

# Charles Katerba, PhD

604 Somers Ave  
Whitefish, MT 59937  
USA

406-241-5423  
[charles.katerba@gmail.com](mailto:charles.katerba@gmail.com)  
<https://ckaterba.github.io>

## Professional Summary

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Math professor and data analyst whose 10+ years of college teaching and research experience inform careful, precise analysis coupled with clear, concise communication. After building a strong foundation in statistical analysis and basic machine learning techniques, I am eager to start a new career in a more technical, modern data science role.

## Skills

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Technology: *R, SQL, Python, Tableau, git, L<sup>A</sup>T<sub>E</sub>X, Mathematica, SageMath, MS/Google suites*  
General: *Statistical analysis, regression techniques, traditional machine learning, clear and engaging communication, problem solving and analytical thinking*

## Professional Experience

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Oct. 2022 - Present	<b>Data Analyst (Part-time)</b> Flathead Valley Community College Duties: <i>Analyze student success data, fulfill ad-hoc data requests, develop and maintain Tableau dashboards, assist with IT integrations, ETL projects, communicate findings, data governance/culture</i>
Aug. 2019 - Present	<b>Associate Professor of Mathematics (Full-time)</b> Flathead Valley Community College Duties: <i>Teach a wide range of intro math/stats courses, develop intro stats curriculum, coordinate/manage dual enrollment courses/instructors, undergraduate research, advising</i>
Aug. 2017 - May 2019	<b>Postdoctoral Research Associate</b> Montana State University Duties: <i>Continue and broaden research program, teach undergraduate and graduate level courses, co-coordinate graduate math seminar, co-organize directed reading program</i>
Aug. 2011 - May 2017	<b>Graduate Teaching Assistant</b> University of Montana Duties: <i>Teaching assistant and instructor of record for a variety of courses</i>

## Education

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2013-2017	<b>PhD - Mathematics</b> University of Montana, Missoula MT Dissertation: <i>Modules, fields of definition, and the Culler–Shalen Norm</i>
2011-2013	<b>MSc - Mathematics</b> University of Montana, Missoula MT Masters Project: <i>The Alexander Polynomial</i>
2007-2011	<b>BSc - Mathematics</b> Northern Arizona University, Flagstaff AZ Minors: <i>Philosophy, French</i>

## Data Projects

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- FVCC: *No Holding Back Analysis* [Investigate impact and equity of student holds]  
*Math and Chemistry Placement Test Analyses* [Address need for co-requisite courses]  
*Enrollment Dashboard* [Tool to explore current and forecasted enrollment]  
*Degree Audit Program* [Tool that explores student degree progress]
- Contract: *Kalispell SD5 Enrollment Forecasting*  
*Glacier High School Ascent Program Efficacy Analysis*
- Personal: *Montana Scratch Lottery Scrape and Analysis*  
*Local Avalanche Danger Forecasting with ML* [In Progress]  
*Light-weight word predicting app* [Coursera DS Capstone - In Progress]

## Publications

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*Ideal points of character varieties, algebraic non-integral representations, and undetected closed essential surfaces in 3-manifolds.* Casella, Katerba, and Tillmann. Proc. Amer. Math. Soc. **148** (2020), 2257-2271. [Click for preprint](#)

*Modules, fields of definition, and the Culler–Shalen norm.* Katerba. Submitted to *Algebraic and Geometric Topology* - revisions in progress. [Click for preprint](#)

## Select Grants and Awards

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- Sept. 2022 NSF S-STEM Grant. Award amount: \$749,999.00.  
Title: *The STEM Core Experience: Fostering STEM talent through community building and wellness support*. Role: Former PI.
- April 2017 NSF EAPSI Fellowship. Award amount: \$5,400.00.  
Title: *An Investigation of Closed Surfaces in 3-manifolds via Character Varieties*
- June 2016 AMS Mathematical Research Community Fellow

## Select Presentations

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- Nov. 2023 *AI in the workplace.* FVCC · Professional development seminar.
- Aug. 2023 *Exploring enrollment trends.* FVCC · All employee in-service.
- Jan. 2023 *Data literacy: for who, for what?* FVCC · All employee in-service.
- Mar. 2019 *Searching for closed surfaces with character varieties.* Utah State University
- June 2017 *Modules, fields of definition, and the Culler–Shalen norm.* University of Sydney.

## Professional Development

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- *Sage Days Duluth.* Sage/SnapPy development workshop at UMN - Duluth. June 2022.
- *StatPREP Workshop.* Strategies for incorporating *R* into intro stats courses. June 2021.
- *Data Science Specialization.* Coursera data science courses with *R*. 2021-2023.
- *EDU291X.* FVCC PD course for teaching online. Spring 2021.

## References

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Available on request.