Adam Howard

Curriculum Vitae

Montana State University
Wilson Hall 2-232
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Research Interests

Machine Learning, Topological Data Analysis, Algebraic and Geometric Topology, Mathematical Physics

Education

2016–2021	**Ph.D. Mathematics**, *Montana State University*, Bozeman, MT. Advisors: David Ayala and Ryan Grady.
2012–2016	**B.S. Mathematics**, *University of Utah*, Salt Lake City, UT.

Technical Skills

I have a Minor in Computer Science. My coursework at the University of Utah included:

CS 2000	**Program Design C**, *C++*.
CS 2420	**Introduction to Algorithms and Data Structures**, *Java*.
CS 3500	**Software Practice**, *C#*.
CS 3810	**Computer Organization**, *MIPS Assembly*.

I am also proficient using R, Python, SQL, Tableau, LaTeX, and Excel.

Preprints

Dec, 2021	**Natural symmetries of secondary Hochschild homology**, *with David Ayala and John Francis*, arXiv:2111.08798.

Awards

Fall 2021	**PhD Dissertation Completion Award**, *The Graduate School, Montana State University*.
Summer 2021	**Graduate Student Research Fellowship**, *Montana State University*.
Summer 2020	**Taylor Brown Summer Research Fellowship**, *Montana State University*.
Summer 2019	**Gary G. Sackett Research Fellowship**, *Montana State University*.
Fall 2016	**Meritorious Award**, *The Graduate School, Montana State University*.

Teaching Experience

2016–2021	**Instructor of Record**, *Montana State University*. Responsibilities include organizing and delivering lectures, creating and grading weekly quizzes and assignments, writing and grading exams, holding office hours, and working in the Math Learning Center

Courses Taught at Montana State University

M 105	**Contemporary Mathematics**, (Spring '17).
M 121	**College Algebra**, (Fall '16).
M 171	**Calculus I**, (Summer '17, Fall '17).
M 172	**Calculus II**, (Spring '18, Summer '18, Fall '18).
M 221	**Linear Algebra (TA)**, (Spring '19).
M 273	**Calculus III (TA)**, (Fall '19, Spring '20, Fall '20).
M 333	**Linear Algebra (TA)**, (Spring '21).

Service

F 2019 - S 2020	**Organizing Committee Member for the Directed Reading Program (DRP)**.

Fall 2019	**Mentor for DRP**, *Hannah Combs*, An Illustrated Theory of Numbers.
Spring 2019	**Mentor for DRP**, *John Schafer*, Naive Lie Theory.
Fall 2018	**Mentor for DRP**, *Mira Kennard*, A Topological Apertif.
Jan 2019 - Dec 2021	**Mentor for Big Sky Youth Empowerment**.
Fall 2018	**Tutor for Big Sky Youth Empowerment**.

Talks

Aug, 2020	**Some Examples of Knotted Tori**, *Online*, Geometric Topology Grad and Postdoc Seminar.
Sep, 2019	**Bridge Number of Satellite Knots**, *Montana State University*, Math Seminar.
Jun, 2019	**Trisections of 4-Manifolds**, *University of Wisconsin-Milwaukee*, 36th Annual Workshop in Geometric Topology.
Apr, 2019	**Knotted Surfaces in 4-Manifolds**, *Montana State University*, Graduate Student Seminar.
Oct, 2018	**Working with Differential Forms**, *Montana State University*, Graduate Student Seminar.
Mar, 2018	**The Lamplighter Group**, *Montana State University*, Graduate Student Seminar.
Oct, 2017	**The Braid Group**, *Montana State University*, Graduate Student Seminar.
Sep, 2017	**Some Thoughts about Knots**, *Montana State University*, Graduate Student Seminar.
Mar, 2017	**Prees a.k.a. Pregroups**, *Montana State University*, Graduate Student Seminar.
Nov, 2016	**Folding Finite Graphs and Free Groups**, *Montana State University*, Graduate Student Seminar.

Conferences and Workshops Attended

June, 2020	**Summer Virtual Trisectors Workshop**, *Online*.
July, 2019	**Perspectives on Dehn Surgery**, *ICERM*, Providence, RI.
June, 2019	**36th Annual Workshop in Geometric Topology**, *Milwaukee, WI*.
May, 2019	**Moab Topology Conference**, *Moab, UT*.
May, 2018	**Arches Topology Conference**, *Moab, UT*.
Aug, 2017	**Topological and Geometric Methods in QFT**, *Bozeman, MT*.

References

David Ayala (Advisor)
Montana State University
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Ryan Grady
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