MELISSA H. PESPENI

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EDUCATION

2010	Ph.D., Biology, Stanford University
2002	B.S., Ecology, Behavior & Evolution, University of California, San Diego
2002	B.A., Critical Gender Studies, University of California, San Diego

PROFESSIONAL EXPERIENCE

2020-now	Associate Professor, Department of Biology, University of Vermont (UVM)
2017-2024	Director, Quantitative & Evolutionary STEM Traineeship (QuEST), University of Vermont
2014-2020	Assistant Professor, Department of Biology, University of Vermont
2011-2014	National Science Foundation Postdoctoral Fellow in Biology, Indiana University
2010-2011	National Science Foundation-funded Postdoctoral Fellow, Stanford University
2006-2008	National Science Foundation Graduate Research Fellow, Stanford University
2002-2005	Research Scientist, University of California, San Francisco
2001-2002	Ronald E. McNair Fellow, University of California, San Diego

GRANTS

2024-2029	**Pending:** NIH MIRA, "Evolutionary genomics of complex traits in the wild and the lab," **M.H. Pespeni (PI)**. $1,884,916
2022-2024	NASA EPSCoR, "Sea Star Wasting Disease as a Model for Understanding Skin Dysbiosis in Space," **M.H. Pespeni (PI)**. $38,000
2020-2022	National Science Foundation, "EAGER: An Ecologically Inspired Human-Machine Intelligence Approach to Recognizing Similitude in Multi-Scale Watershed Research," S. Hamshaw (PI), Co-PIs: D. Rizzo, B. Lee, **M.H. Pespeni**, K. Underwood. $299,971
2020-2025	National Science Foundation, "CAREER: Mechanisms and costs of temperature adaptation along a latitudinal cline for the coastal copepod, Acartia tonsa," **M.H. Pespeni (PI)**. $1,455,775
2017-2022	National Science Foundation, "NRT: *Qu*antitative & *E*volutionary *S*TEM *T*raining (QuEST): An Integrative Training Program for Versatile STEM Professionals to Solve Environmental and Global Health Problems," **M.H. Pespeni (PI)**, Co-PIs: L. Stevens, V. Kanagala, S.R. Keller, L. Hebert-Dufresne. $3,000,000
2017-2021	National Science Foundation, RII Track-2: "Using biophysical protein models to map genetic variation to phenotypes," F.M. Ytreberg (PI), Co-PIs: H. Wichman, B.L. Lockwood, C. Miller, D.M. Weinreich, B. Ogbunugafor, **M.H. Pespeni**. $6,000,000 total, $355,875 to Co-I Pespeni
2016-2019	National Science Foundation, "Collaborative Research: Transgenerational phenotypic and genomic responses of marine copepods to the interactive effects of temperature and CO_2," **M.H. Pespeni (PI)**, Collaborators at U.Conn.: H. Dam (PI), Co-PIs: H. Baumann, M. Finiguerra. $886,917 total, $377,233 to PI Pespeni
2016-2017	National Science Foundation, "RAPID: Investigation of natural selection and host-microbiome-virome interactions in an unprecedented and ongoing marine epidemic", **M.H. Pespeni (PI)**. $196,449
2004	National Institutes of Health, NIGMS supplement to RO1 to support diversity in STEM, **M.H. Pespeni** co-wrote with J.F. Pittet (PI), $67,165

FELLOWSHIPS

2011-2014	National Science Foundation, Postdoctoral Fellowship in Biology, $189,000
2011-2014	National Institutes of Health, National Research Service Award (NRSA) Post-doctoral Fellowship, withdrew to accept NSF Postdoctoral Fellowship
2006-2008	National Science Foundation, Graduate Research Fellowship, $123,000
2001-2002	Ronald E. McNair Fellow, University of California, San Diego, $5,500

HONORS & AWARDS

2024	Kroepsch-Maurice Excellence in Teaching Award, Student nominated, Finalist, University of Vermont
2023	Inaugural Donald L. Mykles Visiting Scholar in Integrative Biology, University of California, Davis, Bodega Marine Laboratory
2023	Faculty Mentor Award, Honored as Runner Up for the Student Research Conference, University of Vermont
2020	Blavatnik Young Investigator Award Nominee, Selected as the nominee for Life Sciences at UVM
2019	National Science Foundation Waterman Award Nominee, Selected as the nominee for UVM in association with NSF CAREER award
2018	Blavatnik Young Investigator Award Nominee, Selected as the nominee for Life Sciences at UVM
2016	Graduate Student Senate *Excellence in Teaching* Award Nomination, UVM
2015	Early Career Travel Award, Association for the Sciences of Limnology and Oceanography ($500)
2013	Selected participant, National Science Foundation Workshop on Writing and Productivity for Young Investigators, Pembroke, VA
2009	Best Student Paper, Honorable mention, Western Society of Naturalists
2008	Jane Miller Scholars Award ($1000)
2004	Graduate Student Highlights Poster Discussion, FASEB Experimental Biology

PUBLICATIONS

Pespeni lab mentees are bolded.

Preprints and manuscripts submitted or in review/revision:

44. **Ashlock, Crooker, Kaloudis, Pespeni, M.H.** Thermal tracking along a latitudinal gradient and physiological tradeoffs in temperature and salinity tolerance among life stages in a foundational estuarine copepod. *In review* at *Oikos*.

43. deMayo, J.A., **Brennan, R.S.**, **Pespeni, M.H.,** Jaspers, C., Dam, H., Varpe, O., and Lee, C.E. Limits and costs of adaptation in the Anthropocene. *In review* at *TREE*.

42. **Brennan, R.S.**, & **Pespeni, M.H.** Evolve and resequence from natural populations: A powerful tool for understanding the mechanisms of and potential for adaptive evolution. *In revision*.

Journal articles published or in press:

41. **Brennan, R.S.**, deMayo, Finiguerra, M.B., Baumann, H., Dam, H.G., and **Pespeni, M.H.** 2025 Complementary genetic and epigenetic changes shape rapid adaptation to multiple global change stressors. *Accepted*, *Proceedings of the National Academy of Sciences*.

40. **Ashlock, Darwin, Crooker,** deMayo, Dam, **Pespeni**. 2024 Developmental temperature, more than long-term evolution, defines thermal tolerance in an estuarine copepod. *Ecology and Evolution*. *14*(2), e10995.

39. deMayo, J.A., **Brennan, R.S.**, **Pespeni, M.H.,** Finiguerra, M.B., Norton, L., Park, G., Baumann, H. and Dam, H.G. (2023) Simultaneous warming and acidification limits population fitness and reveals phenotype costs for a marine copepod. *Proceedings of the Royal Society, B*. *290*(2006), 20231033.

38. **Petak, C.**, Frati, L., **Pespeni, M. H.**, & Cheney, N. (2023). Coping with seasons: evolutionary dynamics of gene networks in a changing environment. *Proceedings of the Companion Conference on Genetic and Evolutionary Computation*. 163-166.

37. **Pespeni, M.H** and **Lloyd, M.M.** (2023) Sea stars resist wasting through an active immune and collagen systems. *Proceedings of the Royal Society, B.*, 290: 20230347.

36. **McCracken, A.R.**, Christensen, B.M., Munteanu, D., Case, B.K.M., **Lloyd, M.M.**, Herbert, K.P. & **Pespeni, M.H.** (2023) Microbial dysbiosis precedes signs of Sea Star Wasting Disease in wild populations of *Pycnopodia helianthoides. Frontiers in Marine Science.*

35. **Petak, C.**, Frati, L., **Brennan, R.S.**, & **Pespeni, M.H.** (2023) Whole genome sequencing reveals regulatory and low pleiotropy variants underlie local adaptation to environmental variability in purple sea urchins. *The American Naturalist.*

34. **Brennan, R.S.**, deMayo, Dam, H.G., Finiguerra, M.B., Baumann, H., Buffalo, V., and **Pespeni, M.H.** (2022) Experimental evolution reveals the genomic mechanisms of rapid adaptation to warming and acidification in a marine copepod. *Proceedings of the National Academy of Sciences*, 119:38, e2201521119. Press release.

33. **Brennan, R.S.**, deMayo, Dam, H.G., Finiguerra, M.B., Baumann, H., and **Pespeni, M.H.** (2022) Loss and recovery of transcriptional plasticity after long-term adaptation to global change conditions in a marine copepod. *Nature Communications*, 13:1, 1-13. Press release

32. **Shore, E.A., Huber, K., Garrett, A.D.**, and **Pespeni, M.H.** (2022) Four plastic additives reduce larval growth and survival in the sea urchin, *Strongylocentrotus purpuratus*. *Marine Pollution Bulletin,* 175, 113385.

31. Dam, H.G., deMayo, J.A., Park, G., Norton, L., He, X., Finiguerra, M.B., Baumann, H., **Brennan, R.S.**, and **Pespeni, M.H.** (2021) Rapid, but limited, zooplankton adaptation to simultaneous warming and acidification. *Nature Climate Change*, 11, 780–786.

30. **Shore, E.A.,** deMayo, J.A., and **Pespeni, M.H.** (2021) Microplastics reduce net population growth and fecal pellet sinking rates for the marine copepod, *Acartia tonsa*. *Environmental Pollution*, 284, 117379.

29. **Pespeni, M.H.** and Moczek, A.P. (2021) Signals of selection beyond bottlenecks between exotic populations of the bull-headed dung beetle, *Onthophagus taurus*. *Evolution & Development*, 23:2, 86-99.

28. **Garrett, A., Brennan, R.S., Steinhart, A., Pelletier, A., Pespeni, M.H.** (2020) Unique genomic and phenotypic responses to extreme and variable pH conditions in purple urchin larvae. *Integrative and Comparative Biology*, 60:2, 318-331.

27. Palumbi, S.R, Evans, T.G., **Pespeni, M.H.**, Somero, G.N. (2019) Present and future adaptation of marine species assemblages: DNA-based insights into climate change from studies of physiology, genomics and evolution. *Oceanography*, 32(3), 82-93.

26. **Brennan, R.S.**, **Garrett, A., Huber, K., Hargarten, H., Pespeni, M.H.** (2019) Rare genetic variation and balanced polymorphisms are important for survival in global change conditions. *Proceedings of the Royal Society, B.*, 286: 20190943. Press release.

25. **Lloyd, M.M.** and **Pespeni, M.H.** (2018) Microbiome shifts with onset and progression of Sea Star Wasting Disease revealed through time course sampling. *Scientific Reports*, 8:1, 16476.

    [Press coverage: WCAX TV, Monterey Herald, DW Science, Quartz, Press release]

24. Maynard, A., Bible, J.M., **Pespeni, M.H.**, Sanford, E., and Evans, T.G. (2018) Transcriptomic responses to extreme low salinity among locally adapted populations of Olympia oyster. *Molecular Ecology*

23. Laruson, A.J., Coppard, S.E., **Pespeni, M.H.**, and Reed, F.A. (2018) Gene expression across tissues, sex, and life stages in the sea urchin *Tripneustes gratilla*. *Marine Genomics*

22. **Pespeni, M.H.**, Ladner, J.T. and A. P. Moczek. (2017) Signals of selection in conditionally expressed genes in the diversification of three horned beetle species. *Journal of Evolutionary Biology*, 30:9, 1644-1657.

21. Evans, T. G.*, **Pespeni**, **M.H.*,** G. E. Hofmann, S. R. Palumbi, E. Sanford. (2017) Transcriptomic responses to seawater acidification among sea urchin populations inhabiting a natural pH mosaic. *Molecular Ecology*, DOI: 10.1111/mec.14038. * Equal contributions.

20. **Lloyd, M.M.**, **Makukhov, A.** and **Pespeni, M.H.** (2016) Loss of genetic diversity as a consequence of selection in response to high pCO_2. *Evolutionary Applications*, 9:9, 1124-1132.

19. De Wit, P.*, **Pespeni, M.H.*,** & Palumbi, S. R. (2015) SNP genotyping and population genomics from expressed sequences–current advances and future possibilities. *Molecular ecology*, 24(10), 2310-2323. * Equal contributions.

18. Evans, T. G., J. L. Padilla-Gamiño, M. W. Kelly, **Pespeni**, **M.H.,** F. Chan, B. A. Menge, B. Gaylord, T. M. Hill, A. D. Russell, S. R. Palumbi, E. Sanford, G. E. Hofmann. (2015) Ocean acidification research in the 'post-genomic' era: roadmaps from the purple sea urchin *Strongylocentrotus purpuratus*. *Comparative Biochemistry and Physiology, Part B.*, 185:33-42.

17. Kijimoto, T., E.C. Snell-Rood, **Pespeni**, **M.H.,** G. Rocha, K. Kafadar, A.P. Moczek. (2014) The nutritionally responsive transcriptome of the polyphenic beetle *Onthophagus taurus* and the importance of sexual dimorphism and body region. *Proceedings of the Royal Society, B.*, 281:1797, 2014-2084.

16. **Pespeni, M.H.**, F. Chan, B. A. Menge, S. R. Palumbi. (2013) Signs of adaptation to local pH conditions across an environmental mosaic in the California Current Ecosystem. *Integrative and Comparative Biology,* 53:5, 857-870.

15. **Pespeni, M.H.**, E. Sanford, B. Gaylord, T. M. Hill, J. D. Hosfelt, H. Jaris, M. LaVigne, E. Lenz, A. D. Russell, M. K. Young, and S. R. Palumbi. (2013) Evolutionary change during experimental ocean acidification. *Proceedings of the National Academy of Sciences,* 110:17, 6937-6942.

    [Press coverage by *Nature, Scientific American, New Scientist, Mother Jones, Science News for Kids*, and more.]

14. **Pespeni, M.H.** and S. R. Palumbi. (2013) Signals of selection in outlier loci in a widely dispersing species across an environmental mosaic**.** *Molecular Ecology*, 22:13, 3580-3597.

13. **Pespeni, M.H.**, B. Barney and S. R. Palumbi. (2013) Differences in the regulation of growth and biomineralization genes revealed through long-term common-garden acclimation and experimental genomics in the purple sea urchin. *Evolution,* 67:7, 1901-1914.
12. Kijimoto, T.,* **Pespeni**, **M.H.,*** O. Beckers,* and A. P. Moczek. (2012) Beetle horns and horned beetles: emerging models in developmental evolution and ecology. *WIREs Developmental Biology*, 2:3, 405-418. * Equal contributions.
11. De Wit, P.,* **Pespeni**, **M.H.,*** J. T. Ladner, D. J. Barshis, F. Seneca, H. Jaris, N. Overgaard Therkildsen, M. Morikawa, and S. R. Palumbi. (2012) The Simple Fool's Guide to population genomics: Gene expression and SNP data analysis in the age of high-throughput sequencing. *Molecular Ecology Resources*, 12, 1058-1067. * Equal contributions.
10. **Pespeni, M.H.**, D. A. Garfield, M. K. Manier, and S. R. Palumbi. (2012) Genome-wide polymorphisms show unexpected targets of natural selection. *Proceedings of the Royal Society, B.*, 279:1732, 1412-1420.
9. **Pespeni, M.H.**, T. A. Oliver, M. K. Manier, and S. R. Palumbi. (2010) Restriction Site Tiling Analysis: accurate discovery and quantitative genotyping of genome-wide polymorphisms using nucleotide arrays. *Genome Biology*, 11:R44.
8. Woodson, C. B., D. I. Eerkes-Medrano, A. Flores-Morales, M.M. Foley, S.K. Henkel, M. Hessing-Lewis, D. Jacinto, L. Needles, M.T. Nishizaki, J. O'Leary, C.E. Ostrander, **Pespeni, M.H.**, K.B. Schwager, J.A. Tyburczy, K.A. Weersing, A.R. Kirincich, J.A. Barth, M.A. McManus, L. Washburn. (2007) Local diurnal upwelling driven by sea breezes in northern Monterey Bay. *Continental Shelf Research*, 27:18, 2289-2302.
7. **Pespeni, M.H.**, M. Hodnett, K. S. Abayasiriwardana, J. Roux, M. Howard, V. C. Broaddus and J.F. Pittet. (2007) Sensitization of mesothelioma cells to tumor necrosis factor–related apoptosis–inducing ligand–induced apoptosis by heat stress via the inhibition of the 3-phosphoinositide-dependent kinase 1/Akt pathway. *Cancer Research*, 67, 2865-71.
6. Godzich, M., M. Hodnett, J. A. Frank, G. Su, **Pespeni, M.H.**, A. Angel, M. B. Howard, M. A. Matthay and J. F. Pittet. (2006) Activation of the stress protein response prevents the development of pulmonary edema by inhibiting VEGF cell signaling in a model of lung ischemia-reperfusion injury in rats. *The FASEB Journal*, 20, 1519-1521.
5. Roux, J., H. Kawakatsu, B. Gartland, **Pespeni, M.H.**, D. Sheppard, M.A. Matthay, C. Canessa, J.F. Pittet. (2005) Interleukin-1beta decreases expression of the epithelial sodium channel alphaENaC in lung epithelial cells via a p38 MAP kinase-dependent signaling pathway. *Journal of Biological Chemistry*, 280, 18579-89.
4. **Pespeni, M.H.**, R.C. Mackersie, H. Lee, D. Morabito, M. Hodnett, M. Howard, and J.F. Pittet. (2005) Serum levels of Hsp60 measured early after injury correlate with the development of acute lung injury following severe trauma. *Journal of Surgical Research,* 126, 41-7.
3. **Pespeni, M.H.**, M. Hodnett, and J.F. Pittet. (2005) In vivo stress preconditioning. *Methods,* 35, 158-64.
2. Pittet, J.F.,* H. Lee,* **Pespeni, M.H.**,* A. O'Mahony, J. Roux, and W.J. Welch. (2004) Stress-induced inhibition of the NF-□B signaling pathway results from the insolubilization of the IkK complex following its dissociation from Hsp90. *Journal of Immunology,* 174, 384-94. * Equal contributions.
1. Lee, H.,* **Pespeni, M.H.**,* J. Roux, P.A. Dennery, M.A. Matthay, and J.F. Pittet. (2004) HO-1 induction restores c-AMP-dependent lung epithelial fluid transport following severe hemorrhage in rats. *The FASEB Journal,* 19, 287-9. * Equal contributions.

Refereed book chapters:

1. Moczek, A.P., Kijimoto, T., Snell-Rood, E., Rocha, G., **Pespeni**, **M.H.**, and Kafadar, K. (2014) Evolutionary and ecological genomics of developmental plasticity: novel approaches and first insights from the study of horned beetles. In: Ecological Genomics; edited by C. Landry and N. Aubin-Horth. Springer Verlag, Berlin, 127-148.

TEACHING

Courses:

2024	Intro to Ecological Genomics (BIOL 3990, 4 credits, 12 students), Advanced undergraduate hands-on data analysis course, University of Vermont
2024	Genomics of Global Change (BIOL 6990, 1 credit, 8 students), Graduate reading and writing course, University of Vermont
2019-now	Genetics (BCOR 2300, 3 credits, ~200 students), Sophomore-level Genetics course for science majors, University of Vermont
2018-now	BILDS/QuEST Seminar (BIOL 381, 1 credit, 30 trainees), Traineeship seminar, Cogenerative learning course with JEDI work, professional development, and invited speakers, University of Vermont
2015-now	Ecological Genomics (BIOL 381, 4 credits), Applied graduate course, Co-Primary Instructor with Dr. Keller (Plant Biology), University of Vermont
2022	Hot Topics in Evolution (BIOL 371, 2 credits, 7 students), Graduate reading and writing course, University of Vermont
2021	Genetics Enrichment Colloquium (BIOL 196, 1 credit, 22 students), Undergraduate co-generative seminar on issues of equity, justice, diversity, inclusion, ethics, and science communication on topics related to genetics (eugenics, vaccine hesitancy, CRISPR, JEDI in STEM spaces), University of Vermont
2021	Foundations of Evolution (BIOL 381, 1 credit, 8 students), Graduate reading course, University of Vermont
2016-2019	BioLunch (BIOL 381, 1 credit), Graduate student seminar, University of Vermont; Student presentations and professional development activities including discussion with external panelists on “Many Career Paths with your PhD/MS,” Time Management, “Storyboarding for Journal Article Writing,” and “Improv for SciComm”
2015-2019	Exploring Biology (BCOR 012, 4 credits), 2nd semester intro bio for science majors, University of Vermont
2015	Hot Topics in Evolutionary and Ecological Genomics (BIOL 381, 1 credit), Graduate colloquium, University of Vermont
2011	Population genomics using next-generation sequencing, Intensive graduate course, Co-Instructor, Stanford University

Guest lectures:

2024	Liberal Arts Scholars Program CURE, University of Vermont
2018	Introduction to Marine Biology, University of Vermont
2018	Emerging Science, Technology, & Health, University of Vermont
2015-2017	Ecology and Evolution, University of Vermont
2007-2009	Molecular Ecology, Stanford University

Advancement of pedagogy

2024	HHMI Inclusive Pedagogies Faculty Community of Practice on “Navigating the friction of content coverage and inclusive excellence in introductory STEM courses” – semester long
2023	Transparency in Learning and Teaching (TILT), eight-week workshop, Center for Teaching and Learning, University of Vermont

2023 One-on-one workshop discussion with Dr. Bryan Dewsbury, Florida International University, regarding cultivating an inclusive learning environment and finding the right structure and content balance to maximize learning in introductory biology courses such as Genetics
2023 Inclusive teaching workshop led by Drs. Viji Sathy and Kelly Hogan of the University of North Carolina
2021 Workshop participant "Anti-racist pedagogy" led by Dr. Clarence Gravlee of University of Florida, University of Vermont
2021 Workshop participant "Anti-Racism in Biology" with Dr. Brandon Ogbunugafor of Yale University, University of Vermont
2021 Book group participant, *Making Black Scientists: A Call to Action* with Biology Department, University of Vermont
2021 Workshop participant "Contemplative Practices for Anti-Racist Education & Trauma Informed Teaching" with Dr. Kamilah Majied of CSUMB, University of Vermont
2020 Book group participant "Lessons from Cheating", University of Vermont
2018 Workshop participant "Diversity and Inclusion in the Classroom", University of Vermont
2018 Workshop participant "Mentoring Writing in the Lab", University of Vermont
2018 Discussion participant "Excellence in Teaching: A Discussion with the Kroepsch-Maurice Award Recipients", University of Vermont
2016 Workshop participant "Mentoring the Writing of Emerging Scientists", University of Vermont
2015 Faculty training on "Undergraduate STEM Research Mentoring", 8-week program, part of the NIH National Research Mentoring Network, University of Vermont
2014 Semester-long series of workshops on active learning, effective teaching, and establishing, meeting and assessing learning objectives (Universal Design for Learning), Center for Teaching and Learning, organized by the College of Arts & Sciences, University of Vermont
2012 Active learning roundtable, "From Note-taking to Knowledge-making: Engaging Students in Scientific Inquiry," Indiana University
2012 Workshop on active learning and increasing minority representation in STEM fields, led by Dr. Scott Freeman of University of Washington, Indiana University
2005 Inquiry-based Learning, Semester-long course with practice, Stanford University

MENTORSHIP

Postdoctoral fellows:

Victoria Glynn, National Science Foundation Postdoctoral Research Fellow (2024-)
Daniel Sadler, Office of Research Funded Postdoctoral Fellow (2024-)
Emily Longman, National Science Foundation Postdoctoral Research Fellow (2023-)
Joaquin Nunez, Henderson-Harris Postdoctoral Research Fellow (2023-2024, successful transition to tenure-track faculty in Biology at UVM)
Matthew Sasaki, National Science Foundation Postdoctoral Research Fellow (2022-)
Reid Brennan, National Science Foundation-funded Postdoctoral Fellow (2017-2021)
Easton White, QuEST Postdoctoral Fellow (Nov 2018-2020)
Melanie Lloyd, National Science Foundation-funded Postdoctoral Fellow (2015-2018)

PhD students:

Ericka Griggs, National Science Foundation Graduate Research Fellow (2023-) Co-advisor
Andrew McCracken, National Science Foundation Graduate Research Fellow (2021-)
Csenge Petak, National Science Foundation-funded QuEST Fellow (2019-)
Alison Hall, National Science Foundation-funded QuEST Fellow (2019-)
Lauren Ashlock, National Science Foundation-funded QuEST Fellow (2016-2022)

MS students:

Emily Shore (2018-2020)
April Garrett, National Science Foundation Graduate Research Fellow (2015-2020)

Peer mentoring:

Joaquin C.B. Nunez, Henderson-Harris Fellow (2023-2024), Assistant Professor of Biology (2024-)

Princess Rodriguez Ramirez, Assistant Professor, Department of Microbiology and Molecular Genetics (2024-)

Summer Interns associated with NSF CAREER Award:

Chanchal Saratkar (2023-)
Aly Rodger (2023-)
Jamie Cull-Host (2023)
Ali Arvelo (2023)
Sonia John (2021)
Sam Lerner (2021-2023)
Alanis Papoulias (2021-2023)
Oumaima Sriji (2021)

Undergraduates with independent research projects:

Chanchal Saratkar, Honors College thesis advisor (2023-)
Aly Rodger, Honors College thesis advisor (2023-)
Emily Kaloudis, Honors College thesis advisor (B.S. Biological Sciences, UVM, 2019-2022)
Hannah Buscher, Awarded SURF Summer Research Award, Honors College thesis advisor (B.S. Biological Sciences, UVM, 2019-2022)
Jessica Crooker, Awarded SURF Summer Research Award, Honors College thesis advisor (B.S. Biological Sciences, UVM, 2019-2020)
Chelsea Darwin, Awarded APLE Summer Research Award, Honors College thesis advisor (B.S. Biological Sciences, UVM, 2018-2020)
Anya Steinhart, Awarded Kay Summer Research Award, (Mechanisms of resilience to extreme fresh water events in the variegated sea urchin, UVM, 2017-)
Aubrey Pelletier, Awarded APLE Summer Research Award, Honors College thesis advisor (Genetics and biochemistry of Carbonic anhydrase in the purple sea urchin, UVM, 2017-2019)
Kaitlin Huber, Honors thesis advisor (Impacts of untested, but commonly found plastic leachates on sea urchin development, UVM, 2016-2019)
Rebecca Nesnevich, Awarded APLE Research Award, Honors College undergraduate thesis advisor (Tissue specificity of the microbiome in Sea Star Wasting Disease, UVM, 2015-2018)
Ryan Tartre, Honors College thesis advisor (with Dr. Joe Roman, Fish forensics of community supported fisheries in the Gulf of Maine, UVM, 2016)
Annabel Beichman (Population genetics of targets of selection in the purple sea urchin, Harvard University undergraduate, summer intern, Stanford University, 2010)
Kara Yeung (Population genetics of the cubilin gene in the purple sea urchin, Crystal Springs Uplands School student, summer intern, Stanford University, 2010)
William Moller (Genetics and biochemistry of pyruvate kinase in the purple sea urchin, Stanford University, 2010)
Christa Morris (Reversals in gene flow along the purple urchin species range, Stanford University, 2010)

Graduate Student Dissertation & Thesis Committees:

Carlos Amissah (2024-now, Ph.D., Biology, UVM)
Gwen Ellis (2024-now, Ph.D., Biology, UVM)
Rachel Cray (2024-now, Ph.D., Rubenstein School, UVM, Chair)
Edouard Rugema (2024-now, Ph.D., Rubenstein School, UVM, Chair)
Shelby Scarfo (2024-now, M.S., Rubenstein School, UVM, Chair)
Thea Cole (2024-now, MS, California State University Long Beach)
Lapo Frati (2024-now, Ph.D., Complex Systems, UVM, Chair)
Katja Seebass (2024-now, Ph.D., GEOMAR Kiel, Germany)
Adebukola Aborigho (2023-now, Ph.D., Natural Resources, UVM)
Samuel Rosenblatt (2023-2024, Ph.D., Complex Systems, UVM, Chair)
Hannah Shafer (2022-now, Ph.D., Plant Biology, UVM)
Masoumeh (Massi) Khodaverdi (2021-now, Ph.D., Plant Biology, UVM)
Blair Christensen (2021-now, Ph.D., Plant Biology, UVM)
Ben Camber (2021-now, Ph.D., Biology, UVM)
Thomas O'Leary (2020-now, Ph.D., Biology, UVM)
Baxter Worthing (2020-now, Ph.D., Plant Biology, UVM)
Suraj Bhattarai (2019-2023, Ph.D., Animal Sciences, UVM)
James deMayo (2019-2021, Ph.D., Marine Sciences, University of Connecticut)
Lauren Ash (2018-2022, Ph.D., Biology, UVM)
Amanda Northrop (2018-2020, Ph.D., Biology, UVM)
Aayudh Das (2017-2022, Ph.D., Plant Biology, UVM)
Hannah Lachance (2017-2019, M.S., Rubenstein School, UVM)
Susan Fawcett (2017-2020, Ph.D., Plant Biology, UVM)
Jennifer Hoey (2017-2020, Ph.D., Rutgers University)
François Olivier Hébert (2017, Ph.D., outside examiner, Université Laval)
Brittany Verrico (2017-2021, Ph.D., Plant Biology, UVM)
Karl Fetter (2016-2019, Ph.D., Plant Biology, UVM)
Korin Eckstrom (2016-2018, M.S., Animal Sciences, UVM)
Judith Keller (2015-2018, Ph.D., Biology, UVM)
Kristian Brevik (2015-2020, Ph.D., Plant and Soil Sciences, UVM)

Undergraduate advising: Meet and/or correspond with approximately 40 advisees from four majors each semester to chart their 4-year plan, discuss course options, major and minor requirements, and career, internship, and study abroad opportunities. I also write many letters of recommendation and direct students in need to learning and social/emotional resources. I meet with most advisees 1-2 times per semester for 15-60 minutes each.

JUSTICE, EQUITY, DIVERSITY, & INCLUSION WORK (SELECTED)

Collection of a wide-range of activities that work toward a more just, equitable, and inclusive spaces and systems in the sciences and in the academy. *Note*: Some activities overlap with other sections.

2024-	Faculty mentor – Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS), University of Vermont
2023	Discussion leader – How to create an inclusive environment in the marine sciences and at a marine lab. Bodega Marine Lab, University of California, Davis
2022-now	Henderson-Harris Fellow Recruiter and Mentor – Dr. Joaquin Nunez, UVM program that offers a pathway to tenure-track faculty member for candidates with underrepresented identities in the academy.

2021	Participant in Anti-racist pedagogy workshop led by Dr. Clarence Gravlee of University of Florida
2021	Met with college leaders and student services to advise on forming affinity groups in classroom settings based on the success of my Genetics Enrichment Colloquium.
2021	Mentored and funded four summer interns in my lab, all from groups underrepresented in STEM.
2021	Participant in a two-part Anti-racism in Biology workshop and book discussion led by Dr. Brandon Ogbunugafor of Yale University
2021	*Invited Panelist*: Gender Equity Education Series, Women in Science, University of Vermont
2021	Workshop participant "Contemplative Practices for Anti-Racist Education & Trauma Informed Teaching" with Dr. Kamilah Majied of CSUMB, University of Vermont
2021	Hosted *Picture a Scientist* film screening and discussions for QuEST trainees and faculty, Biology faculty, and undergraduates in my Genetics courses.
2020	Developed new, anti-racist, decolonized course content and structure for my two Genetics courses.
2020-now	*Leader* in an Ad hoc group of Faculty of Color at the University of Vermont that Developed and advocated for recommendations for the Recruitment and Retention of Faculty of Color; Resolution approved by the Faculty Senate & Council of Deans
2020	*Invited Panelist*, Beyond Brave Spaces: An imperative: Addressing Barriers and Growing Diversity, Equity and Inclusion in STEM to Advance Innovation and Solutions. YouTube Live Event (Pespeni segment: 31:00-49:00). Burlington, VT
2020	Member of inaugural chapter of Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) at UVM
2019	Participant in Adult Mental Health First Aid Training – 2-day workshop
2019	*Keynote*: NetSci, Invitation to present on and discuss recruitment and retention for diversity in STEM higher education, Burlington, VT.
2019	Shared my personal to professional story to show the wide range of backgrounds and lived experiences to be found in the academy, "Origin of a Biologist" by Joshua Brown, UVM Communications. Burlington, VT [article]
2019	Organized and fundraised for a two-week Summer Writing Retreat for women-identifying faculty
2019	Interviewed and featured in a special issue on women in STEM in the UVM student-led publication, *The Natural Philosopher*. Burlington, VT [article]
2017-2023	Co-Organizer for the QuEST Annual Retreat and JEDI workshop, 2-day event with ~50 graduate student and faculty participants annually
2017-2023	Director and PI for an NSF-funded PhD training program centered on equity, diversity and inclusion, applied internships with non-academic partners, disciplinary excellence in quantitative approaches and evolutionary principles, and interdisciplinary teamwork and science communication. 8 academic units across campus, >30 trainees, >30 participating faculty, 10-fold higher representation of underrepresented groups relative to the rest of campus grad programs.
2017-2018	Leader in movement to not require the GRE for graduate admissions; Biology department, QuEST and most programs the Graduate College of UVM have discontinued use of the GRE metric because it has been shown to be biased against students from underprivileged backgrounds and to not predict success in graduate school.
2017	GRE Alternatives Workshop, Invited participant to improve models for graduate admissions processes that increase retention and diversity in STEM fields.

	Organized by Northeast Alliance for Graduate Education and the Professoriate (NEAGEP). University of Massachusetts, Amherst, MA
2017- now	Participant in Discover UVM, an annual series of recruitment events for undergraduates from underrepresented groups.

ACADEMIC SERVICE (SELECTED)

2024-	**Associate Editor** for *Proceedings of the Royal Society London B*
2024	Co-Organizer for Inaugural Northern New England Microbiome Symposium, ~150 attendees, University of Vermont
2023	Strategic Vision Planning Committee Member, College of Arts & Sciences
2023-2024	Fisheries Biologist Search Committee Member, Rubenstein School for the Environment & Natural Resources, University of Vermont
2023	Evolutionary Biologist Search Committee Member, Department of Biology, University of Vermont
2022-2023	Selected Symposium Co-Organizer, ASLO Aquatic Sciences Meeting, Resilience and Recovery in Aquatic Systems, Palma de Mallorca, Spain
2022-2023	Biological Anthropology Search Committee Member, Focus on contemporary human populations and health inequities, Department of Anthropology, University of Vermont
2018	Participant, NSF Research Coordination Network, Evolution in Changing Seas
2017	Participant, Sea Star Wasting Disease Strategic Action Network
2017-now	Director, NSF Research Traineeship: Quantitative & Evolutionary STEM Training
2014-now	Faculty participant for Admitted Student Visit Days & Majors Fairs, College of Arts & Sciences, University of Vermont
2014-now	Graduate Affairs Committee, Department of Biology, University of Vermont
2015-2016	BCOR Learning Objectives Assessment Group, University of Vermont
2010	Graduate student participant, Center for Ocean Solutions Faculty Search, Stanford University
2009	Search committee member, Marine Cell Biologist Faculty Search, Stanford University
2007	Lead organizer, Graduate student invited Fall Seminar Series, Stanford University

Reviewer for: *Proceedings of the National Academy of Sciences*, *Proceedings of the Royal Society B*, *Nature Climate Change, Nature Ecology & Evolution*, *Ecology*, *Science Advances, PLoS Genetics*, *Evolution*, *Molecular Biology & Evolution, Genome Biology & Evolution*, *Molecular Ecology*, *Global Change Biology, Trends in Ecology & Evolution, The American Naturalist, Biology Letters, Functional Ecology, Evolutionary Applications, PLoSONE*, *Annals of Applied Statistics, Polar Biology, Marine Ecology Progress Series, Frontiers in Marine Science*

Grant reviewer for: *National Science Foundation* (IOS, EDGE, ORCC panels and ad hoc for IOS and BioOce)*, National Institutes of Health* (MRAA panel)*, Natural Environment Research Council* (*NERC*, leading UK funding agency), *Fonds de recherche du Québec* (Canadian state funding agency), National Geographic Society, *Sea Grant, Vermont Genetics Network*

Society memberships: Society for the Study of Evolution, Society for Integrative and Comparative Biology, Western Society of Naturalists, Association for the Sciences of Limnology and Oceanography

SEMINARS & PRESENTATIONS

Invited Seminars

2025 Cornell University, 2025 Richard B. Root Graduate Student Invited Speaker. Ithaca, New York (*forthcoming*)
2025 Duke University, Marine Laboratory, Graduate Student Invited Speaker. Beaufort, North Carolina (*forthcoming*)
2024 Auburn University, Department of Biology Invited Seminar Speaker. Auburn, Alabama
2024 GEOMAR Helmholtz Centre for Ocean Research, Invited Seminar Speaker. Kiel, Germany
2024 Society for Experimental Biology Annual Conference, Invited Speaker. Prague, Czech Republic
2023 Mykles Visiting Scholar in Integrative Biology Community Lecture, University of California, Davis, Bodega Marine Laboratory
2023 Mykles Visiting Scholar in Integrative Biology Research Seminar, University of California, Davis, Bodega Marine Laboratory
2023 Gothenburg University, Tjärnö Marine Laboratory Seminar, Tjärnö, Sweden
2023 University of Helsinki, HiLIFE – Helsinki Institute of Life Science Seminar. Helsinki, Finland
2022 *Symposium Speaker*: Vice Presidential Symposium for the American Society of Naturalists at the Evolution Meeting. Cleveland, OH.
2022 University of Queensland, School of Biological Sciences Seminar. Invited Speaker. Brisbane, Australia
2021 Wesleyan University, Biology & Molecular Biology & Biochemistry Symposium Series. Invited Speaker. Middletown, CT.
2021 Université du Québec à Montréal, EEB Seminar Series. Graduate Student Invited Speaker. Montreal, Canada
2020 *Invited Panelist Presenter*, Beyond Brave Spaces: An imperative: Addressing Barriers and Growing Diversity, Equity and Inclusion in STEM to Advance Innovation and Solutions. YouTube Live Event (Pespeni segment: 31:00-49:00). Burlington, VT.
2020 University of California, Berkeley, Grad-student invited speaker, Williams group. Virtual. Berkeley, CA.
2020 Society for Integrative and Comparative Biology, Genome-to-Phenome Symposium speaker. Austin, TX.
2019 *Invited speaker*: Gordon Research Conference: Ecological and Evolutionary Genomics, "Genomics of Rapid Evolution" session, Manchester, NH.
2019 *Keynote*: NetSci, Invitation to present on and discuss recruitment and retention for diversity in STEM higher education, co-presented with Dr. Vijay Kanagala, Burlington, VT.
2018 Washington State University, Graduate Student Invited Speaker for the School of Biological Sciences Seminar Series. Pullman, WA.
2018 University of Mass., Amherst, Organismic and Evolutionary Biology Seminar Series. Amherst, MA.
2018 Gordon Research Conference: Ocean Global Change Biology, Discussion Leader for "Epigenetics: Providing New Insight in Ocean Global Change Biology." Waterville, NH.
2018 *Keynote*: Gordon Research Symposium, Ocean Global Change Biology, "Spatial and Temporal Scales of Biological Response in Ocean Global Change Biology." Waterville, NH.
2018 *Keynote*: Society for Molecular Biology & Evolution, Ecological Genomics Symposium. Yokohama, Japan.
2018 Northeastern University and Marine and Environmental Science Graduate Student Association Graduate Student Invited Speaker. Nahant, MA.
2017 Stony Brook University, Graduate Student Invited Speaker for Departmental of Ecology & Evolution Seminar. Long Island, NY.

2017 Brown University, Departmental of Ecology and Evolutionary Biology Seminar. Providence, RI.
2017 Vermont Advanced Computing Core meeting presentation. Burlington, VT.
2017 Université Laval, IBIS Departmental Seminar. Quebec City, Canada.
2016 CNRS Evolutionary Genomics Conference (invited from abstract). Roscoff, France.
2016 Université Brest, Departmental Seminar. Brest, France.
2016 Rutgers University, Departmental Seminar. New Brunswick, NJ.
2016 University of Chicago, Department of Ecology and Evolution Seminar. Chicago, IL.
2016 Bowdoin College, Departmental Seminar. Brunswick, ME.
2016 Marvin Lecture, Plant Biology Departmental Seminar. University of Vermont, Burlington, VT.
2015 *Keynote*: Ecological Genomics Symposium. Manhattan, KS.
2015 Developmental Biology of the Sea Urchin XXIII, Symposium speaker and session organizer. Woods Hole, MA.
2015 Association for the Sciences of Limnology and Oceanography, Symposium speaker. Granada, Spain.
2015 Complex Systems Research Group Seminar, University of Vermont. Burlington, VT.
2014 University of Connecticut, Department of Marine Sciences Seminar. Groton, CT.
2014 McGill University, Department of Biology Seminar. Montreal, Canada.
2014 National Academy of Sciences Kavli Symposium on the Genetics of Adaptation. Invited, but session did not occur.
2014 Harvard University. Cambridge, MA.
2014 Swarthmore College. Philadelphia, PA.
2014 University of Oregon, Oregon Institute of Marine Biology. Coos Bay, OR.
2014 Washington State University, St. Louis. St. Louis, MO.
2014 University of Georgia, Athens. Athens, GA.
2013 University of Vermont. Burlington, VT.
2013 Sonoma State University. Rohnert Park, CA.
2013 University of Central Florida. Orlando, FL.
2013 University of South Carolina. Columbia, SC.
2013 Georgia Institute of Technology. Atlanta, GA.
2013 University of Wyoming. Laramie, WY.
2013 Society for Integrative and Comparative Biology, Symposium speaker. San Francisco, CA.
2010 Bauer Forum Seminar, Harvard University. Cambridge, MA. Postdoc fellowship offered.
2009 Genomic Variation Lab, University of California, Davis. Davis, CA.
2007 Partnership for Interdisciplinary Studies of Coastal Oceans. Santa Barbara, CA.
2004 FASEB Experimental Biology, Graduate Student Highlights Discussion. Washington D.C.

Contributed

2023 Aquatic Sciences Meeting, Resilience and Recovery in Aquatic Systems, Palma de Mallorca, Spain
2022 Population, Evolution, and Quantitative Genetics Meeting, Genetics Society of America. Pacific Grove, CA.
2018 Ecology, Evolution, and Environmental Biology, University of Vermont. Burlington, VT.
2018 Society for Integrative and Comparative Biology. San Francisco, CA.
2017 Society for the Study of Evolution. Portland, OR.
2014 Ecology, Evolution, and Environmental Biology, University of Vermont. Burlington, VT.
2014 Gordon Research Conference, Ocean Global Change Biology. Waterville Valley, NH.
2013 Ecology and Evolution Brown Bag Seminar, Indiana University. Bloomington, IN.
2013 Society for the Study of Evolution. Snowbird, UT.
2012 Ecology and Evolution Brown Bag Seminar, Indiana University. Bloomington, IN.

2011 Society for the Study of Evolution. Norman, OK.
2010 Society for the Study of Evolution. Portland, OR.
2010 Society for Integrative and Comparative Biology. Seattle, WA.
2009 Western Society of Naturalists. Seaside, CA.
[Best Student Paper, Honorable mention]
2008 Society for the Study of Evolution. Minneapolis, MN.
2007 Western Society of Naturalists. Santa Barbara, CA.
2006 Western Society of Naturalists. Seattle, WA.
2006 Ecology and Evolution Group Seminar. Stanford, CA.
2005 Lung Biology Conference, UC, San Francisco. San Francisco, CA.
2002 Penn State Summer Research Conference. State College, PA.

OUTREACH & COMMUNICATION (SELECTED)

2023-2024 Co-mentored (with postdoc M. Sasaki) three South Burlington High School students for their Science Fair project studying the impacts of road salt on copepod thermal tolerance; They earned First Place at the Vermont State competition and went to Los Angeles for the International Science and Engineering Fair, UVM

2021 Interactive elementary school presentation, "Climate Change: Impacts and Responses of Marine Life and What You Can Do." The Schoolhouse, South Burlington, VT

2019 "*Origin of a biologist*" by Joshua Brown; My personal to professional journey linked to my efforts in increasing diversity in STEM. Burlington, VT [article]

2019 Supported media coverage of our *Proceedings B* paper on genetic mechanisms of survival to extreme low pH conditions for sea urchin babies: UVM press release, Lab Roots, NewsWise

2019 Interviewed and featured in a special issue on women in STEM in the UVM student-led *The Natural Philosopher* publication. Burlington, VT [article]

2018, 2019 Organized a round robin tour of our three lab spaces for three groups of 10 students from five local Community Colleges – the group emphasizes access for first-generation college students. Burlington, VT

2018 Organized visit and tour of my research labs for Clarendon Elementary School 5th grade student, Summer Cichon, their parent, and the Principal of Clarendon Elementary School to discuss our work on Sea Star Wasting Disease, biological research, and careers in science. Burlington, VT

2018 Supported media coverage of *Scientific Reports* paper on Sea Star Wasting Disease: UVM press release, WCAX TV, Monterey Herald, DW Science, Quartz

2018- Faculty mentor in Catamount Commitment – a commitment to mentor incoming first-generation college students from low-income families. Burlington, VT

2017 "DNA and Me" – Organized and led active learning session about how our lab studies DNA and how DNA relates to human and ecosystem health for 2nd-5th grade students at a local elementary school. South Burlington, VT

2017 Organized lab visit for Vermont Commons high school marine biology students; students moved through three stations in the molecular lab and the aquaculture labs, and learned about how and why each lab member became passionate about science and has pursued their interests through research. Burlington, VT

2017 Science Studio Podcast Interview, Discussion with host Keith Pannell on how and why I became a scientist and why what we do matters. Burlington, VT

2017 GRE Alternatives Workshop, Invited participant to improve models for graduate admissions processes that increase retention and diversity in STEM fields.

	Organized by Northeast Alliance for Graduate Education and the Professoriate (NEAGEP). University of Massachusetts, Amherst, MA
2017	Faculty profile video of Dr. Pespeni as a Scholar-Teacher by UVM University Communications. Burlington, VT
2017	Organized campus visit to UVM for all K-5 students from a local school to learn about invertebrate diversity, molecular biology, microscopy, and data collection at four hands-on stations. Burlington, VT
2016	Showcase piece for the University of Vermont Quarterly on our sea star wasting disease research. Burlington, VT
2015	Worked with Ithaca College Film major on a short video about our ocean acidification research. Burlington, VT
2014	Graduate recruitment event to increase diversity in STEM. Organized by Northeast Alliance for Graduate Education and the Professoriate (NEAGEP). University of Massachusetts, Amherst, MA
2013	Science communication on my research on the ability of urchins to evolve in response to ocean acidification; more than 10 interviews with local, national and international magazines, newspapers, and radio stations including *Scientific American*, *New Scientist*, *Science News for Kids*, *Mother Jones*, *Yale Environment 360*, LiveScience.com, TakePart.com, and more.
2013	Jim Holland Summer Science Research Program, Helped mentor a college-bound, underrepresented minority high school student in a weeklong intensive research experience. Bloomington, IN
2013	Science Olympiad, Developed and led hands-on entomology lab experiences and laboratory tour for middle school students. Bloomington, IN
2013	Washington Elementary, Developed and led arthropod diversity hands-on laboratory experience. Bloomington, IN
2012-2014	Martin Luther King Jr. Day Diversity in Science at WonderLab, “Real Life Science: Anyone can be a scientist!” Developed beetle diversity outreach program for underrepresented minorities in the sciences. Bloomington, IN
2010-2011	McNair Fellow Panelist, Outreach for underrepresented minorities in graduate education. California State University, Monterey Bay, CA
2007	Science Communication with Policy Makers Workshop, Hopkins Marine Station of Stanford University, Pacific Grove, CA
2007	Science Communication with the Public and Media Workshop, COMPASS, University of California, Santa Cruz, CA
2006	Job Shadow Program, Outreach to minority female high school students. Hopkins Marine Station of Stanford University, Pacific Grove, CA
2005-2006	Diversity outreach in STEM, BioAIMs, Stanford University, Stanford, CA
1998-1999	President, Science and Social Responsibility, Student Pugwash USA, University of California, San Diego
1997-1999	Chair, Muir Environmental Corps, University of California, San Diego