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

SELECTED AWARDS & ACHIEVEMENTS

Major Fellowships (∼$280,000 USD 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

Presentation/Writing Awards & Achievements

- ☐ DBIO Early Career Prize Session Finalist at APS March Meeting — 2024
- ☐ 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

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]

2023 **E. Jones**, J. Derrick, R. Nisbet, W. Ludington, 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 research advisee*

SELECTED PRESENTATIONS

Invited Talks (14 total)

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

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

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

2020 Certificate in College and University Teaching

2019 Instructor of record for classical mechanics. Course notes available.

2019-20 Ringleader 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), which taught programming skills to physics undergraduates. Curriculum freely available.

SERVICE

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

2022 Member of the "Workshop to Advance Theory in Ecology" (Pennyslvania State University)

2021-22 Vice President, Finance of the SFU Postdoctoral Association

2020-22 Member of SFU IDEA (Inclusion, Diversity, and Equity Alliance)

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 *Nature Communications*, *Physical Review E*, *Journal of the Royal Society Interface*, *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]

2021 The SFU IDEA team was featured in the article "Advocating for data, diversity and departmental change: meet the SFU Physics Inclusion, Diversity and Equity Alliance Team" (by Natalie Lim) [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*, *Scienmag*, *Phys.org*, *Futurity*, *EurekAlert*, and others [link]

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