

# Michael Morrow

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## Education

**University of Kentucky**, Kentucky, USA  
Ph.D. Candidate Mathematics  
Advisor: Uwe Nagel

August 2019 - Present

**University of Kentucky**, Kentucky, USA  
M.S. Mathematics

April 2021

**Central Washington University**, Washington, USA  
B.S. Mathematics

June 2019

## Research Interests

Computational and combinatorial commutative algebra, asymptotic algebra

## Publications and Preprints

*Computing Gröbner Bases and Free Resolutions of  $OI$ -Modules*  
with U. Nagel, submitted, 2023. Available at [arXiv:2303.06725](https://arxiv.org/abs/2303.06725).

*The OIGroebnerBases Package for Macaulay2*  
submitted, 2023. Available at [arXiv:2310.04891](https://arxiv.org/abs/2310.04891).

## Software

*OIGroebnerBases.m2*  
a Macaulay2 package, 2023. Available at <https://github.com/morrowmh/OIGroebnerBases>.

## Awards and Fellowships

**Summer Research Fellowship**  
University of Kentucky

Summer 2023

**Eaves Fellowship**  
University of Kentucky

Summer 2022

**Dale and Mary Jo Comstock Scholarship**  
Central Washington University

Spring 2019

## Talks and Presentations

*Syzygy Computations in  $OI$ -Modules*

- (Invited) Joint Mathematics Meetings, San Francisco, CA
- (Invited) CMS Winter Meeting, Montreal, QC

January 2024  
December 2023

*Finite Computation of Gröbner Bases for  $OI$ -Modules*

- (Invited) Algebra and Geometry Seminar, University of New Mexico
- Qualifying Talk, University of Kentucky

October 2023  
December 2021

*Computing Gröbner Bases and Free Resolutions of  $OI$ -Modules*

- (Poster) BrianFest, University of Nebraska-Lincoln

August 2023

*Gröbner Bases and Syzygies of Sequences of Related Ideals*

- Spectra Survey of Mathematics Conference, University of Kentucky
- (Invited) AMS Fall Southeastern Sectional Meeting, University of Tennessee-Chattanooga

May 2023  
October 2022

*Computing Free Resolutions of  $OI$ -Modules*

- Algebra Seminar, University of Kentucky

November 2022

*Equivariant Gröbner Bases*

- Master's Talk, University of Kentucky

April 2021

## Conferences and Workshops

### Joint Mathematics Meetings

San Francisco, CA

January 2024

### BrianFest

University of Nebraska-Lincoln

August 2023

### Summer CAMP

Professional development workshop

University of Nebraska-Lincoln

August 2023

### Commutative Algebra and its Interaction with Algebraic Geometry

SLMath summer school

University of Notre Dame

May 2023

### Spectra Survey of Mathematics Conference

University of Kentucky

May 2023

### AMS Fall Southeastern Sectional Meeting

University of Tennessee-Chattanooga

October 2022

### WARTHOG

Infinite-dimensional methods in commutative algebra

University of Oregon

June 2022

### Macaulay2 Conference

Cleveland State University

May 2022

## Teaching Experience

### Instructor of Record, University of Kentucky

- Matrix Algebra
- College Algebra

Spring 2023

Summer 2021, Summer 2020

### Recitation Leader, University of Kentucky

- Elementary Calculus
- Calculus II
- Calculus III
- Calc for Life Sciences
- Finite Math
- Algebra and Trig for Calculus

Fall 2023 (Lead TA\*), Spring 2020

Fall 2022

Spring 2022

Fall 2021

Spring 2021

Fall 2020, Fall 2019

### Algebra Prelim Peer Coach\*\*, University of Kentucky

May 2023, December 2022

\*: mentors other TAs and provides peer observations and feedback

\*\*: organizes several 3-hour long group problem sessions and coaches peers on test-taking strategies

## Service and Outreach

### UKY MathLab Undergraduate Research Project Leader

University of Kentucky

Fall 2023

### Algebra Seminar Co-organizer

University of Kentucky

Fall 2023

### Graduate Student Peer Mentor Program

University of Kentucky

Fall 2020 - Fall 2022

### Panel for Incoming First-Year Students

University of Kentucky

August 2021

### Julia Robinson Math Festival

University of Kentucky

November 2019

### Kittitas Valley Math Circle

Central Washington University

September 2017 - June 2019