

ERIC W. JONES

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POSITIONS

Assistant Professor, University of Colorado Colorado Springs 2024-
Department of Physics and Energy Science

Banting and PIMS Postdoctoral Fellow, Simon Fraser University 2020-24
Department of Physics

EDUCATION

UC Santa Barbara

Ph.D. Physics 2020
Thesis: “[Simplification and control of microbial ecosystems in theory and experiment](#)”
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 (~\$72,500 CAD total)

□ Canadian New Frontiers in Research Fund Exploration Grant 2025-28
Megan Frederickson (PI) and **EWJ** (co-PI). Total budget C\$250,000. C\$72,500 to **EWJ**.
“What’s the size of a microbe’s world? Spatially-resolved interactions in a host-microbe symbiosis”

Fellowships (~\$380,000 CAD total)

□ PIMS Postdoctoral Fellowship	C\$30,000	2022-23
□ Banting Postdoctoral Fellowship	C\$140,000	2020-22
□ Broida-Hirschfelder Fellowship, UCSB Shoreliners	\$8,000	2020
□ Graduate Division Dissertation Fellowship, UCSB Graduate Division	\$13,600	2019
□ NSF Graduate Research Fellowship	\$132,000	2016-19

AWARDS & ACHIEVEMENTS

□ First Place Talk Award, Frontiers in Biophysics 2022
□ [First Place, SFU Postdoc Research Day Writing for the Public Contest](#) 2021
□ GSNP Student Speaker Award Finalist at APS March Meeting 2020
□ 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
□ Janet L. Andersen Award for Undergraduate Research in Mathematical or Computational Biology	2015
□ Outstanding Graduating Senior, CSM Engineering Physics Department	2015
□ Outstanding Graduating Senior, CSM Applied Mathematics Department	2015
□ Waltman Award, Colorado School of Mines	2015
<i>Presented to the campus-wide outstanding graduating senior</i>	

PUBLICATIONS

peer reviewed: 11 / first author: 7 / h-index: 10 / total citations: 1,020 [\[Google Scholar\]](#)

- 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*

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
- 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 APS March Meeting
- 2018 **Simulated *C. difficile* Infection** at Dynamics Days

MENTORSHIP EXPERIENCE

Current Jones Lab @ UCCS Research Group Members:

- 2025- Brandon Titus, lab manager (B.S. Biology)
- 2026- Katie Ly, URA (expected B.S. Biochemistry, 2027)
- 2025- Samantha Perry, URA (expected B.S. Biology, 2026)
- 2025- Senna Smoak, URA (expected B.S. Mathematics, 2027)
- 2025- Luna Lesterud, URA (expected B.S. Physics and Energy Science, 2029)
- 2024- Autumn Reed, GRA (M.S. Mechanical Engineering) → PhD at GIMM (expected start 2026)

Jones Lab @ UCCS Alumni:

- 2024-25 Buddy Diamond, URA (B.S. Physics and Energy Science) → M.S. in PES @ UCCS
- 2025 Micaela Pollard, URA (B.S. Health Science) → post-bacc @ Metropolitan State University
- 2025 Cody Schieder, URA (B.S. Biology) → graduate school (expected)

Early-Career Mentorship and Collaborations @ SFU:

- 2023- Ramis Rafay (PhD Biological Sciences) @ SFU in group of Jane Fowler. Our research is in revision at *PNAS*.
- 2023- Chris Carlson (expected PhD in EEB, 2027) @ U Toronto in group of Megan Frederickson
- 2021-23 Joshua Derrick (expected PhD in Biology, 2027) @ Johns Hopkins University in group of Will Ludington. Our research is published in *Scientific Reports*.

Early-Career Mentorship and Collaborations @ UCSB:

- 2018-20 Parker Shankin-Clarke (B.S. Physics) @ UCSB in group of Jean Carlson. 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 Zipeng Wang (B.S. Physics) @ UCSB in group of Jean Carlson. Our research is published in *Physical Review E*.
- 2019-21 Collaborator with Shenshen Wang (UCLA Department of Physics) and her PhD student Jiming Sheng. Our research is published in the *Journal of Theoretical Biology*.
- 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

- 2026 **Instructor** for Graduate Biophysics II (PES 5950). Taught Spring 2026.
- 2024-26 **Instructor** for General Physics II (PES 1120), a calculus-based electromagnetism course required by most STEM majors. Taught Fall 2024, Spring 2025, Fall 2025, and Spring 2026.
- 2020 Received the [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 Awarded a [FEIC diversity grant](#) to cover student registration fees for the Conference for Undergraduate Women and Gender Minorities in Physics (CU*iP) at CU Boulder
- 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 SFI “Aging and Adaption in Infectious Diseases” working group
- Peer reviewed for *Physical Review Letters*, *Nature Communications*, *Journal of the Royal Society Interface*, *Scientific Reports*, *Physical Review E*, *Microbiome*, *mBio*, *mSystems*, *Annals of Botany*, and *AIMS Applied Mathematics Book Series*

Last updated 1/14/26