MYCHELLE PARKER

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EDUCATION

University of California, Santa Barbara (UCSB) — Santa Barbara, CA
PhD Mathematics — *Expected 2025*
Advisor: Francesc Castella

Utah State University (USU) — Logan, UT
MS Mathematics — *2020*
Advisor: Ian Anderson

Utah State University (USU) — Logan, UT
BS Mathematics — *2016*

RESEARCH INTERESTS

My current research is in number theory, particularly I am using Iwasawa theory to generalize results related to the Birch and Swinnerton-Dyer Conjecture.

RESEARCH PROJECTS

A p-converse Theorem with Weight ≥ 2 — UCSB
  Advisor: Francesc Castella — *2021 - Present*
  PhD Dissertation

Intersections of Stratifications of the Modulii Space of Principally Polarized Abelian Varieties of Rank 5 — AWS
  Advisor: Valentijn Karamaker — *March 2024 - Present*
  Collaborators: Elvira Lupoian and Leo Mayer
  Research project began at the 2024 Arizona Winter School (AWS)

Semisimple Subalgebras of Semisimple Lie Algebras — USU
  Advisor: Ian Anderson — *June 2016 - January 2020*
  MS Thesis

TEACHING EXPERIENCE

University of California, Santa Barbara

Instructor of Record
  Math 3A: Calculus with Applications — *Summer 2022*
  Math 3B: Calculus with Applications* — *Summer 2024, 2023, 2021, 2020*

Teaching Assistant — *Fall 2018 - Present*
  Math 34B: Calculus for Social and Life Sciences*
  Math 3A: Calculus with Applications*
  Math 3B: Calculus with Applications
  Math 4A: Linear Algebra†

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*Course taught online
†Head TA of the course

Math 4B: Differential Equations*†
Math 6B: Vector Calculus with Applications*
Math 8: Transition to Higher Mathematics

Grader
Math 8: Transition to Higher Mathematics	*Spring 2019*
Math 100A: Mathematics for Elementary Teaching	*Winter 2019*

Utah State University

Instructor of Record   *Summer 2017 - Summer 2018*
Math 1060: Trigonometry‡
Math 1050: Collage Algebra‡

Recitation Leader   *Fall 2014-Spring 2017*
Math 1050: Collage Algebra
Math 1210: Calculus I

Grader   *Fall 2015 - Spring 2016*
Math 4310: Introduction to Algebraic Structures
Math 5210: Introduction to Analysis I
Math 5220: Introduction to Analysis II
Stat 5600: Applied Multivariate Statistics

PROFESSIONAL DEVELOPMENT

UCSB Pillars of Teaching Assistantship Certificate	*Spring 2021*
UCSB Summer Teaching Institute for Associates Certificate	*Summer 2020*

AWARDS

UCSB Dept. of Mathematics: Outstanding Teaching Assistant Award	*2023*
USU Dept. of Math/Stats: Graduate MS Researcher of the Year	*2018*
USU Dept. of Math/Stats: Outstanding Undergraduate Work in Mathematics	*2016*

MENTORSHIP

Directed Reading Program   *2019 - Present*
A total of 12 mentees with projects:
 - An Introduction to Knot Theory
 - Congruence Relations and Fermat's Little Theorem
 - Quivers
 - A Brief Introduction to Lie Algebras
 - Elliptic Curve Cryptography
 - Algebraic Number Theory and Applications
 - Representations of $sl(2, \mathbb{C})$ **
 - Braids in Knot Theory**

Association for Women in Math at UCSB Mentorship Program   *2022 - 2023*
A total of 4 mentees

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‡Course taught broadcast/hybrid
**Mentorship was done virtually

UCSB Women in STEM Mentorship Program   *2021 - 2022*
One mentee

ACADEMIC SERVICE

Directed Reading Program at UCSB
 President   *2024-Present*
 Vice-President   *2023-2024*
 Event Coordinator   *2022-2023*

Association for Women in Mathematics at UCSB
 Vice-President   *2023-2024*
 Program Coordinator   *2022-2023*

Nebraska Conference for Undergraduate Women in Mathematics
 Invited Graduate Student   *January 2024*
 Moderator for Undergraduate Talks
 Facilitated Breakout Sessions on
 - *Building Confidence and Resilience in Math*
 - *Being a Mathematician from an Underrepresented Group*

AMS Fall Graduate School Fair   *October 2022*
 Graduate Student Representative of UCSB Math Department

Math Circle for Incoming College of Creative Studies Students
 Organization Committee Member   *March - May 2020*

TALKS

Arizona Winter School   *March 2024*
 University of Arizona; Tucson, Arizona
 Intersections of Stratifications

Symposium for Women in Mathematics in Southern California   *February 2024*
 Pomona College; Claremont, California
 A p-converse Theorem in Weight ≥ 2

Math Matters Series   *February 2024*
 Bakersfield College; Bakersfield, California
 The Million Dollar Problem: Number Theory and Elliptic Curves

Directed Reading Program Universal Cover Workshop   *January 2024*
 University of California, Santa Barbara; Santa Barbara, California
 A Brief Introduction to Topology

Association for Women in Mathematics at UCSB   *Novermber 2022*
 University of California, Santa Barbara; Santa Barbara, California
 Research in Number Theory: Elliptic Curves and Related Groups

Preprint Seminar   *March 2022*
 University of California, Santa Barbara; Santa Barbara, California
 Rubin's Theorem

Preprint Seminar   *March 2022*
 University of California, Santa Barbara; Santa Barbara, California
 Katz and Rankin p-adic L-functions

Student Learning Seminar on Iwasawa Theory for Elliptic Curves   *November 2021*
    University of California, Santa Barbara; Santa Barbara, California
    Kobayashi's "Control Theorem" for Signed Selmer Groups

UCSB Graduate Student Topology Seminar   *April 2021*
    University of California, Santa Barbara; Santa Barbara, California
    Everything I Should Have Learned About CW Complexes, but Never Did

Summer Research Poster Session   *August 2018*
    Utah State University; Logan, Utah
    Maximal Regular Semisimple Subalgebras of Simple Lie Algebras

DGCAMP Student Daze Conference   *April 2018*
    Utah State University; Logan, Utah
    Regular Subalgebras of Semisimple Lie Algebras

DG Rendezvous Conference   *November 2016*
    Utah State University; Logan, Utah
    Three Dimensional Subalgebras of Simple Lie Algebras

PANELS

Organizer/Moderator
  Directed Reading Program at UCSB
    How to Create a Poster in LaTeX   *April 2024, 2023*
    Careers in Mathematics   *March 2023*
    Applying to Graduate School   *February 2023*

Panelist
  TA Training for New Graduate Students
    How to be an Effective Math TA   *September 2024, 2021*
  Association for Women in Mathematics at UCSB
    Graduate School Panel   *April 2024, January 2022*
  Hypatian Seminar at UCSB
    Preparing for Advancement to Candidacy   *February 2024*
    Experiences with Qualifying Exams   *September 2021*
  Nebraska Conference for Undergraduate Women in Mathematics
    Choosing a Graduate Mathematics Program   *January 2024*
  UCSB Math Undergraduate Transfer Student Seminar
    All About Graduate School   *October 2023, 2022, 2021, 2020*
  REU at UCSB
    Graduate School Panel   *July 2022*

LAB EXPERIENCE

USU Undergrad Research Assistant   *Summer 2016*
    Supervisor: Ian Anderson
USU RS/GIS Lab Technician   *Summer 2015*

PROGRAMING EXPERIENCE

Maple
HTML and CSS