

# Trung Chau | Curriculum Vitae

✉ [trung.chau@utah.edu](mailto:trung.chau@utah.edu) • 🌐 [math.utah.edu/~chau](https://math.utah.edu/~chau)

## Education

### University of Utah

*Ph.D. student in Mathematics*

Advisors: Anurag K. Singh and Srikanth B. Iyengar

Salt Lake City, UT

2019–present

### University of Science - Vietnam National University

*B.S. in Mathematics*

Ho Chi Minh City, Vietnam

2018

## Research

### Research Interests

Commutative Algebra, Algebraic Geometry, and Combinatorics.

### Preprints

3. Trung Chau, Selvi Kara, and Augustine O’Keefe. *The MorseResolutions package for Macaulay2*. [arXiv:2307.03633](https://arxiv.org/abs/2307.03633). Submitted. (2023)
2. Trung Chau. *The  $F$ -regularity of algebraic sets related to commutator matrices*. [arXiv:2305.15487](https://arxiv.org/abs/2305.15487). Submitted. (2023)
1. Trung Chau and Selvi Kara. *Barile-Macchia resolutions*. [arXiv:2211.04640](https://arxiv.org/abs/2211.04640). Submitted. (2022)

## Conference Presentations

### Talks

#### Canadian Mathematical Society’s 2023 Winter Meeting

*Barile-Macchia resolutions*

Invited Speaker

Montreal

December 2023

#### Algebra Day

*Barile-Macchia resolutions*

Invited Speaker

Arizona State University

November 2023

#### AMS Spring Southeastern Sectional Meeting

*The  $F$ -regularity of algebraic sets related to commutator matrices*

Invited Speaker

Georgia Institute of Technology

March 2023

#### AMS Fall Southeastern Sectional Meeting

*Bridge resolutions*

Invited Speaker

University of Tennessee at Chattanooga

October 2022

#### The 11th VNU-HCMUS Scientific Conference

*Counting integral points inside a polyhedron*

Invited Speaker

Ho Chi Minh City, Vietnam

November 2018

### Posters

#### KUMUNU

*Barile-Macchia resolutions*

Poster, Funded

University of Missouri

September 2023

#### AlCoVE

*Barile-Macchia resolutions*

Virtual

June 2023

Poster

**Combinatorial Algebra meets Algebraic Combinatorics**

*Barile-Macchia resolutions*

Poster, Funded

**KUMUNU**

*Morse resolutions*

Poster, Funded

**PASCA**

*Morse resolutions*

Poster, Funded

**University of Waterloo, Canada**

*January 2023*

**University of Nebraska at Lincoln**

*October 2022*

**CIMAT, Guanajuato, Mexico**

*June 2022*

## Conferences and Workshops Attended

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**Interactions Between Topological Combinatorics  
and Combinatorial Commutative Algebra**

*A one-week workshop hosted by BIRS*

Invited Participant

**Banff, Canada**

*April 2023*

**KUMUNU**

*Funded Participant*

**University of Nebraska at Lincoln**

*May 2021*

## Conferences Organized

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**BRIDGES**

*Co-chair*

Aimed towards early graduate students and advanced undergraduate students interested in geometric group theory, number theory, algebraic geometry and commutative algebra

**Salt Lake City, UT**

*Summer 2024*

**BRIDGES**

*Co-organizer*

**Salt Lake City, UT**

*Summer 2022*

## Awards, Grants, and Fellowships

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**Department of Mathematics, University of Utah**

*Departmental Summer Funding*

*2023*

**VIASM**

*Students Scholarship of National Program for The Development of Mathematics*

*2015–2017*

## Seminar Talks

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### Research Talks.....

**Combinatorial and Commutative Algebra Seminar**

*Barile-Macchia resolutions*

**Oklahoma State University**

*October 2023*

**Combinatorial and Commutative Algebra Seminar**

*Barile-Macchia resolutions*

**McMaster University**

*October 2023*

**Commutative Algebra Seminar**

*The  $F$ -regularity of algebraic sets related to commutator matrices*

**Purdue University**

*September 2023*

**Algebra and Combinatorics Seminar**

*Barile-Macchia resolutions*

**Tulane University**

*December 2022*

**Commutative Algebra Seminar**

*Barile-Macchia resolutions*

**University of Utah**

*November 2022*

## Graduate Student Seminars.....

### CARES, Commutative Algebra Regional Expository Seminar (virtual)

Simplicial resolutions for monomial ideals *December 2022*

$D$ -modules and an application *April 2022*

### Commutative Algebra Graduate Student Seminar, University of Michigan

Showing  $F$ -purity and  $F$ -regularity through examples *March 2023*

### BIKES, Commutative Algebra Graduate Student Seminar, University of Utah

Discrete Morse Theory *September 2023*

Principal radical systems *April 2022*

Big Cohen-Macaulay modules and homological conjectures (theorems) *September 2022*

Multiple Morse resolutions of an ideal *March 2022*

Cellular resolutions and hull resolutions *March 2022*

Lyubeznik resolutions and Scarf complexes *December 2021*

A quick look at the singularity category *September 2021*

Modules of finite projective dimension in characteristic  $p$  *February 2021*

Holonomic modules and applications *November 2020*

A proof of Kunz's theorem using perfect rings *July 2020*

Cohen-Macaulay rings *September 2019*

## General Math Talks.....

**Math Circle** **University of Utah**

Magic and maths *2023*

**Undergraduate Student Colloquium** **University of Utah**

Evolution of logical paradoxes *2022*

**Graduate Student Colloquium** **University of Utah**

Mathematics in Arts *2020*

## Teaching Experience

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### Instructor of Record.....

#### MATH 1090: Business Algebra

*University of Utah* *Fall 2023*

#### MATH 3070: Applied Statistics I

*University of Utah* *Spring 2023*

#### MATH 1070: Statistic Inference

*University of Utah* *Fall 2022*

#### MATH 3150: PDEs for Engineers

*University of Utah* *Spring 2022*

#### MATH 1210: Calculus 1

*University of Utah* *Fall 2021*

#### MATH 2270: Linear Algebra

*University of Utah* *Summer 2021*

#### MATH 1060: Trigonometry

*University of Utah* *Spring 2021, Fall 2020*

## Graduate Teaching Assistant.....

### MATH 2250: Differential Equations and Linear Algebra

University of Utah

Spring 2020, Fall 2019

## Grader.....

### MATH 6310: Modern Algebra 1

University of Utah

Fall 2022

### MATH 6040: Probability

University of Utah

Fall 2021

### MATH 6210: Real Analysis

University of Utah

Fall 2021

### MATH 6320: Modern Algebra 2

University of Utah

Spring 2021

## Service/Outreach

- **University of Utah** **Salt Lake City, Utah, USA**
  - *Co-organizer* *Fall 2023*

Co-organized the 'Graduate Teacher Training Program' in Fall 2023 at the University of Utah. This week-long program is designed to train the incoming graduate students and postdoctoral fellows to improve their teaching and lab instruction skills, learn and understand issues pertaining to equity, diversity and inclusivity in Mathematics, and get accustomed to the department culture

Salt Lake City, Utah, USA
- **University of Utah** **Salt Lake City, Utah, USA**
  - *Graduate Student Advisory Committee* *2020–present*
    - 2022–2023: **Cochair.**
    - 2021–2022: **Recruitment committee.**

Welcoming prospective graduate students and organizing meetings with faculty for them.
    - 2020–2021: **Co-chair of the peer mentoring program.**

Pairing incoming graduate students with advanced graduate students.
    - 2020–2021: **Retention, Promotion, Tenure and Hiring.**

Make recommendations to the Department concerning promotion, tenure and retention of faculty members, and organize hiring teas with job candidates.
- **University of Utah** **Salt Lake City, Utah, USA**
  - *Student Chapter of the Association for Women in Mathematics* *2020–present*
    - 2023–2024: **Conference committee cochair.**
    - 2021: **Presenter.**

Giving a talk to high-school students.
    - 2020–2021: **Co-chair of mentoring program.**

Pairing advanced undergraduate students with first-year graduate students.
    - 2020: **Facilitator of the 'What is math day?'**

Activity with middle school kids.
    - 2020: **K-12 Outreach**

Middle school precalculus virtual homework help.
- **University of Utah** **Salt Lake City, Utah, USA**
  - *Directed Reading Program in Mathematics* *2021–2022*

Organizer
  - **2019–2021: Graduate Student Mentor, University of Utah Directed Reading Program in Mathematics.**

Mentoring an undergraduate student for an independent reading projects.

    - Mentee: Cameron Schmitter, Project: Category Theory
    - Mentee: Kaden Richards, Project: Topology

- Mentee: Gracie Liu, Project: Chaos Theory

## Refereeing and Reviewing

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- Reviewer for zbMATH

## Professional Memberships

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- Association for Women in Mathematics
- American Mathematical Society