Katherine R. Martin

PhD student, Department of Biology
University of Central Florida, Orlando, Florida
Curriculum Vitae

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Education

2018 – present Ph.D., Biology
University of Central Florida (UCF)
Department of Biology, Orlando, FL
Advisors: Drs. Anna E. Savage and Kate L. Mansfield
GPA: 4.0

2015 – 2017 M.A., Biology with a concentration in applied evolution
Stony Brook University
Department of Ecology and Evolution, Stony Brook, NY
Advisor: Dr. Liliana M. Dávalos
GPA: 3.71

2010 – 2014 B.S., Biology, *Cum laude*
Fairfield University
Magis Scholar
University Honors Program, Completed with High Distinction
Advisor: Dr. S. Ashley Byun
GPA: 3.60

Peer-reviewed publications

*undergraduate mentee

5. Castellanos FX, Moreno-Santillan D, Hughes GM, Paulat NS, Sipperly N, Brown A, **Martin KR**, Poterewicz GM, Lim MCW, Russell AL, Moore MS, Johnson M, Corthals AP, Ray D, Davalos LM (2023). Evolution of antimicrobial peptides in Chiroptera. *Frontiers in Immunology* 14:1250229. https://doi.org/10.3389/fimmu.2023.1250229

4. Phillips KF, **Martin KR**, Stahelin GD, Savage AE, Mansfield KL (2022). Genetic variation among sea turtle life stages and species suggests connectivity among ocean basins. *Ecology and Evolution*. 12(11):e9426. https://doi:10.1002/ece3.9426

3. Lafond J, **Martin KR**, Dahn H, Richmond JQ, Murphy RW, Rollinson N, Savage AE (2022). Invasive bullfrogs maintain MHC polymorphism including alleles associated with chytrid fungal infection. *Integrative and Comparative Biology* 62:262-274. https://doi.org/10.1093/icb/icac044

2. **Martin KR,** Mansfield KL, Savage AE (2022). Adaptive evolution of MHC class I immune genes and disease associations in coastal juvenile sea turtles. *Royal Society Open Science* 9:211190. https://doi.org/10.1098/rsos.211190

1. Karwacki EE*, **Martin KR**, Savage AE (2021). One hundred years of infection with three global pathogens in frog populations of Florida, USA. *Biological Conservation* 257:109088. https://doi.org/10.1016/j.biocon.2021.109088

Grants

Research Grants ($19,189)

2023 UCF Biology Graduate Student Research Award ($650)
"Long read sequencing of the sea turtle major histocompatibility complex region"

2023 Sigma Xi Grants in Aid of Research ($580)
"The more things change the more they stay the same? Investigating whether chromosomally translocated MHC immune genes evolve differently than classic MHC loci"

2022 Sea Turtle Conservancy ($15,059)
E. Seney, UCF (PI), **K.R. Martin** (Co-PI); A. Savage, UCF (Co-PI), A. Forsman, UCF (Co-PI). "Immunogenetics and pathogen drivers of fibropapillomatosis in stranded sea turtles"

2019 American Society of Ichthyologists and Herpetologists Gaige Award ($900)
"Using gene expression to disentangle the interaction of disease and environment in the immune responses of disease-challenged sea turtles"

2016 Tinker Foundation Field Research Grant ($2,000)
"The First Minutes at Sea: the movement ecology of cue-dependent navigational decisions of hatchling sea turtles"

Travel grants ($3500)

2024 UCF Presentation Fellowship award ($500)
Funding to attend 2024 meeting of Society for Integrative and Comparative Biology

2023 UCF Boyd Lyon Memorial travel award ($300)
Funding to travel to and attend 2024 meeting of Society for Integrative and Comparative Biology

2023 UCF Presentation Fellowship award ($500)
Funding to attend 2023 meeting of Society for Integrative and Comparative Biology

2023 UCF Dept. of Biology travel award ($400)
Funding to attend 2023 meeting of Society for Integrative and Comparative Biology

2019 UCF Presentation Fellowship travel award ($800)
Funding to travel and attend Workshop on Genomics Český Krumlov, Czech Republic

2018 UCF Dept. of Biology travel award ($350)
Funding to travel to and attend Workshop on Genomics Český Krumlov, Czech Republic

2018 UCF Boyd Lyon Memorial travel award ($450)
Funding to travel to and attend Workshop on Genomics Český Krumlov, Czech Republic

2018 UCF Student Government Association travel award ($200)
Funding to travel to and attend Workshop on Genomics Český Krumlov, Czech Republic

Honors and awards ($5500)

2023 UCF College of Sciences Dean's PhD Fellowship ($5000)

2023 Frederick H. Stoye Award for Best Student Presentation in Genetics, Development, and Morphology**,** "Evolutionary mechanisms shaping major histocompatibility complex immune gene variation and trans-species polymorphism in four species of sea turtle" ($300)

2022 UCF Biology Department Excellence in Research Award ($200)

2021 Best PhD student presentation, Sea Turtle Fibropapillomatosis Research Symposium

2021 Best student presentation in amphibian and reptile biology session, Wildlife & Aquatic Veterinary Disease Laboratory (WAVDL) Palooza

2017 Department of Ecology & Evolution Outstanding Departmental Service Award, Stony Brook University

2014 Fairfield University Biology Department Award for Academic Excellence

2014 Sigma Xi, associate member, Fairfield University chapter

Presentations

Invited Seminars

2022 "Turtles All the Way Down: Genetics and Evolution of Sea Turtle Immune Systems" Invited Dr. Donald J. Ross Sr. Biology Lecture Series, Department of Biology, Fairfield University, Fairfield CT

Oral presentations (presenting author listed first)

2024 **Martin KR**, Adkins J, Chea V, Forsman A, Seney E, Komoroske L, Mansfield K, Savage AE. Major histocompatibility complex gene evolution in four sea turtle species. Society for Integrative and Comparative Biology, Seattle, WA.

2023 **Martin KR**, Adkins J, Chea V, Forsman A, Seney E, Komoroske L, Mansfield K, Savage AE. Evolutionary mechanisms shaping major histocompatibility complex immune gene variation and trans-species polymorphism in four species of sea turtle. Joint Meeting of Ichthyologists and Herpetologists, Norfolk VA.
Stoye Award for Best Student Presentation in Genetics, Development, and Morphology, American Society of Ichthyology and Herpetology.

2023 Adkins J, **Martin KR**, Lynch J, Banerjee SM, Allen C, Savage AE, Chea V, Rice M, Jones TT, Balazs G, Komoroske L. Immunogenetic diversity and transcriptomic response to disease in Hawaiian green sea turtles. Evolution, Albuquerque, NM.

2023 **Martin KR**, Mansfield KL, Savage AE. Adaptive immune gene evolution and disease associations in coastal juvenile sea turtles. 2023 Society for Integrative and Comparative Biology, Austin, TX.

2022 Phillips KF, **Martin KR**, Stahelin GD, Savage AE, Mansfield KL. Exploring the genetics of 'lost years' turtles in the Gulf of Mexico. 40th International Sea Turtle Symposium, Perth, Australia (presented virtually).

2022 **Martin, KR**, Mansfield KL, Savage AE. Adaptive immune gene evolution and fibropapillomatosis in juvenile green turtles (*Chelonia mydas*) and loggerheads (*Caretta caretta*). 40th International Sea Turtle Symposium, Perth, Australia (presented virtually).

2021 **Martin, KR**, Mansfield KL, Savage AE. Adaptive evolution of MHC class I immune genes and disease associations in coastal juvenile sea turtles. Sea Turtle Fibropapillomatosis Research Symposium, Whitney Laboratory for Marine Bioscience, St. Augustine, FL (presented virtually). *Best PhD student presentation.*

2021 **Martin, KR**, Mansfield KL, Savage AE. Adaptive evolution of MHC class I immune genes and disease associations in coastal juvenile sea turtles. 6th Wildlife & Aquatic Veterinary Disease Laboratory (WAVDL) Palooza, University of Florida, Gainesville, FL (presented virtually). *Best student presentation in amphibian and reptile biology session.*

2019 **Martin KR**, Mansfield KL, Savage AE. Evolutionary dynamics and disease associations of immune genes in nearshore juvenile green and loggerhead sea turtles. 39th International Sea Turtle Symposium, Charleston, SC

2016 Byun SA, Lara P, Torres D, Wrobel D, **Martin KR**, Tognin F, Lopez G. Conservation challenges for nesting loggerhead turtles in the face of coastal development in southeastern Brazil. 36th International Sea Turtle Symposium, Lima, Peru.

Poster presentations (presenting author listed first)
** undergraduate student mentored*

2023 Paniagua Torres KA*, Brosnan EB, **Martin KR**, Atkinson MA, Glorioso B, Waddle H, Savage AE. Genetic investigation into the origins of New Orleans Cuban tree frog invasion. Joint Meeting of Ichthyologists and Herpetologists, Norfolk VA.

2022 Paniagua Torres KA*, Brosnan EB, Atkinson MA, **Martin KR**, Glorioso B, Waddle H, Savage AE. Genetic investigation into the origins of New Orleans Cuban tree frog invasion. Office of Student Research Summer Poster Showcase, University of Central Florida, Orlando, FL.

2022 Morton SA*****, **Martin KR**, Mansfield KL, Savage AE. The first record of ranavirus infection in green sea turtles. Student Scholar Symposium, University of Central Florida, Orlando, FL.

2021 Morton SA*****, **Martin KR**, Mansfield KL, Savage AE. Is ranavirus present in green sea turtles? Student Scholar Symposium, University of Central Florida, Orlando, FL.

2020 Morton SA*****, **Martin KR**, Savage AE. Generating a phylogeny of Ranavirus across various vertebrate genera. Summer Research Showcase, University of Central Florida, Orlando, FL

2017 **Martin KR**, Lara PH, Almeida DT, Martin AM, Byun SA. The First Minutes at Sea: an investigation of the cue-dependent navigational decisions of hatchling loggerhead sea turtles (*Caretta caretta*). 37th International Sea Turtle Symposium, Las Vegas, NV

2016 **Martin KR**, Dávalos LM, Poterewicz GM, Moore MS. Evolutionary implications of bat antimicrobial peptides in white nose syndrome: from hidden Markov models to hibernacula. Evolution, Austin, TX

Mentoring

2022-present Karen Paniagua Torres, Penn State'24 biology, UCF REU student

2019-2022 Sydney Morton, UCF'22 biology

2019-2020 Tamara Lee, UCF'20 biology

Teaching experience

2020-present **Instructor of Record** for undergraduate Evolutionary Biology laboratory at UCF
** My SPI scores in all nine categories are higher than the average university, College of Sciences, and biology department SPI scores every semester for which I have SPI scores (spring 2022-fall 2023)*

2018-19 **Graduate Teaching Assistant** for undergraduate Biology I honors laboratory and undergraduate Biology II laboratory at UCF

2018 **Guest lecturer** for undergraduate Brazil Tropical Zoology field course (undergraduate) at Fairfield University

Winter 2018 **Teaching Assistant** for undergraduate Tropical Zoology field course at Fairfield University/São Paulo State, Brazil
Evaluated and guided student research, contributed field lessons, collaborated with ProFauna employees and Fairfield University faculty, managed preparation of accommodations and transportation in Brazil.

Winter 2016 **Teaching Assistant** for undergraduate Tropical Zoology field course at Fairfield University/RJ State, Brazil
Evaluated and guided student research, contributed field lessons, collaborated with Projeto TAMAR employees, managed preparation of meals, accommodations, and transportation.

Fall 2013 **Undergraduate Teaching Assistant**, Evolutionary Biology laboratory at Fairfield University

2012-14 **Instructor**, Peer Learning Group Leader at Fairfield U

Science communication and outreach

2023 Love Your Mother Earth Day Festival, Sanford FL. Outreach table

	Marine Turtle Research Group outreach table.
2022	Sea Turtle Preservation Society, presentation on graduate research "Turtles All the Way Down: My graduate work on sea turtle genetics and immune systems (so far)"
Spring 2022	UCF STEM Day. Hands-on turtle experience for K-12 Students.
2020-present	UCF Principles of Marine Biology, ~1 talk/semester on sea turtle biology and graduate education
2020	UCF STEM virtual chat series, presentation on sea turtle biology "Sea Turtles in Florida and Beyond" (https://stem.ucf.edu/stemvirtual-chatseries/)
2018-2020	Skype A Scientist, ~2 talks/semester on sea turtle biology
2019	Future Frogmen conversation series, episodes 1 – 4 https://www.futurefrogmen.org/conversation-series
2017	"Turtle Wrangling in Brazil," *Science Outside*, 1 Jun 2017 https://scienceoutside.com/portfolio/turtle-wrangling-in-brazil/
2016-19	Letters to a Pre Scientist, pen pal program between scientists and middle school students from under-resourced school districts

Media mentions

2022	Wells, R. New Genetic Clues Could be Key to Saving Sea Turtles From Mysterious Disease. *UCF Today.* 7 April. https://www.ucf.edu/news/new-genetic-clues-could-be-key-to-saving-sea-turtles-from-mysterious-disease/
2019	Wells, R. UCF Researchers Investigate New Lead in Mysterious Sea Turtle Disease. *UCF Today*. 14 January. https://www.ucf.edu/news/ucf-researchers investigate-new-lead-mysterious-sea-turtle-disease/

Professional service

Peer-reviewer for PeerJ

Spring 2023	**Search committee member:** assistant professor for ecological modeler (UCF Dept. of Biology)
Summer 2022	**National Science Foundation REU mentor**: mentor to UCF

	Biology REU student investigating genetic origins of New Orleans Cuban tree frog invasion
2022-23	**Biology Graduate Student Association**: DEI representative (UCF Dept. of Biology)
2020-22	**Diversity, Equity, and Inclusion Committee**: founding graduate student member of the Graduate Recruitment and Retention subcommittee, now ad hoc committee on inclusive culture (UCF Dept. of Biology)
2020-21	**Biology Graduate Student Association**: faculty liaison (UCF Dept. of Biology)
2011-14	**WiSTEM (Women in STEM)**: mentor to first year and sophomore women in science, mathematics, and engineering majors (Fairfield University

Workshops

2019	**Workshop on Genomics Český Krumlov, Czech Republic** 13-day intensive course on theory, topics and analytical tools in –omics and next-generation sequencing http://evomics.org
2017	**Workshop on Ecological Functional Genomics, Lacawac Sanctuary, PA** Short course on comparative analysis of genomes with an emphasis on gene family construction, phylogenetic inference, and tests for selection. http://www.lacawac.org/workshop-on-ecological-functional-genomics.html
2016	**MBL Workshop on Molecular Evolution, Woods Hole, MA** 10-day intensive course on theory, contemporary topics, and analytical tools in molecular evolution. https://molevol.mbl.edu/index.php/Main_Page