Sam Sehayek

Graduate Teaching Associate
University of California Santa Barbara
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Education

Doctorate, Mathematics *University of California, Santa Barbara* June 2024
Advisor: Jon McCammond
Master of Arts, Mathematics *San Francisco State University* June 2018
Advisor: Joseph Gubeladze
Bachelor of Science, Mathematics *University of California, Davis* June 2014
Minor in Philosophy

Teaching Awards

Outstanding Teaching Assistant Award *Academic Senate* 2023
Excellence in Teaching Award *Graduate Student Association* 2023
Graduate Student Teaching Award *Department of Mathematics* 2023

Teaching

Research Mentor 2019–2024
Summer@ICERM, Institute for Computational & Experimental Research Math, RI
Directed Reading Program, UC Santa Barbara, Department of Mathematics
Instructor of Record 2017–Present
University of California Santa Barbara
Math 4A Linear Algebra Summer I 2021
Math 34A Calculus for Social Sciences Summer I 2020
San Francisco State University
Math 199 Precalculus Spring 2018, Spring 2017
Math 70 Entry Math II Fall 2017
Lead Instructor 2020–2023
Summer Institute in Mathematics & Science (SIMS), CNSI
Program development, Academic preparation for incoming freshman
Lead Teaching Assistant 2020–2021
University of California Santa Barbara
Training/mentoring 1st year Teaching Assistants
Teaching Assistant 2017–2024
University of California Santa Barbara
Math 34A/B Calculus for Social Sciences W/S20; W/S19; F18
Math 2/3A Calculus I F22; F20; M19; M23
Math 4A Linear Algebra F/W21; F19; S22; F23
Math 4B Differential Equations S/M24
Math 8 Proof Techniques S21
Math 108A/B Advanced Linear Algebra W22/23
Math 145 Topology S23
San Francisco State University
Math 226 Calculus I Fall 2017
Professional Tutor & Grader
Arborbridge Los Angeles, CA 2015
Professional tutoring in Geometry, and SAT, ACT, ISEE prep
University of California Davis 2012–2014
Grading Algebra, Differential Equations, & Calculus for Biological Sciences

Research Mentorship

Summer@ICERM, Institute for Computational & Experimental Research Math, RI 2022
Mentor for computational combinatorics REU

Directed Reading Program, University of California Santa Barbara
Mentor for Yanru Liu: Palindromic Parking Function Polytopes 2023
Primitive Parking Functions 2022
Jake Annis: Non-Simplicial Faces of Polytopes 2021
Helen Chen: Visualizing 4D Polytopes 2020
Colbert Orta: On Toric Varieties 2019

Research

Fubini Rankings Polytopes In Preparation
Joint with J. Elder, P.E. Harris, J. Kretschmann, C. Martinez Mori

Symmetric and Palindromic Noncrossing Partitions In Preparation

Compactifying Real Polynomials via Non-crossing Combinatorics Defended June 2024
Dissertation Advisor: Jon McCammond

Unit-Interval Parking Functions and the Permutahedron Accepted
Joint with L. Chavez-Meyles, P.E. Harris, G. Kirby, R. Jordaan, E. Spingarn

Parking Functions of Fixed Displacement Preprint
Joint with L. Chavez-Meyles, G. Kirby, R. Jordaan, E. Spingarn

Geometric Extensions and the 1/3—2/3 Conjecture Defended Spring 2018
Master's Thesis Advisor: Joseph Gubeladze

Expository: *On the Containment Problem* Spring 2017
Supervisor: Dustin Ross

Conference and Workshop Presentations

Graduate Student Toplogy and Geometry Conference Harvard University Summer 2023
Braids and Real Polynomials

Topics in Topology University of California Santa Barbara Spring 2023
Guest Lecturer *The Dual Braid Complex*

Graduate Student Combinatorics Conference St. Louis, Missouri Winter 2023
Permutohedral Structure of Unit-Interval Parking Functions

Summer@ICERM Providence, Rhode Island Summer 2022
Braids, Real Polynomials, and Symmetric Noncrossing Partitions
On Hyperplane Arrangements

ARCS Symposium Stanford University Spring 2018
Poster: *Geometric Extensions and the 1/3 — 2/3 Conjecture*

COSE Student Showcase San Fracisco State University Spring 2018
Poster: *Geometric Extensions and the 1/3 — 2/3 Conjecture*]

Graduate Student Research Showcase San Francisco State University Spring 2018
Poster: *Geometric Extensions and the 1/3 — 2/3 Conjecture*

Seminar Presentations

Polymath Seminar University of California Santa Barbara
Parking Function Polytopes: 3 Ways — Winter 2024
Multiplex Juggling Sequences and Kostant's Partition Function — Spring 2023

Topology Seminar University of California Santa Barbara
Braids and the Space of Complex Polynomials — Spring 2021

Graduate Topology Seminar University of California Santa Barbara
Two Classifying Spaces for Braids and the Geometry of Real Polynomials — Fall 2023
Real Polynomials and Noncrossing Partitions under Dihedral Action — Fall 2022
Dual Braids and Polynomials — Winter 2021

Hypatian Seminar University of California Santa Barbara
How to Give a Talk — Fall 2021
Equity in Math Classrooms — Spring 2020
Hypatia: Modern Woman of Antiquity — Fall 2018 & 2019

Directed Reading Program University of California Santa Barbara — Spring 2019
Communicating Mathematics
Graduate School in Mathematics

Algebraic Topology Seminar San Francisco State University — Fall 2017
Fundamental Group of S^n
Classification of Surfaces

Mathematics of Global Change Seminar University of California, Davis — Spring 2013
Copernican Revolution, Kepler, and the Mars Year

Service & Community Engagement

Academic Senate Outstanding Teaching Assistant Search Committee Member — 2024
Graduate Student Association Excellence in Teaching Search Committee Member — 2024
Directed Reading Program Treasurer & Grant Writer — 2022–2024
Hypatian Seminar: Voices of Under-represented Mathematicians; Lead Organizer — 2018–2024
Mathematistas: For the advancement of Women & Gender Minorities in Math; Member — 2016–Present
American Mathematical Society(AMS) Member — 2016–Present
Planet Hope Volunteer — 2002–2015
California Scholarship Foundation Tutor — 2008–2010

Scholarships, Grants, & Honors

Departmental Research Fellowship, Mathematics Recipient — 2024
Graduate Student Research Travel Grant Recipient — 2023
Individualized Professional Skills Grant Recipient — 2023
Achievement Rewards for College Scientists (ARCS) Scholar — 2017–2018
College of Sciences and Engineering Student Showcase — 3rd Place — 2018
Dean's Honor List — 2011, 2014
National Society for Leadership and Success — Inducted Member — 2013
Judy Zadeh Memorial Scholarship — 2010

Computer Skills

Proficient in Mathematica ; Macauluy2 ; SAGE ; Python ; MATLab ; Gameplan

Extracurricular

EFR and CPR Certified; *Advanced SCUBA* PADI Certified; *Awarded Homebrewer*; *Guitarist*; *Martial Artist* Tae Kwon Do (2nd Degree Black Belt); Hapkido (Green Belt); Hwa Rang Do (Green Belt)