

# JACQUELINE ACRES

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## EDUCATION

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**PhD Applied Physics**, March 2023, Portland State University

Thesis: [“Tools for characterizing bacterial motility using digital holographic microscopy as applied to simulated microgravity”](#)

**MS Biomedical Engineering**, May 2010, University of Nevada, Las Vegas

Thesis: “Modeling arterial blood flow using radial basis functions”

**BS with Honors, Chemical Engineering**, May 2008, Colorado State University

Minors: Mathematics, History, Biomedical Engineering Certificate

Honors Thesis: “Symmetric Diblock Copolymers in Nanopores: Self-Consistent Field Theory Calculations”

## TEACHING EXPERIENCE

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**Visiting Assistant Professor of Physics and Biophysics, Whitman College (July 2024-Present)**

- PHYS 145 – General Physics I – with Applications to Life and Earth Science
- BBMB/PHYS 324/325 – Biophysics lecture and laboratory

**Math and Science Tutor, Founder of Acres Tutoring (2017- 2024)**

**Adjunct Instructor, Portland State University (Winter 2024)**

- PH212 – General Physics (With Calculus) II

**Robotics Coach, Sunshine Elite Education (Summer 2023)**

- Taught summer camp students grades 1-8 using LEGO MINDSTORMS, encouraged free design and problem-solving

**Summer Camp VEX Robotics Instructor, Education Unlimited (Summer 2015, 2016, 2017)**

- Developed robotics student and instructor manuals geared towards middle and high school students with an emphasis on how to apply math and physics to robot design

**Graduate Teaching Assistant, University of Nevada, Las Vegas (2008-2010)**

- Taught freshman mechanical engineering students an introductory robotics lab using LEGO MINDSTORMS
- Taught high school students introductory robotics through a joint program with UNLV

## LEADERSHIP/PUBLIC ENGAGEMENT

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- American Physical Society – Forum of Graduate Student Affairs – Secretary ('20-present)
  - Chair for [Panel Discussion: Postdoc Perspectives: The Broad Range of Options](#)
  - Chair for [The Great Squeeze: The True Cost of Graduate School](#)
  - Co-Chair for [PhD Experiences at International Institutions - Panel](#)
- “Designing, sustaining, and assessing effective informal physics programs” – Certificate of Completion – July 2023
- Wiki Scientist 2023 Certificate of Completion
- [SACNAS Speaker at NDiSTEM 2023 for a workshop on: “Learn how to communicate effectively and productively respond to difficult conversations with reflective listening”](#)
- Invited panelist on “Engaging the Public: What works,” American Physical Society, Annual Leadership Meeting, (Jan 2023)
- [Acres, J. How to spur internal motivation in learners from a variety of educational backgrounds to engage with quantitative science. Presented as a talk at APS DPP 2023, Denver, CO. \(October 2023\)](#)
- Judged Science Fair Projects at Rachel Carson Middle School (2023, 2024)
- Presented science talks at Valley Catholic Middle School for Women in STEM Day (2023, 2024)
- Contributor to APS News: [Graduate Students Should Be Paid Living Wages](#)
- Contributor to The Oregonian: [Readers Respond: Support strong science funding](#)
- [Science Trust Coffee Hour Facilitator \(Summer 2024\)](#), sponsored through the American Physical Society

## PEER-REVIEWED PUBLICATIONS

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- Dubay, M. M., [Acres, J.](#), Riekeles, M. & Nadeau, J. L. Recent advances in experimental design and data analysis to characterize prokaryotic motility. J Microbiol Methods 204, 106658 (2023). <https://doi.org:10.1016/j.mimet.2022.106658>
- [Acres, J.](#) & Nadeau, J. 2D vs 3D tracking in bacterial motility analysis. AIMS Biophysics 8, 385-399, [doi:10.3934/biophy.2021030](https://doi.org:10.3934/biophy.2021030) (2021).
- [Acres, JM](#), Youngapelian MJ, Nadeau J. The influence of spaceflight and simulated microgravity on bacterial motility and chemotaxis. NPJ Microgravity. 2021 Feb 22;7(1):7. [doi: 10.1038/s41526-021-00135-x](https://doi.org:10.1038/s41526-021-00135-x).
- Vila Verde, A., [Jacqueline M. Acres](#), and Janna K. Maranas. “Investigating the Specificity of Peptide Adsorption on Gold Using Molecular Dynamics Simulations.” Biomacromolecules 10.8 (2009): 2118-2128. [doi: 10.1021/bm9002464](https://doi.org:10.1021/bm9002464)

## POSTERS AND PRESENTATIONS

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- [Acres, J. & Eric Valentino. Using Digital Holographic Microscopy to characterize Vibrio's chemotaxis. Poster Presentation at PSU Student Research Symposium, Portland, OR \(May 2022\)](#)

- [Acres, J. & Nadeau, J. Motility analysis of Vibrio alginolyticus after simulated microgravity. Presented as a talk at APS March Meeting 2022, Chicago, IL. \(March 2022\)](#)
- [Acres, J. Quantifying the motility of Vibrio alginolyticus after simulated microgravity using digital holographic analysis. Poster at PSU Student Research Symposium, Portland, OR. \(May 2021\)](#)

## **AWARDS**

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- Colorado State University: Undergraduate Chemical Engineering Department Awards: Outstanding Junior ('07)
- Colorado State University: Undergraduate Chemical Engineering Department Awards Academic Excellence Award ('08)
- [Oregon Space Grant Consortium \(OSGC\) Fellowship Recipient 20-21 – Amount \(\\$10000\)](#)
- PSU Physics Department Outstanding Paper Award (05/21)
- [PSU Student Research Symposium Poster Session Winner \(05/22\)](#)

## **MEMBERSHIPS/AFFILIATIONS**

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- Tau Beta Pi
- American Physical Society
- American Society of Microbiology
- Association of Science Communicators
- American Association for the Advancement of Science
- Optica