Jacob Rodgers

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Education

Oregon State University — Corvallis, OR
M.S. Physics — September 2024–June 2026 *(expected)*

- Graduate Certificate in College and University Teaching

Michigan State University — East Lansing, MI
B.A. Physics — April 2024

- Minor in Computational Mathematics, Science and Engineering

Research Experience

Oregon State University – Dept. of Physics — Corvallis, OR
Graduate Research Assistant – OSU Physics Education Research — March 2025–Present
Advisor: Elizabeth Gire, Ph.D.

- Conducted quantitative analysis of student enrollment and performance data to represent pathways through the physics major at Oregon State University, which features a unique upper-division curriculum: Paradigms in Physics.
- Focused on identifying common course sequences, dropout points, and retake patterns to inform curriculum development and student support strategies.

Michigan State University – Dept. of Physics and Astronomy — East Lansing, MI
Undergraduate Researcher – Physics Education Research Lab — September 2022–August 2024
Advisor: Marcos "Danny" Caballero, Ph.D.

- Employed a qualitative interview process to try to understand computation being integrated into high school physics classrooms.
- Explored insights into how the students perceive and interact with computation, as well as the practices employed in the classroom.

Michigan State University – Dept. of Physics and Astronomy — East Lansing, MI
Undergraduate Researcher – Physics Education Research Lab — March 2022–September 2022
Advisors: Paul Irving, Ph.D. & Daryl McPadden, Ph.D.

- Deployed a card sort interview format to analyze a student's experience, in order to gain insight on how the class is perceived.
- Deduced dissonances in the way this teacher taught physics based on the practice they may be trying to teach, and how a student interacts with those dissonances.

Curriculum Development

Oregon State University — September 2024–December 2024
Accessibility Focus – General Physics with Calculus (PH 211)

- Developed recitation worksheets with improved accessibility, including color-blind–friendly palettes, screen-reader–friendly formatting, and layouts optimized for audio descriptions.

Michigan State University — August 2023–May 2024
Physics Projects Redesign – Projects and Practices in Physics, Mechanics (PHY 183B)

- Revised complex, problem-based in-class assignments in a flipped classroom to improve clarity, streamline task length, and better support student engagement.

Teaching Experience

Oregon State University

'PH' *indicates the classes taught in the Physics department*
'X students' *indicates the number of students with whom I interact directly*

Fall 2024	PH 211 General Physics with Calculus (Recitation), Graduate Teaching Assistant, 30 students
Winter 2025	PH 202 General Physics (Recitation), Graduate Teaching Assistant, 210 students
Spring 2025	PH 211 General Physics with Calculus (Studio), Graduate Teaching Assistant
Summer 2025	PH 211 General Physics with Calculus (ECampus), Graduate Teaching Assistant, 28 Students
Fall 2025	PH 201 General Physics (Recitation), Graduate Teaching Assistant, 150 students

Michigan State University

'PHY' *indicates the classes taught in the Physics department*
'X students' *indicates the number of students with whom I interact directly*

Spring 2024	PHY 183B Physics for Science and Engineers I, Undergraduate Learning Assistant, 65 students
Fall 2023	PHY 183B Physics for Science and Engineers I, Undergraduate Learning Assistant, 45 students
Spring 2023	PHY 183B Physics for Science and Engineers I, Undergraduate Learning Assistant, 39 students
Fall 2022	PHY 183B Physics for Science and Engineers I, Undergraduate Learning Assistant, 40 students

Relevant Coursework

Oregon State University

CSSA 552	Student Development in Universities and Colleges
LEAD 542	Leadership Skills for Career Success
GRAD 560	Theories of Teaching and Learning in Higher Education
GRAD 561	Course Design and Methods for College and University Teaching

Michigan State University

TE 150	Reflections on Learning
TE 101	Social Foundations of Justice and Equity in Education
TE 302	Literacy and Adolescent Learners in School and Community Contexts
PHY 804	Survey of Physics Education Research

Presentations

Contributed Talks

1. **J. Rodgers**, P.C. Hamerski, D. McPadden, M.D. Caballero, P.W. Irving, "Computation in High School Physics: How the pieces fit together", *American Association of Physics Teachers Summer Meeting (AAPT)*, Grand Rapids, Michigan. July 2022.

Posters

1. **J. Rodgers**, P.C. Hamerski, D. McPadden, L. A. H. Wood, M.D. Caballero, "Cataloging Engagement In Computational Practices In A High School Physics Classroom", *University Undergraduate Research and Arts Forum (UURAF)*, East Lansing, Michigan. April 2023.
2. **J. Rodgers**, P.C. Hamerski, D. McPadden, M.D. Caballero, P.W. Irving, "How do curriculum design decisions influence student expectations around physics and computation in a computation-integrated physics high school classroom?", *American Association of Physics Teachers Summer Meeting (AAPT)*, Grand Rapids, Michigan. July 2022.
3. **J. Rodgers**, P.C. Hamerski, D. McPadden, M.D. Caballero, P.W. Irving, "How do curriculum design decisions influence student expectations around physics and computation in a computation-integrated physics high school classroom?", *Oslo PER Summer Institute (OPSI)*, Oslo, Norway. June 2022.

Extracurricular Activities

- **Mentor** Oregon State University 2025–Current
  Served as a graduate student mentor in the departmental mentorship program, supporting first-term graduate students in their transition to being graduate teaching assistants.
- **Member** Coalition of Graduate Employees 2024–Current

- **Executive Board Member** Michigan State University Special Olympics 2023–2024
  Worked closely with other members of E-Board to maintain a stream of communication between E-Board and the members of the club.
- **Mentor** Michigan State University WaMPS Mentoring Program 2023–2024
  Mentee: Sachet Jain, Physics Major, Michigan State University
- **Volunteer** Michigan State University Special Olympics 2022–2024
  Facilitate individuals with intellectual disabilities in participating in inclusive sports and other activities.
- **Member** Society of Physics Students (SPS) Michigan State Chapter Member 2021–2024

Skills

Programming

- **Proficient:** Jupyter, Mathematica, Python, R Studio, SQL

Software

- **Proficient:** Microsoft Office, LaTeX, MAXQDA

Awards

- Undergraduate Learning Assistant Award 2024