Matthew Bachmann

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EDUCATION

University of Nebraska–Lincoln, Lincoln, Nebraska

- Ph.D. in Mathematics — Expected December 2023
- Advisor: Mark Walker

Trinity University, San Antonio, Texas, USA

- B.A. in Mathematics — May 2017

RESEARCH AND WORK EXPERIENCE

Graduate Teaching Assistant — Aug. 2017 - Present
University of Nebraska–Lincoln, Lincoln, Nebraska

Associate Convener for Calculus I — Fall 2022 & Spring 2023
University of Nebraska–Lincoln, Lincoln, Nebraska

- The associate convener serves as the main point of contact for all Calculus I recitation instructors.
- Most recitation instructors are first year graduate students teaching for the first time, so this role is an opportunity to provide teaching mentorship to new teachers.
- I was responsible for holding weekly meetings with the recitation instructors, doing observations of their teaching throughout the semester, and working closely with the faculty convener to ensure the course runs smoothly across the many sections (over 800 students).

Course Development for Applied Calculus — Summer 2022

- Produced slides with clicker questions for in class participation.

Masters of Arts for Teachers Thesis Mentor — Summer 2019

- Mentored two groups of students working on their masters of arts in teaching.
- My role was to advise small groups in mathematical writing and reasoning.

Undergraduate Research Advisor — Summer 2015
University of Incarnate Word, San Antonio, Texas

- Served as a research advisor for an NSF funded summer Research Experience for Undergraduates.
- Projects included finding exact solutions to the Korteweg–de Vries non-linear PDE and using differential equations to model fish populations.
- My role was to serve as a first resource for the scholars: to answer questions about the projects, assist with MatLab, Latex, and Mathematica, teach them about writing technical papers, and provide academic mentorship.

Research Experience for Undergraduates — Summer 2013
University of Maryland–Baltimore County, Baltimore, Maryland

- Research Experience of Undergraduates at the high performance computing facility at UMBC.
- Conducted research for optimizing block cyclic distribution in the R environment pbdR.
- Gained experience with Linux, C, R, Matlab, and MPI.

HONORS

Amy Bouska GTA Leadership Award — 2021

- Awarded for exhibiting exceptional leadership in service to the department.

William H. Thompson Instructor — Spring 2020

- The goal of the William H. Thompson Scholar learning community is to foster a sense of belonging, promote learning, increase engagement, and celebrate success.

Teaching Experience

INSTRUCTOR OF RECORD

MATH 103 College Algebra and Trigonometry — Spring 2022, Spring 2021, & Fall 2019
- This was a 5 credit hour course that met 5 days a week.

MATH 106 Calculus I — Fall 2021
- I taught the lecture portion of Calculus I for all students and was also the recitation instructor for about half of the students.

MATH 107 Calculus II — Summer 2020
- This was an online class due to COVID-19.
- I developed daily worksheets that followed my lecture in order to ensure engagement over zoom.

MATH 104 Applied Calculus — Fall 2020, Spring 2020, & Summer 2019
- The Fall 2020 class used a flexible hybrid model to accommodate for social distancing regulations due to COVID-19.
- The Spring 2020 class was part of the William H. Thompson learning community.

MATH 203J Contemporary Mathematics — Spring 2019
- This class was for journalism majors.

MATH 100A Intermediate Algebra — Fall 2018

TEACHING ASSISTANT EXPERIENCE

MATH 106R Calculus I Recitation — Spring 2023, Fall 2022, Spring 2018, & Fall 2017
- In the 2022-2023 academic year I was also associate convener. So, I helped write exams, schedule the course material, and coordinate the sections.

MATH 107R Calculus II Recitation — Spring 2018 & Summer 2018

Involvement

MENTORSHIP EXPERIENCE

Cofounder of the Directed Reading Program — Spring 2020-Fall 2022
- The Directed Reading Program pairs a graduate student mentor with an undergraduate student to work through a semester long project beyond the scope of a normal undergraduate curriculum.
- Austin Eide and I cofounded the program in the Spring of 2020. The program has maintained an average of 5 mentor/mentee pairs each semester since its founding.
- The primary goal of the program is to foster a sense of community and mentorship among the graduate and undergraduate programs at UNL.

Peer Mentor Program — 2019-2020
- I served as a mentor to a first year mathematics graduate student.

Organized Summer Reading Courses — Summer 2021 & Summer 2020
- In the summer of 2021 I organized a reading course on Bruns and Herzog's *Cohen-Macaulay Rings*.
- In the summer of 2020 I organized a reading course over homological algebra.
- The goal for both reading courses was to help younger graduate students learn the foundational commutative algebra that we didn't have organized courses for.

OUTREACH

Co-organizer for the Upcoming Researchers in Commutative Algebra conference (URiCA) — Spring 2022 & Spring 2023
- The mission of the URiCA conference is to promote interaction among junior researchers, graduate students and postdocs.
- The conference had 40 attendees in the Spring of 2022 with 8 invited speakers.

Math Day Volunteer — 2017-Present

- Each year I volunteer for UNL Math Day, where over a thousand high school students from across Nebraska visit UNL's campus to participate in math competitions.

SERVICE

Co-organizer for the Commutative Algebra Reading Seminar (CARS) Fall 2020, Spring 2020, & Spring 2022

- CARS is a seminar that gives graduate students an opportunity to learn more about commutative algebra together.

Organized Office Hours Training Fall 2022 & Fall 2021

- Led an information session on office hours for mathematics graduate students during their first year orientation.