

# ERIC W. JONES

Assistant Professor, University of Colorado Colorado Springs

Department of Physics and Energy Science

[ejones15@uccs.edu](mailto:ejones15@uccs.edu)      <https://ericwjon.es/>

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## POSITIONS

<b>Assistant Professor</b> , University of Colorado Colorado Springs Department of Physics and Energy Science	2024-
<b>Banting and PIMS Postdoctoral Fellow</b> , Simon Fraser University Department of Physics	2020-24

## EDUCATION

### UC Santa Barbara

Ph.D. Physics	2020
<i>Thesis: “Simplification and control of microbial ecosystems in theory and experiment”</i>	
Certificate in College and University Teaching	2020
M.A. Physics	2018

### Colorado School of Mines

B.S. Engineering Physics, Summa Cum Laude	2015
B.S. Computational and Applied Mathematics, Summa Cum Laude	2015

## GRANTS & FELLOWSHIPS

### *Grants (~\$53,000 USD total)*

<input type="checkbox"/> <a href="#">Canadian New Frontiers in Research Fund Exploration Grant</a>	2025-28
Megan Frederickson (PI) and <b>EWJ</b> (co-PI). Total budget C\$250,000. C\$72,500 to <b>EWJ</b> . “What’s the size of a microbe’s world? Spatially-resolved interactions in a host-microbe symbiosis”	

### *Fellowships (~\$280,000 USD total)*

<input type="checkbox"/> <a href="#">PIMS Postdoctoral Fellowship</a>	C\$30,000	2022-23
<input type="checkbox"/> <a href="#">Banting Postdoctoral Fellowship</a>	C\$140,000	2020-22
<input type="checkbox"/> <a href="#">Broida-Hirschfelder Fellowship, UCSB Shoreliners</a>	\$8,000	2020
<input type="checkbox"/> <a href="#">Graduate Division Dissertation Fellowship, UCSB Graduate Division</a>	\$13,600	2019
<input type="checkbox"/> <a href="#">NSF Graduate Research Fellowship</a>	\$132,000	2016-19

## SELECTED AWARDS & ACHIEVEMENTS

### *Presentation/Writing Awards & Achievements*

<input type="checkbox"/> <a href="#">DBIO Early Career Prize Session Finalist at APS March Meeting</a>	2024
<input type="checkbox"/> First Place Talk Award, <i>Frontiers in Biophysics</i>	2022
<input type="checkbox"/> <a href="#">First Place, SFU Postdoc Research Day <i>Writing for the Public Contest</i></a>	2021
<input type="checkbox"/> <a href="#">GSNP Student Speaker Award Finalist at APS March Meeting</a>	2020

### *Teaching/Mentoring/Service/Academic Awards*

□ Outstanding TA Award, UCSB Physics Department	2020
□ Goodchild Graduate Mentoring Award, UCSB Graduate Division	2019
□ Chair's Appreciation Award, UCSB Physics Department	2019
□ Department Service Award, UCSB Physics Department	2019
□ Waltman Award, Colorado School of Mines	2015

*Presented to the campus-wide outstanding graduating senior*

## PUBLICATIONS

*peer reviewed: 11 / first author: 7 [Google Scholar]*

- 2025 R. Rafay, **E. Jones**, D. Sivak, and J. Fowler. "How to quantify immigration from community abundance data using the Neutral Community Model." *In revision at PNAS.*
- 2023 **E. Jones**, J. Derrick, R. Nisbet, W. Ludington, and D. Sivak. "First-passage-time statistics of growing microbial populations carry an imprint of initial conditions." *Scientific Reports* 13(1):21340 [[link](#)]
- 2023 R. Dodge, **E. Jones**, H. Zhu, B. Obadia, D. Martinez, C. Wang, A. Aranda-Diaz, K. Aumiller, Z. Liu, M. Voltolini, E. Brodie, K. Huang, J. Carlson, D. Sivak, A. Spradling, and W. Ludington. "A gut commensal niche regulates stable association of a multispecies microbiota." *Nature Communications* 14(1):1557 [[link](#)]
- 2022 **E. Jones**, J. Carlson, D. Sivak, and W. Ludington. "Stochastic microbiome assembly depends on context." *Proceedings of the National Academy of Sciences* 119(7):e2115877119 [[link](#)]
- 2021 **E. Jones\***, J. Sheng\*, S. Wang, and J. Carlson. "Aging-induced fragility of the immune system." *Journal of Theoretical Biology* 510:110473 [[link](#)]
- 2020 **E. Jones**, P. Shankin-Clarke, and J. Carlson. "Navigation and control of outcomes in a generalized Lotka-Volterra model of the microbiome." In *Advances in Nonlinear Biological Systems: Modeling and Optimal Control*, pg 97-120. Published by the American Institute of Mathematical Sciences. [[link](#)]
- 2020 Z. Wang, **E. Jones**, J. Mueller, and J. Carlson. "Control of ecological outcomes through deliberate parameter changes in a model of the gut microbiome." *Physical Review E* 101(5):052402 [[link](#)]
- 2019 **E. Jones** and J. Carlson. "Steady-state reduction of generalized Lotka-Volterra systems in the microbiome." *Physical Review E* 99(3):032403 [[link](#)]
- 2018 A. Gould, V. Zhang, L. Lamberti, **E. Jones**, B. Obadia, N. Korasidis, A. Gavryushkin, J. Carlson, N. Beerenwinkel, and W. Ludington. "Microbiome interactions shape host fitness." *Proceedings of the National Academy of Sciences* 115(51):E11951 [[link](#)]
- 2018 **E. Jones** and J. Carlson. "In silico analysis of antibiotic-induced Clostridium difficile infection." *PLoS Computational Biology* 14(2):e1006001 [[link](#)]
- 2018 P. Diaz, P. Constantine, K. Kalmbach, **E. Jones**, and S. Pankavich. "A modified SEIR model for the spread of Ebola in Western Africa and metrics for resource allocation." *Applied Mathematics and Computation* 324:141 [[link](#)]
- 2013 **E. Jones**, P. Roemer, M. Raghupathi, and S. Pankavich. "Analysis and simulation of the three-component model of HIV dynamics," *SIAM Undergraduate Research Online* 7:89 [[link](#)]

\*equal contribution; undergraduate or graduate research advisee

## SELECTED PRESENTATIONS

*Invited Talks (17 total)*

- 2025 **Microbiome spatial structure as a function of gut motility in fruit flies** at the Microbial Communities: Energetics and Dynamics Across Space and Time workshop hosted by the NSF-Simons National Institute for Theory and Mathematics in Biology (NITMB) at U Chicago (forthcoming, October 2025)
- 2025 **Our noisy gut: Stochastic assembly of the gut microbiome and its spatial structure** at the University of Denver Biochemistry/Biology/Biophysics seminar
- 2025 **Microbial community assembly, spatial structure, and noisy growth** at the UCSB Ecology, Evolution, and Marine Biology seminar
- 2024 **Fruit fly microbiome assembly and its implications for fecal microbiota transplantation** at the Canadian Society for Ecology and Evolution Annual Meeting
- 2024 **Noisy microbial population growth carries an imprint of initial conditions in its first-passage-time statistics** at APS March Meeting. DBIO Early Career Prize Session Finalist.
- 2024 **What's in your gut?** at the University of Colorado Colorado Springs Department of Physics & Energy Science
- 2023 **The signal in the noise: Variability in microbiome acquisition** at APS March Meeting
- 2023 **How do organisms acquire their gut microbiomes?** at the UBC Department of Physics & Astronomy
- 2023 **How do organisms acquire their gut microbiomes?** at the SFU Physics Department Colloquium
- 2021 **Dimensionality reduction of a bistable ecological system** at the PIMS-SFU Computational Math Seminar
- 2021 **Stochasticity in an ecological model of the microbiome influences the efficacy of simulated bacteriotherapies** at the PIMS Postdoctoral Fellow Seminar (held online) [[video link](#)]
- 2020 **Ecological mechanisms of direct and indirect bacteriotherapies in generalized Lotka-Volterra systems** at APS March Meeting (held online). GSNP Graduate Student Award Finalist Talk.
- 2020 **The simplification and control of microbial ecosystems** at the SFU Biophysics and Soft Matter Seminar
- 2020 **The simplification and control of microbial ecosystems** at Emory University. Theory and Modeling of Living Systems Postdoctoral Fellow Candidate Talk.
- 2020 **Immunosenescence in a coupled model of the innate and adaptive immune responses** at the Santa Fe Institute working group on Aging & Adaptation in Infectious Diseases
- 2019 **Stochastic colonization of bacteria in the fly gut** at the Department of Mathematics at the University of Hawai'i at Mānoa
- 2019 **The onset of immunosenescence in a mathematical model of the immune system** at the Santa Fe Institute working group on Aging & Adaptation in Infectious Diseases

### *Conference Talks and Posters*

- 2025 **Trade-offs between host growth rate and longevity in a plant-microbe mutualism** at the APS Global Summit
- 2025 **Stochastic acquisition of the gut microbiome in *Drosophila*** at the Stochastic Physics in Biology Gordon Research Conference
- 2022 **How do organisms acquire their gut microbiomes?** at Frontiers in Biophysics. Won the First Place Talk Award. [[video link](#)]
- 2022 **Stochastic acquisition of the gut microbiome in *Drosophila*** (poster) at AMS Microbe
- 2022 **Stochastic acquisition of the gut microbiome in *Drosophila*** (poster) at APS March Meeting [[poster link](#)]
- 2021 **Simplification and control of microbial ecosystems** (poster) at Frontiers in Biophysics [[poster link](#)] (held online)
- 2021 **Stochasticity influences the efficacy of simulated bacteriotherapies** at APS March Meeting (held online)
- 2020 **Ecological mechanisms of bacteriotherapy in generalized Lotka-Volterra systems** at the Evolutionary and Ecological Systems Biology seminar series (held online)
- 2019 **Steady-state reduction of generalized Lotka-Volterra systems in the microbiome** at APS March Meeting.
- 2018 **Simulated *C. difficile* Infection** at Dynamics Days

### **MENTORSHIP EXPERIENCE**

#### *Jones Lab @ UCCS Research Group Members:*

- 2024- Autumn Reed, graduate research assistant (M.S. Mechanical Engineering)
- 2024- Buddy Diamond, graduate research assistant (B.S. Physics and Energy Science)
- 2025- Brandon Titus, lab manager (B.S. Biology)
- 2025- Micaela Pollard, undergraduate research assistant (B.S. Health Science, expected 2025)
- 2025- Jacob Lesterud, undergraduate research assistant (B.S. Physics and Energy Science, expected 2029)
- 2025- Cody Schieder, undergraduate research assistant (B.S. Biology, expected 2025)
- 2025- Samantha Perry, undergraduate research assistant (B.S. Biology, expected 2026)

#### *Early-Career Mentorship:*

- 2023- Research mentor to graduate student Chris Carlson (University of Toronto)
- 2023- Research mentor to graduate student Ramis Rafay (Simon Fraser University)
- 2021-23 Research mentor to graduate student Joshua Derrick (Carnegie Institution for Science). Our research is published in *Scientific Reports*.
- 2018-20 Research mentor to undergraduate Parker Shankin-Clarke (UCSB). Graduate advisor for his participation in the [UC LEADS](#) and [MRL RISE](#) (3x) programs. Our research is published in the *AIMS Special Issue on Biological Systems Modeling*.
- 2018-20 Research mentor to undergraduate Zipeng Wang (UCSB). Our research is published in *Physical Review E*. Zipeng is now a physics graduate student at Johns Hopkins University.
- 2018-20 Graduate Mentor of the UCSB Undergraduate Diversity and Inclusion in Physics club
- 2016 Graduate Mentor for the UCSB Summer Institute for Mathematics and Science program

## TEACHING EXPERIENCE

- 2024-25 **Instructor** for General Physics II (PES 1120), a calculus-based electromagnetism course required by most STEM majors. Taught Fall 2024 (46 students), Spring 2025 (26 students).
- 2020 [Certificate in College and University Teaching](#)
- 2019 **Instructor** for classical mechanics (PHYS 104), an upper-division physics course, as a graduate student at UCSB. [Course notes available](#).
- 2019-20 **Ringmaster** and lead organizer of [UCSB Physics Circus](#), a physics outreach program that performs physics demonstrations at nearby elementary schools (~12 events)
- 2018-19 Designed and led (3x) the Programming Help Sessions (PHS), teaching programming skills to physics undergraduates. [Curriculum freely available](#).

## SERVICE

- 2025 Received a [FEIC diversity grant](#) (\$250) to cover student registration fees for the Conference for Undergraduate Women and Gender Minorities in Physics at CU Boulder. Attended the event to recruit for the UCCS physics graduate program.
- 2024 Panelist for “Postdoc Networking: Bridging Boundaries and Interdisciplinary Challenges in Biophysics,” an APS DBIO webinar
- 2023 Organized the Invited Symposium and Focus Session on “Variability in Biological and Living Systems” at APS March Meeting 2023
- 2022-23 President of the [SFU Postdoctoral Association](#)
- 2021-22 Vice President, Finance of the SFU Postdoctoral Association
- 2020-22 Developed and analyzed a department-wide climate survey as a member of [SFU IDEA](#)
- 2020 Cowrote a successful application with UCSB Physics Department faculty to become an [APS Bridge Partnership Institution](#)
- 2019-20 Member of the “Aging and Adapation in Infectious Diseases” working group (Santa Fe Institute)
- Peer reviewed for *Physical Review Letters*, *Nature Communications*, *Journal of the Royal Society Interface*, *Scientific Reports*, *Physical Review E*, *Microbiome*, *mBio*, *mSystems*, and *AIMS Applied Mathematics Book Series*

## MEDIA COVERAGE

- 2022 “Stochastic microbiome assembly depends on context” was selected and publicized by SFU Research as the Scholarly Impact of the Week [\[link\]](#)
- 2022 “Stochastic microbiome assembly depends on context” was covered in a *Carnegie Institution for Science* press release (by Natasha Metzler) [\[link\]](#)
- 2020 “Control of ecological outcomes through deliberate parameter changes in a model of the gut microbiome” was covered in the press by *The UCSB Current* (by Sonia Fernandez) [\[link\]](#)
- 2019 “Microbiome interactions shape host fitness” was adapted for publication in the non-profit journal *Science Journal for Kids* [\[link\]](#)
- 2018 “Microbiome interactions shape host fitness” was covered in *The UCSB Current* (by Sonia Fernandez), *Science Daily*, *Sciencemag*, *Phys.org*, *Futurity*, *EurekAlert*, and others [\[link\]](#)

Last updated 7/30/25