ERICK ROSS

Email: erickjohnross@gmail.com ⋄ Website: erick-ross.github.io

EDUCATION

Bob Jones University   *09/2018 - 05/2022*
B.S. in Mathematics   GPA: 4.0
B.S. in Computer Science   GPA: 4.0

Clemson University   *09/2022 - Present*
PhD in Mathematics (in progress)   GPA: 4.0

RESEARCH INERESTS

Modular forms (both theoretical and computational aspects). Explicit computations relating to modular forms. Trace formulas. Asymptotic behavior of the Hecke operators. Asymptotic behavior of Fourier coefficients of modular forms.
I also have some interests in dynamical systems, and in theoretical computer science.

RESEARCH PAPERS

- **Dimension Sequences for Modular Forms.** Erick Ross. *In preparation.*

- **Non-repetition of second coefficients of Hecke polynomials.** Archer Clayton, Helen Dai, Tianyu Ni, Erick Ross, Hui Xue, Jake Zummo. *Submitted 2024*

- **Asymptotics and sign patterns of Hecke polynomial coefficients.** Erick Ross, Hui Xue. *Canadian Mathematical Bulletin (2025)*

- **On the average size of the eigenvalues of the Hecke operators.** William Cason, Akash Jim, Charlie Medlock, Erick Ross, Hui Xue. *Archiv der Mathematik (2025)*

- **Nonvanishing of second coefficients of Hecke polynomials on the newspace.** William Cason, Akash Jim, Charlie Medlock, Erick Ross, Trevor Vilardi, Hui Xue. *To appear in the International Journal of Number Theory*

- **Signs of the second coefficients of Hecke polynomials.** Erick Ross, Hui Xue. *To appear in the Illinois Journal of Mathematics*

- **Newspaces with Nebentypus: An Explicit Dimension Formula, Classification of Trivial Newspaces, and Character Equidistribution Property.** Erick Ross. *Submitted 2024*

RESEARCH TALKS

- 05/2025 - **When exactly will the newspaces exist?** (Upcoming) *AFW (Automorphic Forms Workshop)*, University of North Texas.

- 03/2025 - **When precisely will the newspaces of modular forms exist?** *AMS (American Mathematical Society) Southeastern Sectional Meeting*, Clemson University.

- 03/2025 - **How large can we expect the newspaces to be?** *GSS (Graduate Student Seminar)*, Clemson University.

- 12/2024 - **How large are the eigenvalues of the Hecke operators?** *PANTS (PAlmetto Number Theory Series) conference*, University of South Carolina.

- 09/2024 - **Nonvanishing of second coefficients of Hecke polynomials on the newspace.** *PANTS (PAlmetto Number Theory Series) conference*, Wake Forest University.

- 09/2024 - **How large are the Hecke eigenvalues and corresponding Fourier coefficients?** *GSS (Graduate Student Seminar)*, Clemson University.

- 05/2024 - **Nonvanishing of the Second Coefficient of General Hecke Polynomials.** *AFW (Automorphic Forms Workshop)*, Oklahoma State University.

- 04/2024 - **Eigenbasis Decomposition of Hecke Eigenform Products via the Rankin-Selberg Method.** *SERMON (SouthEastern Regional Meeting on Numbers) conference*, Wofford College.

- 02/2024 - **From Tori to Elliptic Curves.** *DECAL (Data sECurity and mAchine Learning) Research Workshop*, Clemson University.

TEACHING EXPERIENCE

Instructor of Record at Clemson University   *09/2023 - Present*

- Spr. 2025 - MATH 2070: Business Calculus II.

- Fall 2024 - MATH 1060: Calculus of One Variable I.

- Spr. 2024 - MATH 1020: Business Calculus I.

- Fall 2023 - MATH 1040: Precalculus and Introductory Differential Calculus.

Teaching Assistant at Clemson University   *09/2022 - 05/2023*

- Spr. 2023 - MATH 3110: Linear Algebra.

- Fall 2022 - STAT 2300: Statistical Methods I.

SERVICE

- 09/2025 - (Upcoming) Speaking at the Clemson University Math Club.

- 04/2025 - (Upcoming) Volunteering for the Clemson Math-In (a service to help Clemson undergraduates struggling in math).

- 04/2025 - (Upcoming) Volunteering for the Clemson Calculus Challenge (high school math outreach).

- 04/2025 - (Upcoming) Speaking at the Mathematical Sciences Symposium at Bob Jones University.

- 03/2025 - Volunteered at the 2025 AMS Southeastern Sectional Meeting.

- 10/2024 - Served as a STEM judge for the VEX Robotics high school competition.

- Summer 2024 - Supervised a group of REU students at Clemson University.

- 03/2024 and 03/2025 - Curated the problemset for the Bob Jones University programming contest

- 10/2023 - Volunteered at the PANTS XXXVI conference.

- 09/2023 and 02/2025 - Served as a panelist for the Mathematical Sciences Symposium at Bob Jones University.

- Spring 2022 - Organized a competitive programming seminar at Bob Jones University.

- Fall 2021 - Organized a Putnam exam preparation seminar at Bob Jones University.

UNDERGRADUATE AWARDS

- Highest Academic Achievement Award at Bob Jones University. (Awarded to the Senior graduating with the most credits with a 4.0 GPA.)

- Mathematics Award and Computer Science Award at Bob Jones University.

- Winner of the 2021 and 2022 Scholastic Bowls at Bob Jones University.

- Winner of the 2021 and 2022 CCSCSE Programming Contests.

- Second in the U.S. at the 2020 IEEExtreme Programming Contest.

- Advancement to the 2021 and 2024 ICPC North American Championships.

- Winner of the 2021 Mugs to Donuts x Jane Street Math Challenge.