Sean Boros

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Education

PhD in Mathematics **Expected May 2028**

Louisiana State University, Advisor: James Oxley

MS in Mathematics **May 2025**

Louisiana State University

BS in Mathematics, *summa cum laude* **2022**

University of New Orleans

Publications

- **S. Boros** and J. Oxley, *On k-connected sets in matroids*, submitted, arXiv:2610.29979 (2026).
- G. Agrahari, C. Bibby, **S. Boros**, H. Garcia, F. Heidercheidt, and Z. Wang, *On some structural properties of graphs with non-negative resistance curvature*, arXiv:2607.13169 (2026).

Research Experience

Graduate Assistant **2022-Present**

Department of Mathematics, *Louisiana State University*

- Working under advisor James Oxley to research matroid connectivity, including *k*-connected sets which have relations to tangles.

Teaching

Teaching Assistant **2022-Present**

Department of Mathematics, *Louisiana State University*

- Instructor of record, MATH 1550 Calculus I (Fall 2026).
- Instructor of record, MATH 1552 Calculus II (5-week online asynchronous, Summer 2026). Created and posted a 30-video Calculus II lecture series on YouTube.
- Instructor of record, MATH 1550 Calculus I (Spring 2026).
- Recitation instructor, MATH 1550 Calculus I (Fall 2025).

- Instructor of record, MATH 1540 Integral Calculus (5-week, Summer 2025). Wrote all tests and ensured that each student could follow the lectures. Eight of nine students passed, six of which got A's.
- Recitation instructor, MATH 1431 Business Calculus (Fall 2024, Spring 2025).
- Instructor of record, MATH 1022 Trigonometry (Spring 2024).
- Instructor of record, MATH 1021 College Algebra (Fall 2023).
- Recitation instructor, MATH 1431 Business Calculus (Fall 2022, Spring 2023).

Mentoring

Directed Reading Program **August 2025-Present**

Department of Mathematics, *Louisiana State University*

- Mentored a computer science major who was reading a graph theory textbook.
- Currently mentoring a math major who is also reading a graph theory textbook.
- Helped to teach the students elementary proof techniques and methods in graph theory.

Vertically Integrated Research **2026**

Department of Mathematics, *Louisiana State University*

- Worked with two undergraduate students to investigate resistance curvature in graphs.
- Helped these students prepare presentations and better understand some of the proofs.
- This work culminated in a paper that has been posted to arXiv (see Publications).

Vertically Integrated Research **2023**

Department of Mathematics, *Louisiana State University*

- Worked with an undergraduate math major and a computer science master's student to investigate coding theory using topological methods.
- Guided students through the preparation and presentation of our findings.

References

James Oxley, Boyd Professor of Mathematics

Louisiana State University

Julia Ledet, Instructor of Mathematics

Louisiana State University

Stephen Shipman, Professor of Mathematics

Louisiana State University