Dr. Alex R. Gunderson

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Education

2007-13	PhD, Biology – Duke University, Durham, NC Advisor: Manuel Leal.
2005-07	M.S., Biology – The College of William & Mary, Williamsburg, VA Advisor: John Swaddle.
1999-04	B.S., Biology (*Magna cum laude*) – Minnesota State University, Mankato, MN

Professional Appointments

2018	Assistant professor, Tulane University
2017	Postdoctoral scholar, UC Berkeley (Advisor: Bree Rosenblum)
2014-17	Postdoctoral scholar, San Francisco State University (Advisor: Jonathon Stillman)
2014	Postdoctoral scholar, UC Berkeley (Advisor: Jonathon Stillman)
2007-12	Teaching Assistant, Duke University
2005-07	Teaching Assistant, The College of William and Mary
2005	Field Technician, United States Forest Service, Rocky Mountain Research Station, Cloudcroft, NM. Small mammal trapping and vegetation surveys.
2004-05	Field Technician, Wake Forest University, Galapagos, Ecuador. Reproductive monitoring and behavioral studies of seabirds.
2004	Field Technician, University of Montana, Missoula. Herpetological surveys.

Awards/Fellowships

2012-13	Katherine Goodman Stern Fellow, Duke U. University-wide graduate competition.
2007	Distinguished Master's Thesis in the Natural or Computational Sciences. Given by College of William and Mary for the year's best thesis in the sciences.
2003	NSF Research Experience for Undergraduates (REU), University of Minnesota, Cedar Creek Natural History Area, Long Term Ecological Research Network (LTER).

Publications Mentored students underlined, h-index = 13 (Google Scholar)

Gunderson, A.R., M. Abegaz, K. Boyer, A. Ceja, E. King, E. Lam, J. Souther, K.T. You Mak, C. Bartlett, B. Tsukimura & J.H. Stillman. Fine-scale temperature variation interacts with size-dependent thermal physiology to structure intertidal populations. Submitted to *Ecological Monographs.*

Gunderson, A.R., D.L. Mahler & M. Leal. 2018. Thermal niche evolution during replicated *Anolis* lizard adaptive radiations. *Proceedings of the Royal Society B* 285: 20172241

Gunderson, A.R., L. Fleishman & M. Leal. 2018. Visual "playback" of colorful signals in the field supports sensory drive for signal detectability. *Current Zoology* 64: 493-498.

Gunderson, A.R., M. Dillon, & J.H. Stillman. 2017. Estimating the benefits of plasticity in ectotherm heat tolerance under natural thermal variability. *Functional Ecology* 31: 1529-1539.

Gunderson, A.R., B. Tsukimura & J.H. Stillman. 2017. Indirect effects of global change: from physiological and behavioral mechanisms to ecological consequences. *Integrative and Comparative Biology* 57: 48-54.

Gunderson, A.R., E. King, K. Boyer, B. Tsukimura & J.H. Stillman. 2017. Species as stressors: heterospecific interactions and the cellular stress response under global change. *Integrative and Comparative Biology* 57: 90-102.

Gunderson, A.R., E. Armstrong & J.H. Stillman. 2016. Multiple stressors in a changing world: the need for an improved perspective on physiological responses to the dynamic marine

environment. *Annual Review of Marine Science* 8: 357-378.

Gunderson, A.R. & M. Leal. 2016. A conceptual framework for understanding thermal constraints on ectotherm activity with implications for predicting responses to global change. *Ecology Letters* 19: 111-120. *cover article

Williams, C.M., L.B. Buckley, K.S. Sheldon, M. Vickers, H.O. Pörtner, W.W. Dowd, A.R. Gunderson, K.E. Marshall, & J.H. Stillman. 2016. Biological impacts of thermal extremes: mechanisms and costs of functional responses matter. *Integrative and Comparative Biology* 56: 73-84.

Gunderson, A.R. & J.H. Stillman. 2015. Plasticity in thermal tolerance has limited potential to buffer ectotherms from global warming. *Proceedings of the Royal Society B* 282: 20150401.

Gunderson, A.R. & M. Leal. 2015. Patterns of thermal constraint on ectotherm activity. *The American Naturalist* 185: 653-664.

Gunderson, A.R. & Stillman, J.H. 2014. An affinity for biochemical adaptation to temperature. *Journal of Experimental Biology* 217: 4273-4274.

Wright, A., S.A. Schnitzer, I.A. Dickie, A.R. Gunderson, G.A. Pinter, S.A. Mangan, & P.B. Reich. 2013. Complex facilitation and competition in a temperate grassland: loss of plant diversity and elevated CO_2 have divergent and opposite effects on oak establishment. *Oecologia* 171:449-458.

Leal, M. & A.R. Gunderson. 2012. Rapid change in the thermal tolerance of a tropical lizard. *The American Naturalist* 180: 815-822. **Faculty of 1000* selection

Gunderson, A.R. & M. Leal. 2012. Geographic variation in vulnerability to climate warming in a tropical Caribbean lizard. *Functional Ecology* 26: 783-793. *highlighted video feature at *FE online.*

Gunderson, A.R., J. Siegel, & M. Leal. 2011. Tests of the contribution of acclimation to geographic variation in water loss rates of the West Indian lizard *Anolis cristatellus*. *Journal of Comparative Physiology B* 181: 965-972.

Müller, M.S., E.T. Porter, J.K. Grace, J.A. Awkerman, K.T. Birchler, A.R. Gunderson, E.G. Schneider, M.A. Westbrock, & D.J. Anderson. 2011. Early social experience patterns maltreatment of young birds. *Auk* 128: 615-619.

Cornell, K.L., C.R. Kight, R.B. Burdge, A.R. Gunderson, J.K. Hubbard, A.K. Jackson, J.E. LeClerc, M.L. Pitts, J.P. Swaddle, & D.A. Cristol. 2011. Reproductive success of eastern bluebirds (*Sialia sialis*) on suburban golf courses. *Auk* 128: 577-586.

Gunderson, A.R., M.H. Forsyth, & J.P. Swaddle. 2009. Evidence plumage bacteria influence plumage coloration and body condition of a passerine. *Journal of Avian Biology* 40: 440-447. *featured article in *Journal of Avian Biology*

Gunderson, A.R. 2008. Feather-degrading bacteria: A new frontier in avian and host-parasite research? *Auk* 125(4): 972-979.

Gunderson, A.R., A.M. Frame, J.P. Swaddle & M.H. Forsyth. 2008. Resistance of melanized feathers to bacterial degradation: Is it really so black and white? *Journal of Avian Biology* 39: 539-545.

In preparation

Gunderson, A.R., E.A. Riddell & E.B. Rosenblum. Balancing the need to stay safe and stay warm: the thermal consequences of color evolution in White Sands Desert lizards.

Research Funding

2016	Society for Integrative and Comparative Biology Symposium (Chair): "Indirect effects of global change: from physiological and behavioral mechanisms to ecological consequences." $15,850 ($2250 from SICB, $13,600 from NSF)
2015-18	NSF Collaborative Research: RUI: Transduction of physiological stress through species interactions: indirect effects of climate change. PI: J. Stillman; Co-PI: B. Tsukimura. $606,971. *My role*: Developed research questions, co-authored proposal.
2011-13	Doctoral Dissertation Improvement Grant, National Science Foundation. $14,400
2011	Graduate Research Grant, Society for Integrative and Comparative Biology. $2000
2011	Graduate Student Travel Grant, Duke U. Graduate School. $1000
2010	Student Research Grant, Animal Behavior Society. $600
2009	Sally Hughes-Schrader Graduate Student Grant, Duke Chapter of Sigma Xi. $1,250
2009	Bryden Student Grant, North Carolina Academy of Sciences. $1,500
2009	Caribbean Travel Grant, Center for Latin Am. and Carib. Studies, Duke U. $1,050

2008 Graduate Research Grant, Department of Biology, Duke U. $1,000
2008 Caribbean Travel Grant, Center for Latin Am. and Carib. Studies, Duke U. $1050
2006 Graduate Research Grant, Dept. of Arts and Sciences, Coll. of William & Mary. $500
2006 Student International Travel Grant, Reeves Center, Coll. of William & Mary. $800
2005 Student Research Grant, Charles Center, Coll. of William & Mary. $500

Teaching Experience

Instructor of record

2018 EBIO 4660-02: The Biology of Global Warming, Tulane. 3 credit, 12 student seminar
2014 Bio 617: Environmental Physiology, SFSU. 3 credit, 32 student lecture course.

Teaching Assistant at Duke University (D) and The College of William and Mary (WM)

2012 Animal Physiology (D) - Two weekly recitation sections. *In addition to teaching, I co-developed in-class active learning activities and materials for this course.
2011 Animal Physiology (D) - Weekly three-hour lab sections
2010 Animal Physiology (D) - Weekly three-hour lab sections
2009 Introductory Biology (D) - Weekly three-hour lab section
2009 Herpetology (D) - Weekly three-hour lab section
2008 Ecology and Evolution (D) - Two weekly recitation sections
2007 Microbiology (WM) - Two weekly lab sections
2006 Integrated Biology 1, Zoology (WM) - Two weekly lab sections
2006 Principles of Molecular, Cellular, and Develop. Biology (WM) - Weekly lab section
2005 Principles of Ecology, Evolution, and Behavior – (WM) - Two weekly lab sections

Guest Lectures

2016 Circulatory systems – Animal Physiology (SFSU); Vulnerability of lizards to global change – Environmental Physiology (SFSU)
2015 Neurotransmitters – Animal Physiology (SFSU)
2014 Guest instructor multiple times – Global Change on the Seashore (SFSU)
2013 The life-histories of reptiles and amphibians – Herpetology (D)
2012,13 Thermal Physiology - Animal Physiology (D)
2009, 12, 13 Thermal Ecology - Herpetology (D)
2008 Reptilian Vision - Herpetology – (D)
2007 Microbial Ecology – Microbiology (WM)

Other teaching positions

2013 Instructor, Duke "Science Sleuths" summer science camp. Taught and developed instructional activities for 9th grade science curriculum. Three-week full-time position.

Certifications

2013 *Certificate in College Teaching* – Voluntary program at Duke. Included coursework in pedagogy, peer review of in-class teaching, and development of a teaching portfolio.

Pedagogy workshops

2015 *Scientific Teaching Winter Institute*. Five-day HHMI-funded workshop on pedagogy by SFSU's Science Education Partnership and Assessment Laboratory (SEPAL).
2012 *Turning Group Assignments into Great Ones* – 3 hour workshop with Larry Michaelsen, author of "Team-based Learning: A Transformative Use of Small Groups".
2012 *Flipping Your Classroom* – 3 hr workshop with L. Michaelsen.

Invited Presentations

Symposia organized

2017 *Indirect effects of global change: from physiological and behavioral mechanisms to ecological consequences*. Chair. *Co-chairs*: J.H. Stillman & B. Tsukimura. Society for Integrative and Comparative Biology (SICB) meeting, New Orleans, LA.

Symposia

2016 *How and why? Towards an Evolutionary Physiological Synthesis*. Organizers: Amy L. Angert and Chris D. Muir. Society for the Study of Evolution meeting, Austin, TX.
2013 *Vulnerability of Tropical Ectotherms to Climate Change*. Organizers: Raymond B. Huey and Patricia Burrowes. NSF funded symposium. San Juan, PR, 2013.

Departmental seminars

2018	Cal Poly San Luis Obispo, Tulane, University of South Carolina, LSU, Ohio University, University of New Orleans, Tohoku University (Japan)
2017	The College of William and Mary
2016	University of Kentucky, University of Nebraska, University of San Francisco, UC Davis, Williams College
2015	Texas A&M, Sam Houston State University, Cal State Fresno, University of Minnesota at Duluth
2014	SFSU Romberg Tiburon Center, UC Berkeley Museum of Vertebrate Zoology
2013	Clemson University

Conference and Other Presentations (oral presentation unless noted otherwise)

2018	Society for Integrative and Comparative Biology, Ecological Society of America
2017	Society for Integrative and Comparative Biology
2017	Society for Integrative and Comparative Biology, Society for the Study of Evolution
2016	Society for Integrative and Comparative Biology, Society for the Study of Evolution
2015	Society for Integrative and Comparative Biology
2014	Society for the Study of Evolution
2013	Society for Integrative and Comparative Biology
2012	Society for Integrative and Comparative Biology
2011	Society for Integrative and Comparative Biology, Joint Meeting of Ichthyol. and Herp.
2009	Society for the Study of Evolution (poster)
2007	Animal Behavior Society, North American Ornithological Conference (poster)

Reviewer

NSF, National Geographic, Science, Nature Climate Change, Nature Ecology and Evolution, Ecology Letters, Proceedings of the Royal Society of London Series B, *Global Change Biology*, *Ecology*, *Ecological Monographs, Biology Letters*, *Evolution, Journal of Evolutionary Biology, The American Naturalist, Molecular Ecology, Ecological Applications, Journal of Animal Ecology*, *Journal of Biogeography, Global Ecology and Biogeography, Oecologia, Ecography, Oikos, Biological Journal of the Linnean Society*, *PLoS One*, *Functional Ecology*, *Behavioral Ecology*, *Animal Behaviour, Integrative and Comparative Biology, Zoology, Journal of Experimental Zoology A, Journal of Thermal Biology, Journal of Insect Physiology, Journal of Natural History, Estuaries and Coasts, Journal of Avian Biology*, *The Auk*, *Ibis*, *Condor, Journal of Ornithology, Journal of Field Ornithology, Food Webs, Herpetological Conservation*

Society Memberships

Society of Integrative and Comparative Biologists, Animal Behavior Society, Society for the Study of Evolution, American Society of Naturalists, American Society of Ichthyologists and Herpetologists

Outreach and Media

2009-Present	Research featured in several media outlets, including the BBC and New York Times. See my personal webpage (link above) for more information.
2009-Present	Contributor to two science blogs: Chipojo Lab, Anole Annals
2015-17	Volunteer, Discovery Day, SFSU Romberg Tiburon Center. Led global change exhibits
2014	Oral presentation on climate change, Marin Science Seminar, Terra Linda High School, San Rafael, CA.
2013	Oral presentation on climate change, Reptile and Amphibian Day, NC Museum of Natural Sciences.
2012	Volunteer, NC Herpetological Society booth, Eno River Festival, Durham, NC
2010-11	Lecturer, Science Day, Club Elementary School, Durham, NC
2011	Poster on contemporary evolution, Darwin Day, NC Museum of Natural Sciences.
2005-Present	Mentored numerous undergraduate and graduate students from The College of William & Mary, Duke University, UC Berkeley, SFSU, Cal State Monterrey Bay, and Inter American University (Puerto Rico)