at California State University, Fresno Fresno, CA

Vice President of SACNAS Chapter Aug 2018 – May 2019
College of Science and Mathematics at California State University, Fresno Fresno, CA

Pre-Health Club Officer Council Member Jan 2019 – May 2019
College of Science and Mathematics at California State University, Fresno Fresno, CA

Program Participation

Undergraduate Research Fellow Summer 2017
Participated through the summer program held by the NSF-CREST Center for Cellular and Biomolecular Machines at University of California, Merced. Worked in Dr. Andy LiWang's lab under the mentorship of graduate students Alicia Vazquez and Joel Heisler.

PUMP Undergraduate Research Group Participant Fall 2016 – Spring 2017
Mentored by Dr. Tamás Forgács; researched classical multiplier sequences. Presented work at several conferences and published results in The PUMP Journal of Undergraduate Research. See `www.pump-math.org/undergraduate-research-groups` for further details.

PUMP Summer Program Participant Summer 2016
Held at California State University, Los Angeles. Preparing Undergraduates through Mentoring toward PhDs (PUMP) is a program whose goal is to "identify mathematical talent among minority students, women, and first-generation college students in the California State Universities," as well as "strengthen the preparation of participating undergraduates to successfully pursue doctoral studies in a research institution." See `www.pump-math.org/summer-program` for additional information.

Other Employment History

Research Assistant 2023
University of Wisconsin-Madison, Department of Mathematics Madison, WI
Mentored by Betsy Stovall; funded by NSF DMS-2037851.

Mathematical Statistician (GS-09) 2022
United States Department of Commerce, Bureau of the Census Remote

Research Assistant 2022
Office of Institutional Research at Clovis Community College Clovis, CA

Professional Expert: COVID-19 Coordinator 2022
Porterville College Porterville, CA

Graduate Research Assistant 2020
Fresno State Transportation Institute Fresno, CA

EPA Rad-Net Student Assistant 2017 – 2019
College of Science and Mathematics at California State University, Fresno Fresno, CA

Undergraduate Research Assistant 2017-2018
Department of Physics at California State University, Fresno Fresno, CA

Memberships

- Association for Women in Mathematics
- American Mathematical Society
- Sigma Pi Sigma
- Society of Physics Students
- American Association for Physicists in Medicine
- American Physical Society
- Phi Kappa Phi
- California State University - Louis Stokes Association for Minority Participation (CSU-LSAMP)
- Society for the Advancement of Chicanos/Latinos in Science (SACNAS)
- Math Alliance Predoctoral Scholar/Facilitated Graduate Applications Program (F-GAP)

Poster and Oral Presentations

23. *Monkeying Around: On the Infinite Monkey Theorem* at the AMS Graduate Student Seminar (University of Wisconsin-Madison Mathematics Department) ◇ February 2023
22. *Zero Distribution of Binomial Combinations of Chebyshev Polynomials of the Second Kind at Fresno State* (thesis defense, held virtually) ◇ May 2021
21. *On Binomial Combinations of Chebyshev Polynomials* at the American Mathematical Society 2021 Spring Western Virtual Sectional Meeting ◇ May 2021
20. *On Binomial Combinations of Chebyshev Polynomials* at the 42nd Annual Central California Research Symposium (held virtually) ◇ April 2021
19. *On Binomial Combinations of Chebyshev Polynomials* at the 6th Annual Department of Mathematics Day at Fresno State (held virtually) ◇ November 2020
18. *On Binomial Combinations of Chebyshev Polynomials* at the American Mathematical Society Spring Western Sectional Meeting at Fresno State (accepted February 2020, event cancelled due to COVID-19 social distancing measures) ◇ May 2020
17. *On Binomial Combinations of Chebyshev Polynomials* at the 41st Annual Central California Research Symposium at Fresno State (accepted March 2020, event cancelled due to COVID-19 social distancing measures) ◇ April 2020
16. *Graduate Student Panel Member* at the Fresno State Society for Industrial and Applied Mathematics (SIAM) Chapter ◇ October 2019
15. *Quantitative X-ray fluorescence measurements of lead in plaster-of-Paris bone phantoms* at Friends of the Central Valley Community Foundation Dinner (invited to represent the College of Science and Mathematics and LSAMP at Fresno State) ◇ June 2019

14. *Applications of Group Theory in Molecular Spectroscopy* at Graduate and Undergraduate Students Seminar (GAUSS) at Fresno State ◇ March 2019
13. *Linear Attenuation Coefficients Measurements in a Polyoxymethylene Soft Tissue Phantom for Calibration of the L-Shell X-ray Fluorescence Bone Pb Data* at the American Association for Physicists in Medicine (AAPM) 60th Annual Meeting and Exhibition in Nashville, TN ◇ July 2018
12. *On Classical Multiplier Sequences* at the Northern California Undergraduate Mathematics Conference 2018 at California State University, Fresno ◇ March 2018
11. *A novel L-shell x-ray fluorescence bone lead quantification method based on direct x-ray soft tissue attenuation measurement using a microbeam and a bone and soft tissue phantom assembly* at the American Physical Society March Meeting 2018 in Los Angeles, CA ◇ March 2018
10. *Investigating the Mechanisms of Circadian Clock Protein KaiB in Cyanobacteria* at the Fresno State Department of Physics Spring 2018 Colloquium ◇ January 2018
9. *Improving Lead Detection in Plaster-Of-Paris Bone Phantoms Using a Grazing-Angle X-Ray Fluorescence (GAXRF) Method* (ePoster) at the 59th Annual Meeting & Exhibition of the American Association of Physicists in Medicine in Denver, CO ◇ August 2017
8. *Investigating the Mechanisms of Circadian Clock Protein KaiB in Cyanobacteria* (poster and talk) at UROC 11th Annual Summer Research Symposium at University of California, Merced ◇ August 2017
7. *Initial Results of Grazing Angle X-ray Fluorescence (GAXRF) Measurements of Lead in Plaster-of-Paris Bone Phantoms* at AAPM Young Investigators Symposium at University of California, San Francisco ◇ May 2017
6. *Generating Multiplier Sequences* at the College of Science and Mathematics' Celebration of Research, Achievements, & Awards at Fresno State ◇ May 2017
5. *Generating Multiplier Sequences* at the Joint MAA SoCal/Nevada Section Meeting with PUMP at California State University, Northridge ◇ April 2017
4. *Generating Classical Multiplier Sequences* (poster) at the 38th Annual Central California Research Symposium at Fresno State ◇ April 2017
3. *Improving Detectability in Plaster-of-Paris Bone Phantoms using a Grazing-Angle X-ray Fluorescence* (poster) at the 38th Annual Central California Research Symposium at Fresno State ◇ April 2017
2. *Generating Classical Multiplier Sequences* (poster) at the Mathematical Association of America's Golden Section Meeting at Santa Clara University, CA ◇ March 2017
1. *Graduate Programs, Summer Programs, & Undergraduate Research Experiences* at Fresno State invited panel member (Department of Mathematics, Fresno State) ◇ October 2016