Katharine (Katie) Faulkner

Education

2013-2017 B.S. Applied Mathematical Sciences

B.A. Biology (Honors)

Bucknell University, Lewisburg, PA

Cumulative GPA: 3.65/4.0

2017-2019 **M.Sc.** Mathematics

Concentration in Mathematical Biology The University of British Columbia, Vancouver, BC

Cumulative average: 83% (3.72/4.0)

2019-present **Ph.D.** Mathematics

Concentration in Mathematical Biology The University of British Columbia, Vancouver, BC

Honors & Awards

2013-2017 Dean's List Bucknell University

I have achieved semester GPAs of 3.5 or higher during six out of eight academic semesters at

Bucknell University during this time period.

2017 Honors in Biology Bucknell University

I completed and successfully defended a thesis for Honors in Biology.

2017 Cum Laude Bucknell University

I graduated with a cumulative GPA above 3.5.

Research

2019-present PhD Dissertation The University of British Columbia

Research mentor: Dr. Eric Cytrynbaum

My PhD work is on analyzing glucose homeostasis and the progression to diabetes using math-

ematical modeling.

2017-2019 Master's Thesis The University of British Columbia

Research mentor: Dr. Eric Cytrynbaum

My Master's Thesis in Mathematics is the formation of two models relating to lactation: one to describe the effects of the mother's physiology and stimuli from the infant on milk production, and one to describe the infant's metabolism and growth throughout the lactation period.

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2016-2017 Honors Thesis Bucknell University

Research mentors: Dr. Matthew McTammany and Dr. Abby Flynt

My Honors Thesis in Biology was the analysis of long-term changes in daily ecosystem metabolism in the Susquehanna River with the intent of determining when the river is a source

or sink of carbon dioxide.

2015 Workshop on Applications of Mathematics to Physiology and Medicine Duke University

Research mentor: Dr. Michael Reed

In this two week summer workshop, I worked on a project in evaluating a model for the volumes

and pressures of blood in the adult and fetal human circulatory system.

Research Presentations

2019, 2020	Mathematical Biology Seminar I have presented results and updates on my progress during my Master's and PhD in talks to the mathematical biology research group that are open to the general public.
2017	Honors Thesis Defense I presented my research on the analysis of methods for estimating ecosystem metabolism and results of the metabolism estimates for the Susquehanna River to receive Honors in Biology.
2016	Susquehanna River Symposium I presented a poster on my research on the analysis of methods for estimating ecosystem metabolism and the progress of my Honors Thesis research project.
2016	NIMBioS Undergraduate Research Conference I presented a poster on my research on the analysis of methods for estimating ecosystem metabolism.

Teaching Experience

2018-present	Graduate Facilitator As a graduate facilitator, I design and lead professional development workshops for the Math-
	ematics Department TAs and graduate TAs at UBC. I have also mentored new facilitators and developed programming for supporting new facilitators as part of this role.
2017-present	Mathematics Teaching Assistant As a TA, I have graded assignments and exams, lead workshops, and worked as a tutor in the Mathematics Learning Center.
2020, 2021	Mathematics Instructor As an instructor, I have taught two courses, MATH 102 (Differential Calculus with Applications to Life Sciences) and MATH 256 (Differential Equations). This involved designing my own lectures for each class, with support from the instructor in charge, and helping to write exams.
2018	Facilitator Development Workshop I attended a workshop in which I learned how to lead an Instructional Skills Workshop and practiced my facilitation skills.
2018	Instructional Skills Workshop I attended a workshop in which I learned some theory of teaching and honed my instructional skills through practice and peer feedback.
2015-2017	Mathematics Department Calculus Help Session Tutor I provided guidance and assistance with homework and studying at the drop-in help sessions offered by the mathematics department for students in all Bucknell calculus courses.
2014-2017	Teaching and Learning Center Peer Tutor I individually tutored students in introductory mathematics courses, including Calculus 1 and 2.
2014-2017	Teaching and Learning Center Study Group Leader I lead one study group (3-10 students) per semester for introductory mathematics courses, including Calculus 1 and Statistics 1. I also assisted in the training new study group leaders.
2014-2016	Mathematics Department Grader I graded weekly homework and lab assignments for Bucknell's Statistics 1 courses. Bucknell University

Interests

- Academic: Differential equations, mathematical modeling, endocrinology, neuroscience, biophysics
- Personal: Education and outreach, knitting, swimming, painting