

# Aryaman Maithani | Curriculum Vitae

✉ maithani@math.utah.edu • arXiv •  Homepage

## Education

### University of Utah

*Ph.D. student in Mathematics*

Advisor: Anurag K. Singh

**Salt Lake City, UT**

2022–present

### Indian Institute of Technology Bombay

*B.S. in Mathematics with Honors*

**Mumbai, India**

2018–2022

## Awards/Fellowships

### Simons Dissertation Fellows in Mathematics

**Simons Foundation**

2025–2027

### Pure Mathematics Fellowship

**University of Utah**

Fall 2024, Fall 2025

### Institute Gold Medal

**IIT Bombay**

2022

### Institute Academic Prize

**IIT Bombay**

2020, 2021

## Research Interests

Commutative algebra: invariant theory, local cohomology, rings of differential operators.

## Publications

7. *Homological properties of invariant rings of permutation groups* arXiv  
Proceedings of the American Mathematical Society (To appear)
6. *Splitting the difference: Computations of the Reynolds operator in classical invariant theory* arXiv  
Bulletin of the London Mathematical Society, Volume 58, Issue 1 (2026)  
with Trung Chau and Tài Huy Hà
5. *Minimal cellular resolutions of powers of graphs,* arXiv  
with Trung Chau and Tài Huy Hà  
Electronic Journal of Combinatorics (To appear)
4. *Edge ideals with linear quotients and without homological linear quotients,* arXiv  
with Trung Chau and Kanoy Kumar Das  
Mediterranean Journal of Mathematics, Volume 23, Article 31 (2026)
3. *Monomial ideals with minimal generalized Barile–Macchia resolutions,* arXiv  
with Trung Chau and Tài Huy Hà  
Vietnam Journal of Mathematics
2. *The Scarf complex of squarefree powers, symbolic powers of edge ideals, and cover ideals of graphs,* arXiv  
with Trung Chau and Nursel Erey  
Communications in Algebra
1. *Linear quotients of connected ideals of graphs,* with H. Ananthnarayanan and Omkar Javadekar arXiv  
Journal of Algebraic Combinatorics, Volume 61, Article 34 (2025)

## Preprints

2. *Abelian extensions of equicharacteristic regular rings need not be Cohen–Macaulay,* arXiv:2511.19800 (2025)  
with Anurag K. Singh and Prashanth Sridhar
1. *Polynomial invariants of classical subgroups of  $\mathrm{GL}_2$ : Conjugation over finite fields* arXiv:2501.15080 (2025)

# Talks

---

## Seminars

### Commutative Algebra Seminar

Polynomial invariants of  $GL_2$ : Conjugation over finite fields

Purdue University

September 2025

### Commutative Algebra Seminar

Polynomial invariants of  $GL_2$ : Conjugation over finite fields

UC San Diego

February 2025

### Commutative Algebra Seminar

Polynomial invariants of  $GL_2$ : Conjugation over finite fields

University of Utah

February 2025

### Commutative Algebra Seminar

Invariant theory of commutative rings

IIT Bombay

August 2024

### Commutative Algebra Seminar

Linear quotients of connected ideals of graphs

University of Utah

March 2024

### Dualities in Topology and Algebra

Gorenstein rings

ICTS, India

May 2023

## Graduate Student Seminars

### BIKES, Commutative Algebra Graduate Student Seminar

On invariant rings of permutation groups

University of Utah

January 2026

### Ideal Conversations, Commutative Algebra Graduate Student Seminar

Invariant theory of commutative rings

Purdue University

September 2025

### BIKES, Commutative Algebra Graduate Student Seminar

Splittings in Classical Invariant Theory

University of Utah

August 2025

### BIKES, Commutative Algebra Graduate Student Seminar

Examples of badly-behaved rings

University of Utah

August 2024

### BIKES, Commutative Algebra Graduate Student Seminar

Linear quotients of connected ideals of graphs

University of Utah

February 2024

### Commutative Algebra Graduate Student Seminar

Invariant theory of commutative rings

University of Michigan

October 2023

### BIKES, Commutative Algebra Graduate Student Seminar

Invariant theory of commutative rings

University of Utah

September 2023

## General Math Talks

### Graduate Student Colloquium

Shut your  $\pi$  hole!

University of Utah

March 2024

### Math Circle

Fun with graphs

University of Utah

March 2023

### Graduate Student Colloquium

Chaos theory

University of Utah

February 2023

# Teaching Experience

---

## Instructor of Record

### MATH 1220: Calculus II

University of Utah

Spring 2025, Summer 2024

### MATH 1090: Business Algebra

University of Utah

Spring 2024

### MATH 1060: Trigonometry

University of Utah

Fall 2023

### MATH 1010: Intermediate Algebra

University of Utah

Summer 2023

## **Graduate Teaching Assistant**

---

**MATH 2250: Differential Equations and Linear Algebra**

*University of Utah*

*Spring 2023, Fall 2022*

## **Teaching Assistant for Workshops**

---

**Recent Developments in Commutative Algebra**

*IIT Dharwad*

*24–29 June 2025*

**Pre-REU 2025: Introducing undergraduates to research**

*University of Utah*

*6–30 May 2025*

## **Grader for Graduate Courses**

---

**MATH 6520: Algebraic Topology**

*University of Utah*

*Spring 2024*

**MATH 6310: Modern Algebra 1**

*University of Utah*

*Fall 2023*

**MATH 6320: Modern Algebra 2**

*University of Utah*

*Spring 2023*

## **Service/Outreach**

---

- **University of Utah** **Salt Lake City, Utah, USA**
- *Graduate Student Advisory Committee*
  - 2024–2025: **GSAC Co-chair.**  
Liaison between graduate students and department.
  - 2023–2025: **Recruitment committee.**  
Welcome prospective graduate students and organize meetings with faculty for them.

## **Professional Memberships**

---

- American Mathematical Society

## **Technical skills**

---

Python, SageMath, Macaulay2, Magma, L<sup>A</sup>T<sub>E</sub>X