

GRANT SHIRLEY

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EDUCATION

East Tennessee State University

Expected May 2025

B.S. in Mathematics

Minor in Physics

Society of Physics Students Vice President

Swashbucklers President

Overall GPA: 3.293

EXPERIENCE

Combinatorics and Coding Theory in the Tropics

June - August 2024

Peer Mentor

Ponce, PR

- Gave lectures on topics such as mathematical reasoning, linear algebra, abstract algebra, and combinatorics.
- Assisted fellow REU students with mathematical study and research in several projects, while also participating in research.
- Served as a liaison between fellow REU participants and professors by making weekly schedules and coordinating meetings.
- Provided guidance and mentorship to younger mathematics and computer science students.
- Assisted in conflict resolution among REU participants and wrote a code of conduct for the shared living space.

Combinatorics and Coding Theory in the Tropics

June - August 2023

REU Participant

Ponce, PR

- Studied under experienced mathematicians in various topics such as Abstract Algebra, Coding Theory and Number Theory.
- Engaged in guided and self-directed mathematics research in Combinatorics, Graph Theory and Matrix Theory.
- Collaborated with other undergraduate mathematics students on projects spanning various discrete math topics.
- Presented original research to REU colleagues, as well as in two talks at Joint Mathematics Meetings 2024, and in a talk at MAA's 2024 Southeast Section Meeting.
- Currently working with fellow REU students and affiliated professors to prepare research for publication.

ETSU Renaissance Camps

June - August 2022

Noyce Summer Internship

Johnson City, TN

- Used lesson plans from experienced educators to teach STEM concepts to children between the ages of 6 and 13.
- Applied knowledge gained over this time period to develop original lessons and activities to teach math, physics, chemistry and biology concepts in an engaging way to a wide range of age groups.
- Utilized classroom management techniques to connect with students of varying ages and backgrounds.
- Assisted in the logistical and safety aspects of running a science-themed summer camp that went on frequent field trips, both in and out of state.

University Career Services

August 2021 - May 2022

Career Ambassador

Johnson City, TN

- Assisted students and alumni with a high level of customer service.
- Exhibited leadership in overseeing special projects.
- Efficiently directed calls to appropriate stakeholders.

RELEVANT COURSEWORK AND EXTRACURRICULARS

Condensed Matter Physics

East Tennessee State University

Spring 2024

B

- Instructor: Frank Hagelberg
- Textbook: *Introduction to Solid State Physics, Eighth Edition* - Charles Kittel, *Solid State Physics, First Edition* - Neil W. Ashcroft, N. David Mermin

Complex Variables

East Tennessee State University

Spring 2024

B-

- Instructor: Robert Gardner
- Textbook: *Complex Variables and Applications, Eighth Edition* - James Ward Brown, Ruel V. Churchill

Intro to Modern Algebra I, II

East Tennessee State University

Fall 2023, Spring 2024

B-, A-

- Instructor: Rodney Keaton
- Textbook: *Abstract Algebra, Third Edition* - David S. Dummitt, Richard M. Foote

Analysis I, II

East Tennessee State University

Fall 2023, Spring 2024

A-, A-

- Instructor: Anant Godbole
- Textbook: *Principles of Mathematical Analysis, Third Edition* - Walter Rudin, *Real Analysis, Fourth Edition* - H. L. Royden, P. M. Fitzpatrick

Applied Combinatorics and Problem Solving

East Tennessee State University

Fall 2023

A

- Instructor: Robert Beeler
- Textbook: *How to Count: An Introduction to Combinatorics and Its Applications* - Robert Beeler

Intro to Graph Theory

East Tennessee State University

Spring 2023

A-

- Instructor: Anant Godbole
- Textbook: *Pearls in Graph Theory: A Comprehensive Introduction* - Gerhard Ringel, Nora Hartsfield

Relevant Extracurriculars

Varying years

- Society of Physics Students - Secretary 2023-2024, Vice President 2024-Present
- Swashbucklers Tenor-Bass A Cappella - President
- ETSU Marching Bucs - Sousaphone Section Leader
- MATE Underwater Robotics
- ETSU Student Government Association - Junior Senator
- Mathes Aviation Academy
- ETSU Abstract Algebra Club
- Appalachian Chordsmen Barbershop Quartet

SKILLS

1. Technical Writing, Mathematical and Scientific Communication
2. Proficient in \LaTeX , with some experience in R and Python