

KYLE YATES

School of Mathematical and Statistical Sciences
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US Citizen

Education

2025–December Ph.D. Mathematical Sciences, Clemson University (expected, advisor: Shuhong Gao)
2022 M.S. Mathematical Sciences, Clemson University
2020 B.S. Applied Mathematics, San Diego State University
(with emphasis in computational science, distinction in mathematics)

Research Positions

2025–present Graduate Research Assistant, Clemson University
(Supported by the National Center for Transportation Cybersecurity)
2022 Summer Graduate Research Assistant, Clemson REU in Cryptography
2021 Summer Graduate Research Assistant, Clemson REU in Cryptography

Teaching Positions

2021–2025 Graduate Teacher of Record, Clemson University
2020–2021 Graduate Teaching Assistant, Clemson University
2017–2020 Undergraduate Teaching Assistant, San Diego State University

Research Interests

Cryptography, Homomorphic Encryption, Post-Quantum Cryptography, Learning With Errors, Operations Research, Computational Complexity Theory

Publications

Accepted Journal Papers

3. Leveled Homomorphic Encryption Schemes for Homomorphic Encryption Standard (with S. Gao); 2024. *To appear in Journal of Mathematical Cryptology*.
Available from: <https://eprint.iacr.org/2024/991>

Submitted Journal Papers

2. On the Hardness of the $L_1 - L_2$ Regularization Problem (with Y. Ouyang); 2024. In Review. Available from <https://arxiv.org/abs/2411.03216>

Theses

1. Efficiency of homomorphic encryption schemes (MS thesis); 2022. Clemson University.
Available from: https://tigerprints.clemson.edu/all_theses/3868/

Project Groups

Towards Deployment-Ready Post-Quantum Cryptography Enabled Vehicle-to-Everything Communication (Graduate Assistant). National Center for Transportation Cybersecurity and Resiliency.

Research Presentations

- 2025 October AMS Special Session on Recent Advances in the Mathematics of Cryptography, AMS 2025 Fall Southeastern Sectional. *Analyzing Security of ILWE-Based Constructions* (Talk). New Orleans, LA.
- 2025 March AMS Special Session on Post-Quantum Cryptography, AMS 2025 Spring Southeastern Sectional. *Precision Bounds in Approximate Homomorphic Encryption Schemes* (Talk). Clemson, SC.
- 2025 January AMS Special Session on Cryptography and Related Fields, JMM 2025. *Leveled Homomorphic Encryption Schemes for Homomorphic Encryption Standard* (Talk). Seattle, WA.
- 2024 August Clemson Graduate Student Seminar. *NP-hard $L_1 - L_2$ Minimization* (Talk). Clemson, SC.
- 2024 April Math for All Satellite Conference. *Homomorphic Encryption and Secure Cloud Computing* (Talk). Clemson, SC.
- 2024 March Data Security and Machine Learning in Industry Research Workshop. *Computation Budgeting in Leveled Homomorphic Encryption Schemes* (Talk). Clemson, SC.
- 2023 October Clemson Graduate Student Seminar. *Homomorphic Encryption and Confidential Computing* (Talk). Clemson, SC
- 2023 April Clemson Graduate Student Seminar. *Homomorphic Encryption and Confidential Computing* (Talk). Clemson, SC
- 2022 June Clemson Mathematics REU. *Introduction to Homomorphic Encryption* (Talk). Clemson, SC.
- 2020 February SDSU Student Research Symposium. *Ball-collision Decoding Analysis for Linear Codes in the McEliece Cryptosystem* (Poster). San Diego, CA.

Teaching Experience**Courses Taught at Clemson University (Instructor of Record)**

- 2024 Fall Statistics in Everyday Life (STAT 2220)
- 2024 Fall Business Calculus I (MATH 1020)
- 2024 Spring Calculus of One Variable II (MATH 1080)
- 2023 Fall Calculus of One Variable I (MATH 1060, Residents in Science and Engineering)
- 2023 Spring Calculus of One Variable I (MATH 1060)
- 2022 Fall Business Calculus I (MATH 1020)
- 2022 Spring Business Calculus I (MATH 1020)
- 2021 Fall Business Calculus I (MATH 1020)

Guest Lectures at Clemson University

- 2025 Spring Linear Programming (MATH 4400, 2 Lectures)

Courses TA'd at Clemson University

2025	Summer	Calculus of One Variable II (MATH 1080)
2025	Spring	Nonlinear Programming (MATH 8110)
2025	Spring	Linear Programming (MATH 4400)
2023	Summer	Differential and Integral Calculus (MATH 1070)
2021	Summer	Introduction to Ordinary Differential Equations (MATH 2080)
2021	Spring	Introduction to Ordinary Differential Equations (MATH 2080)
2020	Fall	Calculus of Several Variables (MATH 2060)

Courses TA'd at San Diego State University

2020	Spring	Elementary Differential Equations (MATH 337)
2019	Fall	Elementary Differential Equations (MATH 337)
2019	Spring	Elementary Differential Equations (MATH 337)
2018	Fall	Elementary Differential Equations (MATH 337)
2017	Fall	Precalculus (MATH 141)

Committees and Leadership**Department Committees (Clemson)**

2023–2024	Director Search Committee, School of Mathematical and Statistical Sciences
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Graduate Student Organizations (Clemson)

2024–2025	College of Science Student Advisory Board
2023–2025	SMSS Graduate Student Advisory Council (Chair)
2023–2024	Clemson Graduate Student Government (Senator)
2023–2024	Rules and Procedures Committee, Clemson Graduate Student Government
2022–2023	SMSS Graduate Student Advisory Council (Secretary)

Undergraduate Organizations (San Diego State)

2019–2020	Phi Mu Alpha Sinfonia Fraternity (President)
2018–2020	Staff and Student Leadership Team, San Diego State Marching Aztecs
2018–2019	Phi Mu Alpha Sinfonia Fraternity (Vice President)
2017–2018	Phi Mu Alpha Sinfonia Fraternity (Treasurer)

Reviewing, Judging, and Panels**Academic Journal Reviews**

IEEE Transactions on Information Theory (1 paper)

Other Judging and Reviewing

2025	April	Judge, Lander University Mathematics Academic Symposium
2024	April	Judge, Lander University Mathematics Academic Symposium
2024	February	Awards Reviewer, Clemson GSG Graduate Student Awards

Panels

2025	March	College of Science Graduate Student Panel, Clemson University
2024	August	Graduate Student Panel, Clemson New Graduate Student Orientation
2024	April	Graduate Instructor Panel, Clemson Graduate Student Teaching Seminar
2023	October	Mathematics-Opportunities in Research and Education Near2Peer Session
2023	July	Clemson Mathematics REU Graduate Student Informational Panel

Conference Organizing

Organizer, AMS Special Session on Post-Quantum Cryptography. AMS Spring 2025 South-eastern Sectional Meeting, Clemson, SC.

Software Proficiency

MATLAB (intermediate), Python (intermediate), R (intermediate), LaTeX (expert)

Honors, Awards, and Other

Nominee, SMSS Outstanding Graduate in Teaching Award (Clemson)

Graduate Student Advisory Council Leadership Service and Enhancement Award (Clemson)

Member, American Mathematical Society

Mentor, SMSS GSAC Graduate Student Mentoring Program

Oxford Study Abroad Programme in International Relations (Oxford University)

Associated Students Study Abroad Scholarship (San Diego State)

Weber Honors College (San Diego State)

Dean's list, College of Sciences (San Diego State, F16, S17, F17, S18, F18, F19, S20)

Conference Volunteering

2025 April Math for All Satellite Conference. Clemson, SC.

2023 October Palmetto Number Theory Series XXXVI. Clemson, SC.

Other Conferences and Workshops Attended

2024 April Math for All Satellite Conference. Clemson, SC.

2024 March 3rd Annual FHE.org Conference on Fully Homomorphic Encryption. Toronto, CA.

2024 March Data Security & Machine Learning in Industry Research Workshop. Clemson, SC.

2024 January Data Security & Machine Learning in Industry F2F with Industry. Clemson, SC.

2023 March Amazon Web Services Immersion Day Workshop. Clemson, SC.

2022 March BIRS-CMO Workshop, Algebraic Methods in Coding Theory. Virtual.

2021 July Mathematics REU Conference at Clemson University. Clemson, SC.

2021 July 3rd Post-Quantum Cryptography Standardization Conference. Virtual.