

KYLE YATES

School of Mathematical and Statistical Sciences
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US Citizen

Education

2025 May 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)

Teaching Positions

2021–present Graduate Teacher of Record, Clemson University
2020–2023 Graduate Teaching Assistant, Clemson University
2017–2020 Undergraduate Teaching Assistant, San Diego State University

Research Positions

2022 Summer Graduate Research Assistant, Clemson REU in Cryptography
2021 Summer Graduate Research Assistant, Clemson REU in Cryptography

Research Interests

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

Publications

Submitted Papers

3. Leveled Homomorphic Encryption Schemes for Homomorphic Encryption Standard (with S. Gao); 2024. Available from: <https://eprint.iacr.org/2024/991>
2. On the Hardness of the $L_1 - L_2$ Regularization Problem (with Y. Ouyang); 2024. 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/

Research Presentations

2025 March AMS Special Session on Post-Quantum Cryptography, AMS 2025 Spring Southeastern Sectional. *Precision Bounds in Approximate Homomorphic Encryption Schemes* (Talk, Upcoming). Clemson, SC.
2025 January AMS Special Session on Cryptography and Related Fields, JMM 2025. *Leveled Homomorphic Encryption Schemes for Homomorphic Encryption Standard* (**Invited Talk**, Upcoming). 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)

Courses TA'd at Clemson University

- 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

Graduate Student Organizations (Clemson)

- 2024–present College of Science Student Advisory Board
- 2023–present 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

Other Judging and Reviewing

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

Panels

- 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

Magma Computational Algebra (intermediate), Maple (intermediate), MATLAB (intermediate), Python (intermediate), R (intermediate), LaTeX (expert), Excel (intermediate)

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)

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 October Palmetto Number Theory Series XXXVI. 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.