

Jackie Lee “JL” Weissman

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Positions:

Assistant Professor, Department of Ecology & Evolution and the Institute for Advanced Computational Science (IACS), Stony Brook University, Fall 2024 - Present

Director of Proposal Development, City College of New York, New York, NY, 2023 - 2024
– *Previously: Assistant Director of Proposal Development*

Assistant Professor of Computational Biology, Schmid College of Science and Technology, Chapman University, Orange, CA, Spring 2023 (*tenure track, resigned for family reasons*)

Postdoctoral Fellow, Department of Marine and Environmental Biology, University of Southern California, Los Angeles, CA, 2020 - 2022

Adjunct Appointments:

Adjunct Assistant Professor of Biology, the City College of New York, 2023 - Present

Adjunct Assistant Professor of Biological Sciences, USC, 2023 - Present

Adjunct Instructor of Natural Sciences, School of Art, The Cooper Union, 2023-2024

Education

Ph.D., Behavior, Ecology, Evolution, and Systematics (BEES; Fall 2019), University of Maryland College Park, College Park, MD

Graduate Certificate, Computation and Mathematics for Biological Networks (COMBINE; Fall 2019), University of Maryland College Park, College Park, MD

B.A., Mathematics and Biology (Spring 2015), Bard College, Annandale-on-Hudson, NY

External Funding

Chemical Currencies of a Microbial Planet (C-CoMP) Faculty Fellow (\$40,000), C-CoMP NSF STC, 2024

Inferring Microbial Growth in Communities to Understand a Changing Climate

NORDP Minority Serving Institution (MSI) Consultants Program (PI)

(\$150,000, plus 600 hrs research development consulting, \$20,000 stipend, travel fund), National Organization of Research Development Professionals, 2023

The City College of New York (CCNY) Aims for R1 (CARI)

DoEd Research and Development Infrastructure Program (Key Personnel)

(*Coordinated proposal and wrote significant sections*) (\$5 million),

Department of Education, 2023

Translational Research Excellence Across Disciplines (TREAD)

NSF BRC-BIO (PI) (*awarded, declined when left Chapman position*) (\$442,368),

National Science Foundation, 2023

Genomic and Metagenomic Maximum Growth Rate Estimation to Understand and Predict the Trajectories of Warming Permafrost Communities

Simons Foundation Postdoctoral Fellowship in Marine Microbial Ecology (\$246,100),

Simons Foundation, 2020-2023

Drafting an Atlas of Prokaryotic Immune Strategy in the Global Oceans

Publications (*corresponding)

Preprints:

1. Xu L., E. Zakem, J.L. Weissman*. **Improved maximum growth rate prediction from microbial genomes by integrating phylogenetic information..** *bioRxiv*
2. Laperriere S. M., B. Minch, J.L. Weissman, S. Hou, Y.C. Yeh, J.C.L. Ignacio-Espinoza, N.A. Ahlgren, M. Moniruzzaman, J.A. Fuhrman. **Phylogenetic proximity drives temporal succession of marine giant viruses in a five-year metagenomic time-series.** *bioRxiv*
3. Zakem E.J., J. McNichol[†], J.L. Weissman[†], Y. Raut, L. Xu, E.R. Halewood, C.A. Carlson, S. Dutkiewicz, J.A. Fuhrman, N.M. Levine. **Predictable functional biogeography of marine microbial heterotrophs.** *bioRxiv*
4. Buchanan P.J., X. Sun, J.L. Weissman, E. Zakem. **Oxygen intrusions sustain aerobic nitrite oxidation in anoxic marine zones.** *bioRxiv*
5. Weissman* J.L., E.R.O. Dimbo, A.I. Krinos, C. Neely, Y. Yagües, D. Nolin, S. Hou, S. Laperriere, D.A. Caron, B. Tully, H. Alexander, J.A. Fuhrman. **Estimating the maximal growth rates of eukaryotic microbes from cultures and metagenomes via codon usage patterns.** *bioRxiv*
6. Ignacio-Espinoza J.C., S. Laperriere, Y. Yeh, J.L. Weissman, S. Hou, M. Long, J.A. Fuhrman. **Ribosome-linked mRNA-rRNA chimeras reveal active novel virus host associations.** *bioRxiv*

Peer Reviewed:

1. Gleich S., L. Mesrop, J. Cram, J.L. Weissman, S. Hu, Y. Yeh, J. Fuhrman, D. Caron. 2024. **With a little help from my friends: Importance of protist-protist interactions in structuring marine protistan communities in the San Pedro Channel.** *accepted, mSystems*
2. Weissman* J.L., C.R. Chappell, B.F.R. de Oliveira, N. Evans, A.C. Fagre, D. Forsythe, S.A. Frese, R. Gregor, S.L. Ishaq, J. Johnston, Bittu K.R., S.B. Matsuda, S. McCarren, M.O.A. de la Campa, T.A. Roepke, N. Sinnott-Armstrong, C.S. Stobie, L. Talluto, J. Vargas-Muñiz, The Advancing Queer and Trans Equity in Science (AQTES) Consortium. 2024. **Queer- and trans-inclusive faculty hiring—A call for change.** *PLOS Biology* 22(11), e3002919.
3. Merchant S., J.L. Weissman, E. MacLachlan. 2024. **Creating a Broader Impacts Culture.** *Journal of Community Engagement and Scholarship* 17(2), 13.
4. Xiao W., J.L. Weissman, P.L.F. Johnson. 2024. **Ecological drivers of CRISPR immune systems.** *mSystems* e00568-24
5. Connors E., A. Dutta, R. Trinh, N. Erazo, S. Dasarathy, H. Ducklow, J.L. Weissman, Y.C. Yeh, O. Schofield, D. Steinberg, J. Fuhrman, J.S. Bowman. 2024. **Microbial community composition predicts bacterial production across ocean ecosystems.** *The ISME Journal*, p.wrae158.
6. McDonald M.D., C. Owusu-Ansah, J.B. Ellenbogen, Z.D. Malone, M.P. Ricketts, S. Frolking, J.G. Ernakovich, M. Ibba, S.C. Bagby, J.L. Weissman*. 2024. **What is Microbial Dormancy?.** *Trends in Microbiology*
7. Gregor R., J. Johnston, L. Shu Yang Coe, T. Evans, D. Forsythe, R. Jones, D. Muratore, B.F. Rodrigues de Oliveira, R. Szabo, Y. Wan, J. Williams, Queer and Trans in Microbiology Consortium, J.L. Weissman*. 2023. **Building a Queer- and Trans-Inclusive Microbiology Conference.** *mSystems* 8(5), e00433-23.
8. Fletcher-Hoppe C., Y.C. Yeh, Y. Raut, J.L. Weissman, J.A. Fuhrman. 2023. **Symbiotic diazotrophic UCYN-A strains co-occurred with El Niño, relaxed upwelling, and varied eukaryotes over 10 years off Southern California Bight.** *ISME Communications* 3(1), 63
9. Weissman* J.L., M. Peras, T.P. Barnum, J.A. Fuhrman. 2022. **Benchmarking community-wide estimates of growth potential from metagenomes using codon usage statistics.** *mSystems* 7(5), e00745-22.
10. Tao J., W. Wang, J.L. Weissman, Y. Zhang, S. Chen, Y. Zhu, C. Zhang, and S. Hou. 2022. **Size-fractionated microbiome observed during an eight-month long sampling in Jiaozhou Bay and the Yellow Sea.** *Scientific Data* 9(1), 1-8.
11. Gleich S.J., J.A. Cram, J.L. Weissman, D.A. Caron. 2022. **NetGAM: Using generalized ad-**

- ditive models to improve the predictive power of ecological network analyses constructed using time-series data. *ISME Communications* 2(1), 23
12. Weissman* J.L., S. Hou, J.A. Fuhrman. 2021. **Estimating maximal microbial growth rates from cultures, metagenomes, and single cells via codon usage patterns.** *Proceedings of the National Academy of Sciences* 118(12), e2016810118.
 13. Weissman* J.L., E.O. Alseth, S. Meaden, E.R. Westra, J.A. Fuhrman. 2021. **Immune Lag Is a Major Cost of Prokaryotic Adaptive Immunity During Viral Outbreaks.** *Proceedings of the Royal Society B* 288, 20211555.
 14. Weissman J.L., ..., P.L.F. Johnson, D. Karig, W.F. Fagan, S. Bewick. 2021. **Exploring the functional composition of the human microbiome using a hand-curated microbial trait database.** *BMC Bioinformatics* 22(1), 1471-2105.
 15. Tully B.J, J. Buongiorno, ..., L.E. Valentin-Alvarado, J.L. Weissman, BVCN Instructor Consortium. 2021. **The Bioinformatics Virtual Coordination Network: an open-source and interactive learning environment.** *Frontiers in Education* 6, 394.
 16. Weissman J.L., A. Stoltzfus, E.R. Westra, P.L.F. Johnson. 2020. **Avoidance of Self During CRISPR Immunization.** *Trends in Microbiology* 28(7), 543-553.
 17. Weissman J.L. & P.L.F. Johnson. 2020. **Network-Based Prediction of Novel CRISPR-Associated Genes in Metagenomes.** *mSystems* 5(1), e00752-19.
 18. Martí-Carreras J., ..., J.L. Weissman, V. Zalunin, A. Efremov, B. Busby. 2020. **NCBI's Virus Discovery Codeathon: Building the "FIVE" – Federated Index of Viral Experiments API index.** *Viruses* 12(12), 1424.
 19. Weissman J.L., W.F. Fagan, P.L.F. Johnson. 2019. **Linking high GC content to the repair of double strand breaks in prokaryotic genomes.** *PLOS Genetics* 15(11), e1008493.
 20. Weissman J.L., R. Laljani, W.F. Fagan, P.L.F. Johnson. 2019. **Visualization and prediction of CRISPR incidence in microbial trait-space to identify drivers of antiviral immune strategy.** *The ISME Journal* 13(10), 2589-2602.
 21. Bewick S., E. Gurarie, J.L. Weissman, J. Beattie, C. Davati, R. Flint, P. Thielen, F. Breitwieser, D. Karig, W.F. Fagan. 2019. **Trait-Based Analysis of the Human Skin Microbiome.** *Microbiome* 7(1), 101.
 22. Weissman J.L., W.F. Fagan, P.L.F. Johnson. 2018. **Selective maintenance of multiple CRISPR arrays across prokaryotes.** *The CRISPR Journal* 1(6), 405-413.
 23. Weissman J.L., R. Holmes, R. Barrangou, S. Moineau, W.F. Fagan, B. Levin, P.L.F. Johnson. 2018. **Immune Loss as a Driver of Coexistence During Host-Phage Coevolution.** *The ISME Journal* 12(2), 585-597.

Whitepapers:

1. Weissman* J.L., C.R. Chappell, B.F.R. de Oliveira, N. Evans, A.C. Fagre, D. Forsythe, S.A. Frese, R. Gregor, S.L. Ishaq, J. Johnston, Bittu K.R., S.B. Matsuda, S. McCarren, M.O.A. de la Campa, T.A. Roepke, N. Sinnott-Armstrong, C.S. Stobie, L. Talluto, J. Vargas-Muñiz, The Advancing Queer and Trans Equity in Science (AQTES) Consortium. 2024. **Running a queer- and trans-inclusive faculty hiring process.** <https://doi.org/10.32942/X2J310>

Outreach Publications:

1. Weissman J. L., S. Hou, J.A. Fuhrman. 2022. **Using DNA to Predict How Fast Bacteria Can Grow.** *Frontiers Young Minds*.
2. Weissman J. L., H.H. Yiu, P.L.F. Johnson. 2019. **What Bacteria Do When They Get Sick.** *Frontiers Young Minds*.

Teaching

Teaching at Stony Brook University,

- BEE 552: Biometry (core graduate statistics course; S25)
- SBU102: Genomes & Society (freshman seminar; S25)

Teaching at City College (Proposal Development),

- Early Career Faculty Writing Club (F23-S24)
- Broader Impacts Writing Workshop (January 2024)
- Writing an Effective DOE Promoting Inclusive and Equitable Research (PIER) Plan Workshop (October 24)

Teaching at The Cooper Union,

- RS-201-I: Genomes & Society (*interdisciplinary non-major course examining the science and the social implications of genomics*; F23, S24)

Teaching at Chapman University,

- BIOL317: General Microbiology (S23)
- Designed interdisciplinary upper-level elective **BIOL460: Genomes & Society** examining both the science and the social, ethical, and historical context of human genomics research

Instructor, Qlife Quantitative Biology Winter School: Quantitative Viral Dynamics Across Scales, Département de Biologie, École normale supérieure, Paris, France, March 2022

Facilitator, Microbial Ecology Reading Group, SBU, 2024-

Facilitator, Marine and Environmental Biology Statistics Reading Group, USC, 2020-2022

Instructor, Bioinformatics Virtual Coordination Network, 2020-2021

<https://biovcnet.github.io/>

Guest Lecturer

Stony Brook University

- BEE556: Research Areas in Ecology & Evolution, Fall 2024
- GRD500: Responsible Conduct of Research, Fall 2024
- IACS PDP: Proposal Development, Fall 2024

Reed College

- BIO331: Computational Systems Biology, Fall 2024

University of Maryland College Park

- BIOL709F: Statistics and Modeling for Biologists, Spring 2018
- BSCI464: Microbial Ecology, Spring 2018
- BSCI405: Population and Evolutionary Genetics, Spring 2017

Teaching Assistant, Calculus for the Life Sciences, Department of Biology, University of Maryland College Park, Fall 2015

Teaching Assistant, Bridge to Enter Advanced Mathematics (BEAM), The Art of Problem Solving Foundation, Cambridge, MA, Summer 2012 and 2015

Project Head, Bard Math Circle, Bard College, Annandale-on-Hudson, NY, 2011-2015

Mentoring

Mentorship Training, *CIMER Training*, Stony Brook University, 2024

Scientific “Thought-Partner”, *Artist in Residency Program*, GenSpace, 2024

Faculty Adviser, *oSTEM at Chapman*, Chapman University, 2023

Panelist, *Path of Professorship Workshop*, MIT, 2022, 2023, 2024

Panelist, *Effective Time Management for New Graduate Students (Orientation)*, USC, 2022

Workshop Organizer, *Mentoring Undergraduate Researchers: A Practical Guide for Graduate Student Mentors*, University of Maryland College Park, 2019

Undergraduate Researchers Mentored (**coauthor*, †*presented at symposium or conference*)

Stony Brook University:

Jesse Natarajan (Fall 2024 - Spring 2025; Senior Thesis)

Chapman University:

Athena Gonzalez (Spring 2023)

University of Southern California:

Edward-Robert Dimbo* (Winter 2021 - Summer 2022; GGURE)

James Rosas† (Summer 2021; National Summer Undergraduate Research Project, nsurp.org)

Yuniba Yagües*† (Summer 2020; National Summer Undergraduate Research Project, nsurp.org)

Oscar Escobedo† (Summer 2020; National Summer Undergraduate Research Project, nsurp.org)

University of Maryland College Park:

Rohan Laljani^{*†} (Fall 2017 - Summer 2019)
Vinay Veluvolu[†] (Summer 2018 - Summer 2019)
Julia Gall[†] (Fall 2018 - Spring 2019; College Park Scholars)
Cori Butkiewicz (Summer 2017 - Spring 2018)
Nicholas Penn (Spring 2017 - Summer 2017)

Service

Turner Advisory Committee, SBU Graduate School, 2025-2027
Faculty Search Committee, SBU IACS, 2024-2025
Graduate Admissions Committee, SBU Ecology & Evolution, 2024-2025
Living World Lecture Series Committee, SBU Ecology & Evolution, 2024-2025
Department Self-Study (Financials & Faculty Development), SBU Ecology & Evolution, 2024-2025
Judge, CUNY Summer Research Program Poster Session, 2024
Conference Chair, NYC Future Energy Conference, CCNY, 2024
Search Committee, Grant Writer, CCNY, 2024
Search Committee, Associate Provost for Research, CCNY, 2024
Panelist, Pride in Microbiology Network, 2023
Member, Committee on Inclusive Excellence, National Organization of Research Development Professionals, NORDP, 2023-
Co-Founder, Working Group on Trans- and Queer-Inclusive Conferences in Microbiology, 2022-2023
Organizer, Inclusive Teaching Workshop, Chapman University, 2023
DEI Taskforce Member, Schmid College, Chapman University, 2022-2023
Facilitator, DEI Journal Club on Ableism in Evolutionary Biology, USC, 2022
Reviewer, CAREER Awards, NSF, 2022
Session Co-Chair, Ocean Sciences Meeting, 2022
DEI Committee Member, Dept. of Marine and Environmental Biology (MEB), USC, 2021-2022
DEI Subcommittee on Reporting Member, MEB, USC, 2021-2022
Judge, ASM Early Career Flash Talks, October 2021
Conference Organizing Committee, Holistic Bioinformatics Approaches Used in Microbiome Research, Bioinformatics Virtual Coordination Network, Summer 2020-Summer 2021
Facilitator, Pride Month Workshop on Queering Professionalism, USC, June 2021
Co-Organizer, Pride Month Programming for MEB, USC, June 2021
Poster Judge, CRISPR 2021 Meeting, June 2021
Secretary-Treasurer, BEES Student Taskforce (BEESst), UMD-CP, Fall 2018-Spring 2019
Co-President, BEES Student Taskforce (BEESst), UMD-CP, Fall 2017-Spring 2018
Graduate Mentor, Biological Sciences Graduate Program, UMD-CP, Fall 2016, 2017
Journal Reviewer: ISME J, PNAS, Current Biology, Nature Communications, mSystems, Microbiome, Proceedings B, PLoS Comp Bio, Marine Genomics, npj Biofilms and Microbiomes, BMC Bioinformatics, J Theor Biol

Community Engagement

Collaborator/Bioinformatics Facilitator, Microbial Reef Project, GenSpace, 2024-
Participant, SciArt Workshop, BrainNY & Genspace, 2023
Co-Founder, Postdoc Outreach Project with LA Public Library, USC, 2020-2022
Project Mentor, Terps in Space, 2017, 2018, 2022
Tutor & Mentor, Joint Educational Project, USC, Spring 2020
Lead Organizer, Frontiers Young Minds Writing Group, USC, Winter-Spring 2020
Panel Reviewer, Student Spaceflight Experiments Program (SSEP) 2016-2019
Maryland Day Organizer, Biological Sciences, UMD-CP, 2016-2018
Project Leader, Bard Math Circle, Annandale-on-Hudson, NY, 2013-2015

Public Talk, GradTerps Exchange, University of Maryland, Spring 2019
Public Talk, Skype a Scientist, Summer 2020

Other Fellowships and Awards

COMBINE Network Science Fellowship (\$35,859, UMD/NSF DGE-1632976, 2018)
Devra Kleiman Memorial Scholarship (\$2,500, UMD, 2018)
GAANN Mathematical Biology Fellowship (\$74,598, UMD/U.S. Department of Education, 2015)
The Flagship Fellowship (\$50,000, UMD, 2015)
The Dean's Fellowship (\$10,000, UMD, 2015)
The Harry J. Carman Scholarship (Bard College, 2014)
The John Bard Scholarship (Division of Science, Math and Computing, Bard College, 2013)
George I. Alden Scholar (George I. Alden Trust, 2012)
The Excellence and Equal Cost Scholarship (Bard College, 2011)
The Bishop Scholarship (The Bishop Scholarship Foundation, 2011)

Summer Schools:

EMergent Ecosystem Responses to ChanGE Summer Program, EMERGE, NH, 2022
Microbial Diversity Course, Marine Biological Laboratory, Woods Hole, MA, 2018
The Search for Selection, NIMBioS, Knoxville, TN, 2018
Complex Systems Summer School, Santa Fe Institute, Santa Fe, NM, 2017
Quantitative Laws II, Lake Como School of Advanced Studies, Italy, 2016

Invited Talks

1. Microbiomes and Social Equity Seminar Series, 2024
2. Invited Abstract, American Geosciences Union, 2024
3. Department of Natural Resources, University of New Hampshire, NY, 2024
4. Department of Biology, Hofstra University, NY, 2024, 2024
5. ECR Viromics Seminar, Ohio State University/European Virus Bioinformatics Center, 2024
6. Department of Ecology and Evolution, Stony Brook University, 2024
7. Institute for Advanced Computational Science (IACS), Stony Brook University, 2024
8. Track Hub, American Society for Microbiology, TX, 2023 (Declined)
9. Physics of Life Sciences, Massachusetts Institute of Technology, MA, 2022
10. Department of Biology, California State University Los Angeles, CA, 2022
11. Department of Biology, University of Minnesota Duluth, MN, 2022
12. Simons Collab. on Comp. Biogeochem. Modeling of Marine Ecosystems (CBIOMES), 2021
13. Center for Dark Energy Biosphere Investigations (C-DEBI), 2021
14. Department of Biology, University of Pittsburgh, PA, 2021
15. Center for Advanced Biotechnology and Medicine, Rutgers University, NJ, 2021
16. Department of Biology, Chapman University, CA, 2021
17. Department of Biology, Westchester University, PA, 2021
18. Department of Biology, Lake Forest College, IL, 2021
19. Department of Biology, San Diego State University, CA, 2021
20. Computation and Mathematics for Biological Networks (COMBINE), UMD, MD, 2020
21. Department of Marine and Environmental Biology, USC, CA, 2020
22. Environment and Sustainability Institute, University of Exeter, Penryn, UK, 2019
23. Clemson University, Clemson, SC, Dec 2018

Conference Presentations (*poster, [†]talk)

Inferring microbial growth in communities—Opportunities for model-data synthesis with genomics and metagenomics

- Cold Spring Harbor Laboratory Microbiomes Conference, October 2024*
- American Geophysical Union, December 2024[†]

Running a queer-and trans-inclusive faculty hiring process

- American Geophysical Union, December 2024[†]

Demonstrating commitment with limited resources

- National Organization of Research Development Professionals Conference, May 2024[†]

Building a Community of Practice and Engagement (COPE) - A CUNY Broader Impacts Framework

- Advancing Research Impacts in Society (ARIS) Summit, April 2024*

Predicting maximal microbial growth rates from genomes and metagenomes for prokaryotes and eukaryotes

- Marine Microbes, Gordon Research Conference and Seminar, Switzerland, May 2022^{†*}
- Fifth Workshop On Trait-Based Approaches to Ocean Life, Knoxville, TN, January 2022*
- Microbial Ecology & Evolution Virtual (MEEVirtual), online, August 2020*
- CBIOMES Annual Meeting, online, June 2020*

Linking selection for high GC content to repair of double strand breaks in prokaryotic genomes

- Microbial Population Biology, Gordon Research Conference and Seminar, NH, July 2019*

Ecology Shapes Microbial Immune Strategy: Temperature and Oxygen as Determinants of the Incidence of CRISPR Adaptive Immunity

- CRISPR Ecology and Evolution, the Royal Society, London, UK, February 2019*
- Microbial Eco-Evolutionary Dynamics, Instituto Gulbenkian De Ciência, Oeiras, Portugal, October 2018*

Is Having more than one CRISPR array adaptive?

- Microbial Population Biology, Gordon Research Conference and Seminar, NH, July 2017*

Immune Loss as a Driver of Coexistence During Host-Phage Coevolution

- Evolution in Philadelphia Conference (EPiC), UPenn, April 2017[†]
- Molecular Coevolution Workshop, Princeton Center for Theoretical Science, April 2016*