Curriculum Vitae of

DR. JOAQUIN CANAL BOSQUE NUNEZ

Assistant Professor of Biology, University of Vermont

Department of Biology
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EDUCATION

Ph.D., Brown University, Providence, RI (2015-2020)
M.Sc., Brown University, Providence, RI (2015-2018)
B.Sc., University of Miami, *Summa Cum Laude*, Coral Gables, FL (2013-2015)
A.A., Miami Dade College, Highest Honors, Miami, FL (2011-2013)

RESEARCH INTERESTS

Fields of expertise: Evolutionary genomics, population genetics, molecular evolution, computational biology.

Study systems/models: Fruit flies (*Drosophila melanogaster; D. suzukii; other drosophilids*), sea urchins (*Strongylocentrotus*), water fleas (*Daphnia*), ants (*Veromessor*), barnacles (*Semibalanus sp.*), and minnows (*Fundulus*).

PROFESSIONAL APPOINTMENTS

08/2024 – Present	Assistant Professor of Biology, Dept. of Biology, University of Vermont, Burlington, VT.
09/2023 – 08/2024	Henderson-Harris Fellow, Dept. of Biology, University of Vermont, Burlington, VT.
08/2020 – 07/2023	Research Associate, Dept. of Biology, University of Virginia, Charlottesville, VA.
07/2019 – 10/2019	Visiting Fellow, *Tjärnö* Marine Laboratory, University of Gothenburg, *Tjärnö*, Sweden.

LEADERSHIP POSITIONS

08/2025 – Present	Chair of the Faculty Affairs Committee, Department of Biology, University of Vermont, Burlington, VT.
10/2023 – 06/2025	Member of the Leadership Team, Biological Data Science (BilDS) program, University of Vermont, Burlington, VT.

RESEARCH SUPPORT

12. "Experimental Evolution and Genomic Mapping of Resistance Traits in *Drosophila suzukii* Across Seasonal Environments." University of Vermont, CAS Seed Grant. Amount: US $9,972.00. October 10, 2025 - June 30, 2027. PI: **JCB Nunez**

11. "Characterizing how climate change alters the invasion front of the agricultural pest *Drosophila suzukii.*" University of Vermont, *EXPRESS*: Early Extra Promotion of Research & Scholarly Success. Award Amount: US $3,000. November 15, 2024 – December 31, 2025. PI: **JCB Nunez**

10. “Planetary Health Postdoctoral Fellows Program: Infectious Disease Modeling in a Changing World.” University of Vermont Planetary Health Initiative. Award Amount: US $132,000 (Post-Doc Salary + Research Support). September 1, 2025 - September 1, Fall 2027. Co-PIs: M. Pespeni, **JCB Nunez**, and M. Elise Lauterbur.

9. “Collaborative Research: ORCC: Climate change responses in a globally invasive insect: Quantifying the roles of local adaptation, seasonal adaptation, and phenotypic plasticity.” National Science Foundation (NSF). Organismal Responses to Climate Change, Co-Funded by IOS and EPSCoR. Award Number: 2412801. Award Amount: US $501,476 to UVM (Total amount of the collaborative grant: $1,390,732). Period of performance: December 1, 2024 - November 30, 2028. PI: **JCB Nunez**; Co-PI(s): Nick Teets and Katie Lotterhos.

8. “IRES: Monitoring marine megafauna and coral reef communities using remote technologies”. National Science Foundation (NSF), Office of International Science & Engineering (OISE). Award Number: 2246323. Award Amount: US $298,969. Period of performance July 1, 2023 - June 30, 2026. PI: L May-Collado; Co-PI: **JCB Nunez**; Former Co-PI(s): Easton White.

7. “Characterizing the temperature-dependent allele-specific expression of inversion supergenes in seasonal *Drosophila*.” University of Vermont, College of Arts and Sciences, Small Grant Research Award (SGRA). Award Amount: US $2,967.90, June 1, 2024 - June 30, 2026. PI: **JCB Nunez**

6. “Ontogenetically mediated selection in response to environmental heterogeneity in the acorn barnacle (*Semibalanus balanoides*)”, Doctoral Dissertation Enhancement Grant (DDEG), Brown University, Dept. of Ecology and Evolutionary Biology. US $10,000; 2/1/2019 - 2/1/2020. PI(s) **JCB Nunez**; Co-PI: DM Rand

5. “Evolutionary Genomics of the Northern Acorn Barnacle (*Semibalanus balanoides*)”, Graduate Research Fellowship (GRFP). National Science Foundation (NSF), US $138,000; 05/1/2015 - 05/1/2020. PI **JCB Nunez**

4. “Parallel evolution in the intertidal: investigating genetic responses to zonation", Graduate Research Opportunities Worldwide (GROW). A joint grant from the U.S. National Science Foundation (NSF), and the Swedish Research Council (*Vetenskapsrådet*), US $5,000 and SE *kr* 26,000. 7/2019 – 10/2019. PI **JCB Nunez**; Co-PI(s): DM Rand, K Johannesson and A Blomberg.

3. “Tidally-zonated polymorphisms in the northern acorn barnacle in the North Atlantic: parallel evolution or ancient polymorphism?” *Kungliga Vetenskapsakademien* (*KVA*) fund for internationalization and scientific renewal at the Sven Lovén Centre. The Royal Swedish Academy of Sciences, SE *kr* 64,100; 12/21/2018 - 12/1/2019. PI **JCB Nunez**; Co-PI: K Johannesson

2. “Evolutionary Genomics of the Mitochondrial Genome in *Fundulus*”, Small Undergraduate Research Grant Experience (SURGE). Rosenstiel School of Marine and Atmospheric Science, Amount: US $1500; 1/20/2015 - 5/1/2015. PI **JCB Nunez**

1. “Searching for signatures of natural selection in the mitochondrial genome in *Fundulus heteroclitus*”, Small Undergraduate Research Grant Experience (SURGE). Rosenstiel School of Marine and Atmospheric Science, Amount: US $1500; 1/20/2014 - 5/1/2014. PI **JCB Nunez**

RESEARCH GRANTS AWARDED TO MENTEES

11. “Quantifying the Interactions of Gradient Stressors on *Strongylocentrotus droebachiensis*.” Funded by the Summer Undergraduate Research Fellowship (SURF) program (2024), US $5000. Awarded to Emma Shaw at the University of Vermont.

10. “Testing the Impacts of *Wolbachia* on the Embryonic Thermal Tolerance of *Drosophila melanogaster* with Differing SP70 Genotypes.” Funded by the Summer Undergraduate Research Fellowship (SURF) program (2024), US $5000. Awarded to Olin King at the University of Vermont.

9. “Identifying Genes That Affect *Drosophila* Food Choice Under Thermal Stress.” Funded by the Summer Undergraduate Research Fellowship (SURF) program (2024), US $5000. Awarded to Devon Michaelson at the University of Vermont.

8. “Developing a Sea Urchin Salinity-Response Phenotyping Device.” Funded by the Academic Programs For Learning and Engagement (APLE) program (2024), US $500. Awarded to Emma Shaw at the University of Vermont.

7. “Characterizing the effect of the *In(2l)t* inversion in *Drosophila* food choice.” Funded by the Summer Undergraduate Research Fellowship (SURF) program (2024), US $5000. Awarded to Luke Proud at the University of Vermont.

6. “Characterizing the effect of the *In(2l)t* inversion in *Drosophila* food choice.” Funded by the Kay, Klieman, and Larrabee Summer Undergraduate Research Award (2024), US $1500. Awarded to Luke Proud at the University of Vermont.

5. “Genomic Investigation of Pleometrosis in *V. Pergandei*.” Funded by the Summer Undergraduate Research Fellowship (SURF) program (2024), US $5000. Awarded to Miles Garvin at the University of Vermont.

4. “Effects of the Chromosomal Inversion *In(2R)NS* on Embryonic Heat Tolerance in *Drosophila*.” Funded by the Leahy Summer Award program (2024), US $5000. Awarded to Eliza Bufferd at the University of Vermont.

3. “Quantifying settlement patterns and genetic changes across a time-series sample of the intertidal barnacle (*Semibalanus balanoides*.)” Funded by the Kay, Klieman, and Larrabee Summer Undergraduate Research Award (2024), US $5000. Awarded to Katelyn Sullivan at the University of Vermont.

2. “Characterizing the potential of Pool-Seq data for demographic inference.” Funded by the Harrison Undergraduate Research Awards (HURA; 2022), US $5,000. Awarded to David J. Bass. Co-mentored with Alan O. Bergland at the University of Virginia.

1. “Investigating Thermal Selection in the Mitochondria of the Northern Acorn Barnacle.” Funded by the Karen T. Romer Undergraduate Teaching and Research Awards (UTRA; 2018), US $3,500, Awarded to David A. Ferranti. Co-mentored with David M. Rand at Brown University.

PUBLICATIONS[1]

Refereed Journals (Published and Peer-Reviewed)

[1] Underlined authors are mentees, undergraduates are indicated as [U]. Equal author contributions are indicated as [E].

15. **Nunez, J.C.B.,** Tangwancharoen S., Finnegan K.M., Bufferd E.M[EU]., King O.C[EU]., Proud L.A[U]., Lockwood B.L., Early life-stage thermal resilience is determined by climate-linked regulatory variation (2026). *Proc. Natl. Acad. Sci. U.S.A.* 123 (2) e2518358123, https://doi.org/10.1073/pnas.2518358123.
Press Release: https://www.uvm.edu/cas/news/new-study-reveals-climate-adaptation-begins-early

14. Price D.K., West K., Cevallos-Zea M., Cahan S.H., **Nunez J.C.B.**, Longman E.K., Mederios M.J., Yew J.Y. (2025). Microbiome composition shapes temperature tolerance in a Hawaiian picture-winged *Drosophila*. *Journal of Experimental Biology*, jeb.250973. https://doi.org/10.1242/jeb.250973

13. **Nunez J. C. B[E].**, Coronado-Zamora M[E]., Gautier M., Kapun M., Steindl S., Ometto L., Hoedjes K. M., Beets J., Wiberg R.A.W., Mazzeo G.R., Bass D. J., Radionov D., Kozeretska I., Zinchenko M., Protsenko O., Serga S., Amor-Jimenez C., Casillas S., Sanchez-Gracia A., Patenkovic A., Glaser-Schmitt A., Barbadilla A., Buendia-Ruiz A. J., Bertelli A.C., Kiss B., Önder B.S., Roldán-Matrín B., Wertheim B., Deschamps C., Arboleda-Bustos C.E., Tinedo C., Feller C., Schlötterer C., Lawler C., Fricke C., Vieira C.P., Obbard D.J., Orengo D., Vela D., Amat E., Loreto E., Kerdaffrec E., Mitchell E.D., Puerma E., Staubach F., x Camus F., Colinet H., Hrcek J., Sørensen J.G., Abbott J., Torro J., Parsch J., Vieira J., Olmo J.L., Khfif K., Wojciechowski K., Madi-Ravazzi L., Kankare M., Schou M.F., Ladoukakis M., Gomez-Julian M.J., Espinosa-Jimenez M.L., Garcia-Guerreiro M.P., Parakatselaki M-E., Veselinovic M.S., Tanaskovic M., Stamenkovic-Radak M., Paris M., Pascual M., Ritchie M.G., Rera M., Jelić M., Ansari M.H., Rakic M., Merenciano M., Hernandes N., Gora N., Rode N., Rota-Stabelli O., Sepulveda P., Gibert P., Carazo P., Kohlmeier P., Erickson P.A., Vitalis R., Torres R., Guirao-Rico S., Ramos-Onsins S.E., Castillo S., Paulo T.F., Tyukmaeva V., Alonso Z., Alatortsev V., Pasyukova E., Mukha C., Petrov D., Schmidt P., Flatt T[E]., Bergland A. O[E], and Gonzalez J[E]. Footprints of worldwide adaptation in structured populations of *D. melanogaster* through the expanded DEST 2.0 genomic resource. *Molecular Biology and Evolution,* Volume 42, Issue 8, August 2025, msaf132. DOI: *https://doi.org/10.1093/molbev/msaf132*

12. Murray C.S., Karram M., Bass D.J., Doceti M., Becker D., **Nunez J.C.B.**, Ratan A., Bergland A.O. "Balancing selection and the functional effects of shared polymorphism in cryptic *Daphnia* species." *Molecular Ecology*, December 2024, https://doi.org/10.1111/mec.17632

11. **Nunez J.C.B.**, Lenhart B.A., Bangerter A., Murray C.S., Mazzeo G.R.[U], Yu Y., Nystrom T.L., Tern C., Erickson P.A., Bergland A.O., "A cosmopolitan inversion drives seasonal adaptation in overwintering *Drosophila." Genetics,* Volume 226, Issue 2, February 2024, iyad207. DOI: https://doi.org/10.1093/genetics/iyad207
Featured as the Journal Cover of the Sep 2024 Issue (Volume 228, Issue 1)

10. Rand D. M., **Nunez J.C.B.**, Williams S., Rong S., Burley J.T., Neil K.B., Spierer A.N., McKerrow W., Johnson D.S., Raynes Y., Fayton T.J., Skvir N., Ferranti D.A.[U], Zeff M. G.[U], Lyons A.[U], Okami N.[U], Morgan D.M., Kinney K., Brown B.R., Giblin A.E., Cardon Z.G. (2023). Parasite manipulation of host phenotypes inferred from transcriptional analyses in a trematode-amphipod system. *Molecular Ecology*, DOI: https://doi.org/10.1111/mec.17093

9. Barnard-Kubow K. B., Becker D., Murray C.S., Porter R., Gutierrez G., Erickson P., **Nunez J.C.B.**, Voss E., Suryamohan K., Ratan A., Beckerman A., Bergland A. O., "Genetic variation in reproductive investment across an ephemerality gradient in Daphnia pulex", *Molecular Biology and Evolution*, 2022; msac121, DOI: https://doi.org/10.1093/molbev/msac121

8. Kapun, M[E]., **J. C. B. Nunez**[E], M. Bogaerts-Márquez[E], J. Murga-Moreno[E], M. Paris[E], J. Outten, M. Coronado-Zamora, C. Tern, O. Rota-Stabelli, M. P. G. Guerreiro, S. Casillas, D. J. Orengo, E. Puerma, M. Kankare, L.

Ometto, V. Loeschcke, B. S. Onder, J. K. Abbott, S. W. Schaeffer, S. Rajpurohit, E. L. Behrman, M. F. Schou, T. J. S. Merritt, B. P. Lazzaro, A. Glaser-Schmitt, E. Argyridou, F. Staubach, Y. Wang, E. Tauber, S. V. Serga, D. K. Fabian, K. A. Dyer, C. W. Wheat, J. Parsch, S. Grath, M. S. Veselinovic, M. Stamenkovic-Radak, M. Jelic, A. J. Buendía-Ruíz, M. J. Gómez-Julián, M. L. Espinosa-Jimenez, F. D. Gallardo-Jiménez, A. Patenkovic, K. Eric, M. Tanaskovic, A. Ullastres, L. Guio, M. Merenciano, S. Guirao-Rico, V. Horváth, D. J. Obbard, E. Pasyukova, V. E. Alatortsev, C. P. Vieira, J. Vieira, J. R. Torres, I. Kozeretska, O. M. Maistrenko, C. Montchamp-Moreau, D. V. Mukha, H. E. Machado, A. Barbadilla, D. Petrov, P. Schmidt, J. Gonzalez, T. Flatt and A. O. Bergland (2021). "Drosophila Evolution over Space and Time (DEST) - A New Population Genomics Resource." *Molecular Biology and Evolution*, msab259, DOI: https://doi.org/10.1093/molbev/msab259/. **Featured as the Journal Cover of the Feb 2022 Issue (Volume 39, Issue 2)**

7. **Nunez J.C.B.**, Rong S., Ferranti D.A.[U], Damian-Serrano A., Neil K.B., Glenner H., Elyanow R.G., Brown. B.R.P., Rosenblad M.A., Blomberg A., Johannesson K., and Rand D.M. (2021) 'From tides to nucleotides: genomic signatures of adaptation to environmental heterogeneity in barnacles.' *Molecular Ecology*, DOI: https://doi.org/10.1111/mec.15949

6. **Nunez J.C.B.**, Rong S., Damian-Serrano A., Burley J.T., Elyanow R.G., Ferranti D.A.[U], Neil K.B., Glenner H., Rosenblad M.A., Blomberg A., Johannesson K., Rand D.M. (2020) "Ecological load and balancing selection in circumboreal barnacles", *Molecular Biology and Evolution*, msaa227, DOI: https://doi.org/10.1093/molbev/msaa227

5. **Nunez J.C.B.**, Flight P.A., Neil K.B., Rong S., Ericksson L.A., Ferranti D.A.[U], Ronsenblad M.A., Blomberg, A., Rand D.M. (2020) "Footprints of natural selection at the mannose-6-phosphate isomerase locus in barnacles." *Proceedings of the National Academy of Sciences* (PNAS). 201918232. DOI: www.pnas.org/cgi/doi/10.1073/pnas.1918232117.
Media coverage: *News from Brown*: Barnacles offer genetic clues on how organisms adapt to changing environments (Mar 2020); Brown University *Kudos* (Feb 2020); NSF YouTube channel: How do barnacles survive environmental changes?

4. Brown B.R.P., **Nunez J.C.B.**, Rand D.M. (2020) 'Characterizing the cirri and gut microbiomes of the intertidal barnacle *Semibalanus balanoides*.' *anim microbiome 2, 41*. DOI: https://doi.org/10.1186/s42523-020-00058-0

3. **Nunez J.C.B.**, Biancani L., Flight P.A., Rand D.M., Crawford D.L., and Oleksiak M.F. (2018) 'Stable genetic structure and connectivity in pollution-adapted and nearby pollution-sensitive populations of *Fundulus heteroclitus*.' *Royal Society Open Science* (5): 171532. DOI: http://dx.doi.org/10.1098/rsos.171532.

2. **Nunez J.C.B.** and Oleksiak M.F. (2016) 'A Cost-Effective Approach to Sequence Hundreds of Complete Mitochondrial Genomes'. *PLoS ONE* 11(8): e0160958. DOI: https://doi.org/10.1371/journal.pone.0160958.

1. **Nunez J.C.B**[E], Seale T.P.[E], Fraser M.A.[E], Burton T.L.[E], Fortson T.N.[E], Hoover D., Travis J., Oleksiak M.F., Crawford D.L. (2015) 'Population Genomics of the Euryhaline Teleost *Poecilia latipinna*'. *PLoS ONE* 10(9): e0137077. DOI: https://doi.org/10.1371/journal.pone.0137077.

Chapters in Books (Published, Not Peer-Reviewed)

1. **Nunez J.C.B**, Elyanow R.G., Ferranti D.A.[U], Rand D.M., 'Population Genomics and Biogeography of the Northern Acorn Barnacle (*Semibalanus balanoides*) using Pooled-Sequencing Approaches.' In *Population*

Genomics: Marine Organisms Series, edited by Marjorie Oleksiak and Om Rajora, Springer, Cham. DOI: https://doi.org/10.1007/13836_2018_58.

Submitted works, Preprints, and Technical Notes (Not Published, Not Peer-Reviewed, or under Peer-Review)

4. Petak C.; Sadler D. E.; **Nunez J.C.B.**, Pespeni M.H.; (2026). Evidence of Adaptation in Structural Variants among Wild Populations of the purple sea urchin, *Strongylocentrotus purpuratus*. bioRxiv 2026.01.20.700628; doi: https://doi.org/10.64898/2026.01.20.700628. (**Submitted** to *Genome Biology and Evolution; GBE*).

3. Longman E., **Nunez J.C.B.**, Sanford E.; Pespeni M.H. (2025). Geographic Divergence in Population Genomics and Shell Morphology Reveal History of Glacial Refugia in a Coastal Dogwhelk. Preprint in *BioRxiv*; doi: https://doi.org/10.1101/2025.07.22.664458. (**Submitted** to *Proceedings B*).

2. McCracken A., Roger A., Saratkar C., Brusch S., Sularz S., **Nunez J.C.B.**, Pespeni M.H. (2025). "Precursors of Sea Star Wasting: Immune and Microbial Disruption During Initial Disease Outbreak in Southeast Alaska." Preprint in *BioRxiv*; doi: https://doi.org/10.1101/2025.07.05.662347. (**Submitted to** *Proceedings B*).

1. **Nunez, J.C.B.,** Paris M., Machado H., Bogaerts M., Gonzalez J., Flatt T., Coronado M., Kapun M., Schmidt P., Petrov D., Bergland A. (2021). "Note: Updating the metadata of four misidentified samples in the DrosRTEC dataset." *bioRxiv* 2021.01.26.428249. This is a technical note. DOI: https://doi.org/10.1101/2021.01.26.428249

AWARDS & ACCOLADES

Accolades

2023 Elected co-chair of the 2025 *Gordon Research Seminar* on Ecological and Evolutionary Genomics

2022 Future Faculty Program, University of Vermont (UVM)

2022 DeLill Nasser Award, The Genetics Society of America (GSA)

2015 Honors in Marine Science, University of Miami

2014 Honorable Mention, Goldwater scholarship competition, Barry M. Goldwater Foundation

2013 Honors in Biology, Miami Dade College

Scholarships

2014 Rosenstiel School General Scholarship, University of Miami

2013 *Phi Theta Kappa* (ΦΘΚ) Presidential Scholarship, University of Miami

2012 SIGMA Scholarship, National Science Foundation & Miami Dade College,
James M. Ragen Jr. Scholarship, Miami Dade College

ACADEMIC PRESENTATIONS

Invited Talks

2026: -University of Nevada, Las Vegas, Department of Biology, NV, USA
-European *Drosophila* Population Genomics Consortium, 16th annual conference, Montpelier, France

2025: -University of North Carolina at Charlotte, Larry Mays Seminar in Bioinformatics, Department of Bioinformatics and Genomics, NC, USA
-European *Drosophila* Population Genomics Consortium, 15th annual conference, Lisbon, Portugal

2024: -University at Buffalo, Chromosomal Inversions Seminar, Dept. of Biology, NY, USA (Virtual)
-European *Drosophila* Population Genomics Consortium, 14th annual conference, Barcelona, Spain
-University of Vermont, Henderson-Harris Public Lecture to the College of Arts and Sciences, VT, USA

2022: -University of Oregon, Institute of Ecology and Evolution, OR, USA
-University of Virginia, Department of Biology, EEB seminar, VA, USA

2021: -European *Drosophila* Population Genomics Consortium, 11th annual conference, Virtual due to COVID
-Miami Dade College, STEM ARCOS Program, Keynote, Virtual due to COVID

2020: -University of Virginia, Department of Biology, EEB seminar, VA, USA

2019: -University of Gothenburg, *Tjärnö* Marine Laboratory, Sweden
-University of Gothenburg, Department of Chemistry and Molecular Biology, Sweden
-University of Vermont, Department of Biology, VT, USA

Contributed Abstracts (T = Talk; P = Poster)

2025: P: 'Direct Evidence of Seasonal Adaptive Tracking in Wild Populations of the Invasive Fruit Fly, *Drosophila suzukii'* Gordon Research Conference and Seminar (GRC/GRS): Ecological & Evolutionary Genomics (Lucca, Italy).

2024: T: 'Climate change and overwintering bottlenecks shape standing genetic variation in temperate fruit flies' 2024 Evolution Meeting (Montreal, Canada)

T: 'Modeling rapid evolution to disease in a changing world (*Trainee talk – A. McCracken*).' 2024 Evolution Meeting (Montreal, Canada)

T: 'Balancing selection and the functional effects of shared polymorphism in cryptic Daphnia species.' 2024 Evolution Meeting (Montreal, Canada)

P: 'Genetic Variation in Heat Tolerance within the *Drosophila melanogaster* Genomic Reference Panel (DGRP; *Trainee Poster – E. Bufferd*)'. 2024 Evolution Meeting (Montreal, Canada)

P: 'Genomic Investigation of Social Behavior in *Veromessor Pergandei* (*Trainee Poster – M. Garvin*)'. 2024 Evolution Meeting (Montreal, Canada)

P: 'Characterizing the feeding preference of DGRP lines of *Drosophila* (*Trainee Poster – L. Proud*)'. 2024 Evolution Meeting (Montreal, Canada)

P: 'DEST 2.0: An Expanded Genomic Resource Reveals New Insights on Fly Phylogeography and Adaptation' TAGC: The Allied Genomics Conference (Washington DC, USA)

2023: P: 'A chromosomal Inversion facilitates seasonal adaptation in *Drosophila'* Gordon Research Conference and Seminar (GRC/GRS): Ecological & Evolutionary Genomics (Rhode Island, USA).

2022: T: 'The not-so-secret life of flies: seasonal cycles of boom-and-bust demography drive evolution in *Drosophila*. Evolution meeting (Ohio, USA).

T: 'Do supergenes mediate seasonal adaptation in overwintering *Drosophila*?' 63rd Drosophila Research Conference (California, USA).

2019: P: 'From classic allozymes to whole genomes: characterizing the genetic basis of adaptation to heterogeneous environments in intertidal barnacles.' Gordon Research Conference and Seminar (GRC/GRS): Ecological & Evolutionary Genomics (New Hampshire, USA).

T: 'Ecological genetics of a classic allozyme polymorphism: *Mpi* in intertidal barnacles.' Evolution meeting (Rhode Island, USA).

2018: T: 'Natural selection shapes functional genetic variation at intertidal microhabitats in the Northern Acorn Barnacle'. Marine Evolution 2018 (Strömstad, Sweden)

T: 'Ecological Genomics of microhabitat adaptations in the Northern Acorn Barnacle'. Annual Binghamton University Biology Department Symposium (NY, USA).

2017: T: 'Ecological genomics of thermal adaptation: Genome wide screens in acorn barnacles reveal multiple loci responding to thermal gradients at tidal microhabitats.' Gordon Research Conference and Seminar (GRC/GRS): Ecological & Evolutionary Genomics (Maine, USA)

2016: P: 'Transatlantic population genomics of the northern acorn barnacle (*Semibalanus balanoides*): a comparison of F_{ST} outliers using different reference assemblies.' Evolution meeting (Texas, USA).

P: 'Populations of *Fundulus heteroclitus* adapted to pollution show high levels of genetic diversity'. RI NSF EPSCoR Research Symposium (Rhode Island, USA)

2015: T: 'Genetic Variation in Mitochondrial Genomes from Populations of *Fundulus heteroclitus* Distributed Along a Thermal Cline', Society of Integrative and Comparative Biology (Florida, USA).

2014: P: 'Mitochondrial Genomes and Oxidative Phosphorylation from Populations of *Fundulus heteroclitus* Distributed Along a Thermal Cline', American Physiological Society (California, USA).

TEACHING

Instructor of Record:

Population Genetics (BIOL 4260), University of Vermont. 20-30 Undergraduate Students (4 credits). Offered Springs 2025, 2026; Course website: https://www.jcbnunez.org/biol4260

Evolution (BIOL 3165), University of Vermont. 45-50 Undergraduate Students (3 credits). Offered Spring 2026; Course website: https://www.jcbnunez.org/biol3165

Foundations of Quantitative Reasoning (BIOL 6210), University of Vermont. 15 Graduate Students (3 credits). Offered Fall 2024, Spring 2024; Course website: https://www.jcbnunez.org/biol6210

Graduate Seminars in Biology (BIOL 6990), University of Vermont. 15 Graduate Students (3 credits). Offered Spring 2024; Course website: https://www.jcbnunez.org/biol6990

Evolutionary Biology for non-majors (BIOL 1305), University of Vermont. 40 Undergraduate Students (3 credits). Offered 2023 Fall; Course website: https://www.jcbnunez.org/biol1305

Evolutionary Genomics (BIOL 4585), University of Virginia. 10 Undergraduate Students (3 credits). Offered Winter (J-term) 2022; Course website: https://www.jcbnunez.org/biol4585j

Teaching Assistantships:

Evolutionary Biology (2015-2018, BIOL 0480), Brown University. 60-80 students (undergraduate credit).

Biostatistics (2017, BIOL 0495), Brown University. 40 students (undergraduate credit)

MENTORING AND SUPERVISION

Post-Doctoral Scholars:

Dr. Emily K. Longman (2025-Present), Population Genomics of *Nucella* snails and *Drosophila*.

Research Staff:

Katie Ann Bora (2024-Present), Laboratory Manager and Senior Technician, University of Vermont

Luke Proud (2025-Present), Bioinformatician, University of Vermont

Sebastian Redondo (2025-Present), Technician, University of Vermont

Ethan Picpican (2025-Present), Laboratory Staffer, University of Vermont

Graduate trainees:

Kit Eller (2025-Present), Ph.D. student in Biology, University of Vermont. Project: *Ecological and evolutionary genomics of the invasive fly Drosophila suzukii*.

Corey B. Forman (2025-Present), Ph.D. student in Biology, University of Vermont. Project: *Physiological Genomics of Embryonic Thermal Survival in drosophilds*.

Andrew McCracken (2023-Present), Ph.D. candidate in Biology, University of Vermont. Project: *Evolutionary simulations in a multi-stressor context* (Co-supervised with Melissa Pespeni).

Undergraduate trainees:

Maria Eileen McNeal (2026-present), B.S. student Biology, University of Vermont. Project: *TBD*.

Noah Kirshenbaum (2025-present), B.S. student Biology, University of Vermont. Project: *Characterization of the role of Wolbachia in food choice in D. melanogaster* (Co-Supervisor: Molly Stanley).

Amelia Clark (2025-present), B.S. student Biology, University of Vermont. Project: *Altitudinal Genetics of life history traits in Drosophila suzukii*.

Ava Altman (2025-present), B.S. student Biology, University of Vermont. Project: *Characterization of the role of Wolbachia in embryonic thermal tolerance in D. melanogaster* (Co-Supervisor: Brent Lockwood).

Sophie Sumner (2025-present), B.S. student Biology, University of Vermont. Project: *Embryonic Heatshock biology of Drosophila suzukii*.

Jack Eltman (2025-present), B.S. student Biology, University of Vermont. Project: *Population biology of Drosophila suzukii*.

Thomas Boland (2025), B.S. student Biology, University of Vermont. Project: *Ecological physiology of green sea urchins*.

Devon Michaelson (2024-present), B.S. student Biology (**CALS Honors Thesis**), University of Vermont. Project: *Characterizing the impact of genetic variation in a temperature-dependent feeding switch in Drosophila* (Co-Supervisor: with Molly Stanley).

Olin King (2024-present), B.S. student Biology (**CAS Honors Thesis**), University of Vermont. Project: *Genetic characterization of embryonic thermal tolerance in D. melanogaster* (Co-Supervisor: Brent Lockwood).

Emma Shaw (2023-present), B.S. student Biology (**CAS Honors Thesis**), University of Vermont. Project: *Ecological physiology of green sea urchins*.

Luke Proud (2023-2025), B.S. student Biology (**CAS Honors Thesis**), University of Vermont. Project: *Characterizing the role of the cosmopolitan inversion In(2L)t on thermally dependent food-choice behaviors of Drosophila melanogaster* (Co-Supervisor: Molly Stanley).

Eliza Bufferd (2023-2025), B.S. student Biology (**CALS Honors Thesis**), University of Vermont. Project: *Characterizing the role of the cosmopolitan inversion In(2R)NS in embryonic thermal tolerance of Drosophila melanogaster* (Co-Supervisor: Brent Lockwood).

Miles Garvin (2023-2025), B.S. student Biology, University of Vermont. Project: *Characterizing the role of epigenetic methylation in barnacle zonation* (Co-supervised with Sara Helms Cahan).

Giovanni Mazzeo (2023-2025), B.S. student Mathematical and Biology, University of Virginia (Co-Supervisor: Alan Bergland). Project: *Assessing the role of chromosomal inversion in relatedness matrices in selection inference*.

Katelyn Sullivan (2023-2024), B.S. student Biology, University of Vermont. Project: *Settlement dynamics in barnacles*.

Jake Bair (2023-2024), B.A. student Biology, University of Vermont. Project: *Bioinformatic analyses of the Ir94e gene in Drosophila*.

David J. Bass (2022-2023), B.S. Statistics, University of Virginia (Co-Supervisor: Alan Bergland). Project: *Developing a framework for demographic inference using Pool-Seq*.

David A. Ferranti (2017-2019), Sc.B. Biology, Brown University with honors (Co-Supervisor: David M. Rand). Project: *Trans-arctic demography of the acorn barnacle*.

Other mentoring:[2]

Dr. Daniel Sadler (2024-Present; Supervised by Melissa Pespeni), Genomics of purple sea urchins.

Surbhi Nahata (2025-Present), MS student in the Biostatistics Program in CEMS (I act as research supervisor).

Graduate Committees:

Sarah Stover (2025-Present), PhD Committee, Biology (CAS), University of Vermont.

Alexander Kissonergis (2025-Present), PhD Committee, Agroecology (CALS), University of Vermont.

Ashley Lantigua (2024-Present), PhD Committee, Plant Biology (CALS), University of Vermont.

Emily Dombrowski (2024-Present), PhD Committee, Biology (CAS), University of Vermont.

Jacqueline Guillemin (2024-2025), PhD Committee, Biology (CAS), University of Vermont.

Megan O'Connor (2024-2025), AMP Committee, Biology (CAS), University of Vermont.

Undergraduate Committees:

Astra Bertelli (2024-2025), Thesis Committee, University of Pavia (Italy).

Cy Stavros (2025-2026), Thesis Committee, Plant Biology (CALS), University of Vermont.

Ava Vitters (2025-2026), Thesis Committee, Biology (CAS), University of Vermont.

SERVICE

To the Profession:

Proposal review (*ad hoc* and panelist):

1. National Science Foundation (NSF):
    - Division of Environmental Biology: *ad hoc* reviewer in 2022, 2024.
    - Division of Biological Infrastructure: panelists in 2024.
2. National Oceanic and Atmospheric Administration (NOAA):
    - Sea Grant: *ad hoc* reviewer in 2021.
3. University of Vermont (UVA), internal competitions:

[2] Refers to cases where substantial intellectual and technical guidance is provided without any formal supervisory responsibilities

- Global Catalyst Research Partnerships: *ad hoc* reviewer in 2024.

Scientific journal peer review and pre-submission inquiries:

1. *Science Advances*
2. *Current Biology*
3. *Molecular Ecology*
4. *Genetics*
5. *Trends in Genetics*
6. *Journal of Heredity*
7. *Evolution*
8. *Biol. Journal of the Linnean Society*
9. *Evolutionary Applications*
10. *Peer J.*
11. *Scientific Reports*
12. *PLoS ONE*
13. *Drug and Chemical Toxicology*

Conferences and Symposia (organizer):

2025: Co-Chair of the *Gordon Research Seminar* (GRS) in Ecological and Evolutionary Genomics with Dr. Charikleia Karageorgiou. July 12 - 13, 2025, Tuscany, Italy.

To the University (University of Vermont):

2025–present Assistant Marshal, University of Vermont Commencement Ceremonies

2024–present Faculty Advisor, Vermont Advanced Computing Center (VACC) Advisory Committee, UVM

2024–present Faculty Advisor, Society for the Advancement of Chicanos/Hispanics and Native Americans in Science, UVM chapter, UVM

2024–present Member of the faculty affairs committee, Dept. of Biology, UVM. *Chair since 2025*.

2024–present Leader of the UVM-GO Iceland program, Office of International Programs, UVM

2023–2025 Member of the media committee, Dept. of Biology, UVM

To the Community

2025 Display on the genomic of invasive insects, Tunbridge World's Fair, Tunbridge, VT

2020–2023 Project Coordinator, Backyard Evolution Citizen Science Project, University of Virginia

2019, 2022 Mentor to undergraduate students. Undergraduate Diversity program of the Society for the Study of Evolution

2016–2017 Brown Junior Researcher Program (BJRP) with Boys & Girls Club of Providence, East Providence, and Providence, RI.

2015 SACNAS Educational Outreach Program with 1st Grade Students, Hennessey Elementary, East Providence, RI

2015 Invited Lecture for High School Students: The Wheeler School, Providence, RI.

2012–2015 Mentor for High School Students, STEM FYE program, Miami Dade College