

Alexis Buzzell

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Education

University of Utah, PhD in Physics	Expected May 2026
• Advisor: Ramón S. Barthelemy	
Worcester Polytechnic Institute (WPI), MS in Mechanical Engineering	May 2020
Worcester Polytechnic Institute (WPI), BS in Physics	May 2019
• Summa Cum Laude	

Awards

Physics Education Research Leadership and Organizing Council (PERLOC)	June 2025
Domestic Travel Grant, \$500	
Outstanding Graduate Teaching Assistant, Department of Physics & Astronomy, University of Utah, \$1000	Apr 2025
APS Group on PER (GPER) Journal Publication Fee Mini-Grant Award, \$500	Dec 2024
PERLOC Domestic Travel Grant, \$634	Apr 2024
GPER Conference Support Mini-Grant, \$1,000	Dec 2023
Swigart Fellowship, University of Utah	May 2023 - Aug 2023
Clare Booth Luce Research Scholar, WPI, \$6,000	Oct 2018 - May 2019
Summer Undergraduate Research Fellowship (SURF), WPI, \$5,000	June - Aug 2018
Nuclear Regulatory Commission (NRC) Scholarship, WPI, \$10,000	Jan - May 2018

Publications

Published

- Buzzell, A., Barthelemy, R., & Atherton, T. (2025). *Modern physics: Understanding the content taught in the U.S.*, *Physical Review Physics Education Research*, 21(1), 010139.
- Buzzell, A., Barthelemy, R., & Atherton, T. (2025). *Quantum curriculum in the US: Quantifying the instructional time, content taught, and paradigms used*, *Physical Review Physics Education Research*, 21(1), 010102.

Peer Reviewed Conference Proceedings

- Buzzell, A., & Barthelemy, R. (2024). *Certain bodies in uncertain fields: Thinking about gender through queer theory & quantum mechanics*. *Physics Education Research Conference Proceedings*.

Submitted

- Buzzell, A., Barthelemy, R., & Atherton, T. (2025). *Assessing a combined human coding and natural language processing method to qualitative analysis in physics education research* *Physics Education Research Conference Proceedings*.

In Preperation

- Buzzell, A., Barthelemy, R., & Atherton, T. (2025). *Characterization of the Graduate Level Quantum Curriculum within US Physics Doctoral Programs and Theoretical Frameworks of US Quantum Curriculum*.
- Buzzell, A., Barthelemy, R., & Atherton, T. (2025). *Using natural language processing as a cross-variational method with human intelligence methods to characterize undergraduate quantum mechanics curriculum in the US*.

Talks

Contributed

- **Buzzell, A.**, Barthelemy, R. & Atherton, T. (2025, March). *Characterization of US institution's graduate quantum mechanics curriculum* [Contributed talk]. American Physical Society Global Summit Meeting, Anaheim, CA, USA.
- **Buzzell, A.**, Barthelemy, R., & Atherton, T. (2025, March). *Characterization of the four-year undergraduate quantum curriculum across US institutions* [Poster presentation]. American Physical Society Global Summit Meeting, Anaheim, CA, USA.
- Barthelemy, R., **Buzzell, A.**, & Atherton, T. (2025, March). *Characterization of the four-year undergraduate quantum curriculum across US institutions* [Contributed talk]. American Physical Society Global Summit Meeting, Anaheim, CA, USA.
- **Buzzell, A.**, & Barthelemy, R. (2024, July). *Certain bodies in uncertain fields: Thinking about gender through queer theory & quantum mechanics* [Poster presentation]. Physics Education Research Conference Summer Meeting, Boston, MA, USA.
- **Buzzell, A.**, Barthelemy, R., & Atherton, T. (2024, July). *Quantum curriculum in the US: Quantifying the instructional time, content taught, and paradigms used* [Contributed talk]. American Association of Physics Teachers Summer Meeting, Boston, MA, USA.
- **Buzzell, A.**, Barthelemy, R., Atherton, T., & Gerton, J. (2024, April). *Modern physics: Understanding the content taught in the US* [Contributed talk]. American Physical Society April Meeting, Sacramento, CA, USA.

Teaching

Lead Teaching Assistant, University of Utah May 2025 - May 2026

- Developed and implemented course materials and curriculum for an online, asynchronous orientation for new departmental teaching assistants
- Developed materials and curriculum for and lead the in person 2025 incoming graduate student orientation
- Conducted observations of teaching assistants to provide feedback
- Developed and lead monthly workshops for teaching assistants with the objective of furthering their teaching skills and professional development

Teaching Assistant, University of Utah Jan - May 2025

- Held regular office hours for algebra based physics I course via Zoom
- Recorded problem solving tutorials for asynchronous online course
- Graded projects and exams

Teaching Assistant, University of Utah Aug - Dec 2024

- Held regular office hours for first-semester graduate-level Quantum Mechanics course
- Graded homework and exams
- Created solutions and grading rubrics for homework assignments

Teaching Assistant, University of Utah Jan - Apr 2024

- Held regular office hours for Advanced Electrodynamics and Quantum Mechanics course
- Graded homework and exams
- Created solutions and grading rubrics for homework assignments

Teaching Assistant, University of Utah Aug - Dec 2023

- Lead recitations for Intermediate Electrostatics and Quantum Mechanics course
- Held regular office hours
- Graded homework and exams

Teaching Assistant, University of Utah Jan - Apr 2023

- Lead recitations for Modern Physics course
- Held regular office hours
- Graded homework and exams
- Created solutions and grading rubrics for homework assignments

Teaching Assistant , University of Utah	Aug - Dec 2022
<ul style="list-style-type: none"> • Lead recitations for Algebra based Physics I class • Held regular office hours 	
STEM Teacher , Wy'East Mountain Academy, Sandy, OR	Aug 2021- May 2022
<ul style="list-style-type: none"> • Taught STEM classes including Physics, Precalculus, Algebra, and Geometry 	
Long Term Substitute Physics Teacher , Hadley Public Schools, Hadley, MA	Oct - Dec 2020
<ul style="list-style-type: none"> • Taught Introductory Physics, AP Physics I, and Geology • Created lesson plans, laboratory experiments, homework, and classwork assignments 	
Peer Learning Assistant , WPI	Oct - Dec 2017
<ul style="list-style-type: none"> • Instructed Physics II (electricity and magnetism) Laboratory Courses and graded lab reports 	

Experience

Graduate Research Assistant , Physics Education Research, University of Utah	Sept 2022 - Present
<ul style="list-style-type: none"> • Obtained skills in Physics Education Research (PER) methods • Focused on Quantum Education Research and the undergraduate quantum curriculum offered at US institutions • Analyzed 167 syllabi across the US to determine content taught in Modern Physics courses • Determined quantum course time required for 4 year physics degree in US 	
Graduate Research Assistant , NanoEnergy Lab, WPI	May - Sept 2019
<ul style="list-style-type: none"> • Concluded vertically grown BiI3 crystals were the optimum crystal orientation for photovoltaic applications due to record carrier lifetime of 0.6 nanoseconds, characterized by time-resolved photoluminescence spectroscopy 	
Undergraduate Research Assistant , Ultrafast THz and Optical Spectroscopy Lab, WPI	June 2018 - May 2019
<ul style="list-style-type: none"> • Characterized nanostructured BiI3 for photovoltaic applications using photoluminescence spectroscopy and time-resolved photoluminescence spectroscopy • Built experimental optical spectroscopy system to observe radiative lifetime of 2D semiconducting materials • Completed Major Qualifying Project (MQP) • Awarded Summer Undergraduate Research Fellowship and Clare Booth Luce Research Scholar Award 	
Undergraduate Research Assistant , Radiation Laboratory, WPI	Jan - May 2018
<ul style="list-style-type: none"> • Assisted in the development of a technique to enable high-resolution in-vivo functional imaging using neutrons 	

Organizations

American Association of Physics Teachers (AAPT)	2024-Present
Quantum Education Journal Club	2023-Present
<ul style="list-style-type: none"> • Organized and hosted monthly meetings. 	
American Physical Society (APS)	2023-Present
Physics and Astronomy Society for Support and Advocacy for Gender Equity (PASSAGE)	2022-Present
Society of Physics Students (SPS)	2016-2019

Outreach

Women in STEM Club Advisor , Wy'East Mountain Academy, Sandy, OR	Sept 2021-May 2022
<ul style="list-style-type: none"> • Provided Wy'East students with an inclusive space to gain hands on laboratory experience 	
STEM Started Academy Mentor , Mount Wachusett Community College, MA	July 2018
<ul style="list-style-type: none"> • Taught newly enrolled college students about optical spectroscopy 	
WPI Touch Tomorrow Science Festival , WPI, Worcester, MA	June 2018
<ul style="list-style-type: none"> • Presented physics experiments to local elementary school students through hands on activities and demonstrations 	

Undergraduate Projects & Thesis

Buzzell, A. T. & Mendizabal, A. (2019). *Photoluminescence Spectroscopy of BiI₃, a 2D Material for Photovoltaic Applications* (Undergraduate Major Qualifying Project). Retrieved from Worcester Polytechnic Institute Electronic Projects Collection.

Buzzell, A. T., Schroeder, C. C., Strauss, J. S., & Alexander, T. D. B. (2018). *A System to Monitor Microplastics on Icelandic Shores*. Retrieved from Worcester Polytechnic Institute Electronic Publications Collection.