

JACOB ZOROMSKI

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EDUCATION

University of Notre Dame, Notre Dame, IN
Ph.D. Mathematics anticipated May 2025

Aug 2019 - Present

University of Wisconsin-Madison, Madison, WI
B.A. in Mathematics earned May 2019

Sept. 2015 – May 2019

PUBLICATIONS

C. Crowley, J. Rodriguez, J. Weiker, J. Zoromski, [“MultiRegeneration for Polynomial System Solving.”](#) *ACM Communications in Computer Algebra*, vol. 54, no. 2, Sept. 2020, pp. 39-43

PREPRINTS

Jacob Zoromski, [“Monomial Cycles in Koszul Homology.”](#) Preprint. arXiv:2409.07583. 2024

Jacob Zoromski, [“Equivariant Syzygies of \$2 \times 2\$ Permanents of \$2 \times n\$ Matrices.”](#) Preprint. arXiv:2502.05358. 2025.

TEACHING

Instructor of Record

Discrete Mathematics – FA '24 – at Holy Cross College – Notre Dame
Elements of Calculus - SP '22, SU '22, FA '22

Teaching Assistant

Principles of Calculus – FA '24
Calculus III – Head TA – FA '23
Honors Calculus II – SP '23, Honors Calculus I – FA '22
Calculus B – SP '21, Calculus A - FA '20

WORK EXPERIENCE

University of Notre Dame
Graduate Student Instructor

Aug. 2020 – Present

- Instructor for Elements of Calculus, a first-year calculus course for Business majors
- Lead tutorial sections for Honors Calculus, a proof-based course, giving lectures and grading quizzes
- Lead problem sessions for Calculus courses, including making and grading worksheets

Holy Cross College – Notre Dame
Adjunct Professor

Aug. 2024 – Dec. 2024

- Taught Discrete Mathematics, teaching liberal arts students mathematical reasoning skills

University of Wisconsin Mathematics Department
Math Tutor

Sept. 2016 – May 2019

- Tutored peers in calculus and advanced math. Course assistant for probability theory Fall 2018

Division of University Housing
Math Tutor

Sept. 2016 – May 2017

- Tutored peers in math, mostly calculus

RELATED EXPERIENCE

Visiting Graduate Student Scholar**Jan. 2024 – May 2024**

Visiting graduate student at the University of California – Berkeley sponsored by David Eisenbud. Primarily participated in the SLMATH Semester in Commutative Algebra, attending seminars and collaborative research sessions with many of the leading experts in the field.

Notre Dame Teaching Center Involvement**Summer 2022-Present**

Took a course on Inclusive Teaching Summer 2023, learning how to create a welcoming classroom environment, inclusive syllabi, and how to implement various inclusive teaching theories and strategies. Participated in two reading groups with other graduate student instructors and faculty, reading pedagogy books. Led one of these groups. Attended seminars in progress towards teaching certificate.

History of Math Presentations**Jan. 2023, Nov. 2023**

Researched and presented lectures on the history of calculus at the Notre Dame Mathematics Graduate Student Seminar. Current ideas for future talks include ancient Greek mathematics, Pascal's concept of the infinite in math and theology, and the work of Galileo.

Macaulay2 Workshops**April 2018, June 2023**

Developed code for the computer algebra system Macaulay2. Projects included creating a program to aid in a mathematical biology graduate student's research project (2018) and working in a group led by David Eisenbud to study the structure of infinite resolutions, for which we developed packages (2023).

Notre Dame Center for Social Concerns Graduate Institute for Engaged Teaching and Research**October 2022**

A weeklong institute promoting socially-engaged graduate student research and teaching. Met with community leaders and faculty from South Bend and Chicago to explore models of effective community-university partnerships. Learned about projects in a range of disciplines including the arts, chemistry, housing, sociology, and others, each grounded in efforts to advance justice.

de Nicola Center for Ethics and Culture - Sorin Fellow**May 2021–present**

The Sorin Fellows Program is the student formation initiative of the de Nicola Center for Ethics and Culture, the leading center for scholarly reflection within the Catholic moral and intellectual tradition. Students accepted to the program ("Sorin Fellows") receive specialized resources through the life of the Center – including social, academic, spiritual, and professional formation opportunities.

Summer Research Program**May 2019 – July 2019**

Researched computational methods for solving systems of polynomial equations, and applied problems, under the direction of Dr. Jose Rodriguez (UW-Madison).

Helped write the paper “MultiRegeneration for Polynomial System Solving,” published in Sept. 2020.

AWARDS

Kaneb Center for Teaching and Learning Outstanding Graduate Student Teaching Award, AY 2022-2023
ISAAC2020 Distinguished Software Presentation Award, 2020, for “MultiRegeneration for Polynomial System Solving.”

SKILLS

Extensive coding experience in Macaulay2 (including developing packages).
Intermediate experience in Python. Basic experience in SAGE, MAGMA, and Java.

FELLOWSHIPS, CONFERENCES & WORKSHOPS

SLMath Semester in Commutative Algebra – Spring 2024
GAeL XXX, University of Warwick – July 2023 – Poster Presentation
International Thomas Merton Society Daggy Fellowship – June 2023 - 2024
Macaulay2 Workshop, University of Minnesota Twin Cities, June 2023
MSRI/SLMath Summer School on Commutative Algebra and its Interaction with Algebraic Geometry, University of Notre Dame, May 2023
Algebra, Geometry, and Combinatorics Day, University of Illinois Urbana-Champaign, October 2022
Notre Dame Center for Social Concerns Graduate Institute for Engaged Teaching and Research – October 2022
de Nicola Center for Ethics and Culture Sorin Fellow, 2021 - Present

PRESENTATIONS

Invited Speaker – AMS Spring Central Sectional Meeting Special Session on “Algebraic and Homological Perspectives with a view towards Geometry” – Mar. 29, 2025
ALGECOM Fall 2024, University of Michigan – Ann Arbor, Poster Presentation Nov. 2024
Graduate Student Algebra Seminar, University of Notre Dame – “Ideals with Linear Quotients”, Apr. 2023, “Matroids, Monomials, Massey Products, and More”, Oct. 2024
Graduate Student Seminar, University of Notre Dame – “The History of Calculus”, Jan. 2023, Oct. 2024 “Infinite Minimal Free Resolutions”, Oct. 2022

SERVICE

Directed Reading mentor for two undergraduate math majors, Spring 2024
Volunteer tutor at DePaul Academy, serving incarcerated youth, Sept. 2019 – May 2023
Volunteer math tutor at St. Thomas More Academy, Sept. – May 2023
Volunteer at St. Vincent de Paul Society of St. Joseph County, making deliveries for food pantry, June 2022 – Dec 2023