

Erica Sundermeyer

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EDUCATION

University of Rochester, Rochester, NY

Bachelor of Science, Physics and Astronomy; GPA: 3.92

Minors in Spanish and Mathematics

Expected May 2026

Coursework:

Astronomy: Elementary Astronomy, Elementary Astrophysics, Observational Astronomy, Gravitation and General Relativity, Astrophysical Fluid Dynamics. Expected Spring 2026: Senior Thesis.

Physics: Classical Mechanics, Advanced Electricity and Magnetism I, Quantum Mechanics of Physical Systems, Quantum Theory, Thermodynamics and Statistical Mechanics, Nuclear and Particle Physics. Expected Spring 2026: Advanced Electricity and Magnetism II

Mathematics: Linear Algebra, Applied Boundary Value Problems, Complex Analysis.

Textbooks:

- *Classical Mechanics of Particles and Systems*, Thornton & Marion, 5th ed.
- *Introduction to Electrodynamics*, David J. Griffiths, 5th ed.
- *Introduction to Quantum Mechanics*, David J. Griffiths, 3rd ed.
- *Fundamentals of Statistical and Thermal Physics*, Frederick Reif
- *Gravity*, James B Hartle

HONORS, SCHOLARSHIPS

Astronaut Scholarship Foundation Award (2025)

Merit scholarship program with mission to ensure the United States maintains its leadership in science and technology by supporting exceptional college students pursuing degrees in STEM.

Dean's List (Fall 2022-Present)

Whipple Science & Research Scholarship (Fall 2022 - Spring 2026)

Merit scholarship awarded upon admission to University of Rochester.

RESEARCH EXPERIENCE

University of Rochester, Department of Physics and Astronomy

Undergraduate researcher, Fall 2024-Present

Advisor: Dr. Dominique Segura-Cox; d.segura-cox@rochester.edu

Observational radio astronomy project studying how evolution of star forming systems is affected by their larger environments, by analyzing the structure and kinematics of material surrounding young protostar Per-emb-2.

- Developed new method for obtaining angular momentum profile of asymmetric infalling streamer that does not rely on assumptions of axisymmetry. Verified method with theoretical streamline model.
- Developed research project and written proposal for Summer 2025.

Louisiana State University Physics and Astronomy REU

Undergraduate researcher, Summer 2024

Advisor: Prof. Gabriela Gonzalez; gonzales@lsu.edu

Performed bicoherence statistical study aimed at eliminating low frequency noise in LIGO (Laser Interferometer Gravitational-Wave Observatory) Livingston, using data from LIGO 4th observing run. Identified coupling between noise signals in an auxiliary channel and main gravitational wave channel.

- Extrapolated analysis beyond initial scope of the project to the identification of coupling of noise signals at different frequencies in any pair of channels.
- Worked mostly independently, with weekly meetings with advisor and graduate student.
- Participated in professional development workshops (scientific communication, abstract writing, CV development, etc.) and assisted with LSU Physics and Astronomy department outreach events.

PRESENTATIONS

Innovators Symposium, Astronaut Scholarship Foundation, Houston, TX. August 16, 2025. Sundermeyer, E; “Radio Data Illuminates Physics of Early Protoplanetary Disk Formation” (talk).

Rochester Symposium for Physics Students, City College of New York, New York, NY. March 1, 2025. Sundermeyer, E; Segura-Cox, D; et. al.; “Streamer Rules Disk Formation in Young Binary System” (poster).

Summer Undergraduate Research Forum, Louisiana State University, Baton Rouge, LA. August 2 2024. Sundermeyer, E; Nandi, D; Gonzales, G; “Mystery Noise in Advanced LIGO Livingston Gravitational Wave Detector” (poster).

TEACHING

University of Rochester, Department of Mechanical Engineering

Undergraduate Teaching Assistant

Fall 2025: Applied Boundary Value Problems

Advisor: Prof. Hussein Aluie; hussein@rochester.edu

Graded, led workshops, conducted weekly office hours for 52 advanced undergraduate students.

University of Rochester, Department of Physics and Astronomy

Undergraduate Teaching Assistant

Fall 2025: Advanced Electricity and Magnetism I

Advisor: Prof. Dan Watson; dmw@pas.rochester.edu

Lead weekly workshops for 22 third- and fourth-year physics and astronomy students.

Spring 2025: Mechanics

Advisor: Dr. Sheth Nyibule; snyibule@ur.rochester.edu

Lead weekly workshops for 15 first-year physics and engineering students. Assisted with exam proctoring and grading.

Spring 2024: General Physics I

Advisor: Dr. Sheth Nyibule; snyibule@ur.rochester.edu

Lead weekly workshops for 7 non-physics majors.

Fall 2023: Elementary Astronomy

Advisor: Prof. Dan Watson; dmw@pas.rochester.edu

Lead weekly workshops and occasional review sessions for 26 incoming physics and astronomy students. Supervised observation sessions with CEK Mees Observatory. Helped facilitate new students' adjustment to college academics in the Physics and Astronomy department.

COMMUNITY LEADERSHIP

Astronomy on Tap Rochester

Lead Organizer, Fall 2024 - Present

Re-established Astronomy on Tap satellite location in Rochester, NY. Organizing astronomy outreach events consisting of informal talks given by local experts and astronomy-themed trivia.

- Initiated communication with Astronomy on Tap HQ to discuss formation of Rochester satellite.
- Leading promotion and advertising efforts including logo design, social media presence, paper flyers, and communication with organizers of related events in the Rochester area.
- Coordinating with undergraduates, graduate students, postdocs, and faculty from Univ. of Rochester and Rochester Institute of Technology to recruit monthly speakers.

University of Rochester, Office of Undergraduate Research

Undergraduate Research Ambassador, Fall 2025 - Spring 2026

Volunteer duties including discussing research experience during open houses and info sessions, tabling events, and supporting students looking to get involved in research.

University of Rochester River Campus Libraries, Physics/Optics/Astronomy Library

Desk Assistant, Summer 2025 - Present

Fostered a welcoming environment in Physics/Optics/Astronomy Library as a community space for students. Shelves, organized, and maintained books, periodicals, and multimedia resources according to Library of Congress classification.

University of Rochester, Office of Orientation

Student Orientation Staff

Supervisor: Derek Pooley; orientation@rochester.edu

August 2025, August 2024: Welcome Week Leader

Connected with incoming students and families and helped them feel welcome on campus. Managed setup and execution of orientation activities for incoming students; assisted with training of welcome week volunteers.

August 2023: Welcome Week Volunteer

Assisted with setup and execution of orientation activities for incoming students.

University of Rochester, Office for Residential Life & Housing Services

First-Year Fellow, Fall 2023 - Spring 2024

Served as upper-class mentor to 61 students in first-year residence hall. Guided new students in their acclimation to university academics and utilization of academic resources on campus.

Membership

Sigma Pi Sigma: Physics & Astronomy Honor Society, U. of Rochester (Spring 2025-Present)

American Astronomical Society (Spring 2025-Present)

American Physical Society (Fall 2024-Present)

LIGO Scientific Collaboration (Summer 2024 - Spring 2025)

Society of Physics Students, University of Rochester (Fall 2022 - Present)

Society of Women in Astronomy and Physics, University of Rochester (Fall 2022 - Present)

SKILLS

Computational: Python; some experience with Git, Mathematica

Languages: English (fluent), Spanish (conversational)