

KATHLEEN M. MUNLEY

Department of Biology, Indiana University, 1001 East Third Street, Bloomington, IN 47405
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Current Position: Graduate Research Associate, Indiana University (2016-Present)

EDUCATION:

2016-Present Ph.D. **Evolution, Ecology, and Behavior, Indiana University**

Specialization: Behavior/Physiology

Minor: Neural Science

Mentor: Gregory E. Demas

2013 B.S. **Marine Science/Biology, University of Miami**

Minor: Chemistry

Mentor: Martin Grosell

2013 B.A. **Creative Writing, University of Miami**

RESEARCH INTERESTS:

- Neural and hormonal modulation of social behavior
- Physiological mechanisms underlying seasonal changes in behavior
- Novel neuroendocrine mechanisms of aggression

RESEARCH POSITIONS:

2016-Present **Graduate Research Associate;** Department of Biology, Indiana University.

Dissertation: Seasonal and neuroendocrine regulation of aggressive behavior in Siberian hamsters (*Phodopus sungorus*). *Mentor: Gregory E. Demas.*

2013-2016 **Graduate Research Assistant;** Department of Biological Sciences, Louisiana State University.

Project title: Regulation of polyamine and GABA production in the gills of killifish (*Fundulus* sp.) during acute hypoosmotic challenge. *Mentor: Fernando Galvez.*

2010-2013 **Undergraduate Research Assistant;** Department of Marine Biology and Ecology, University of Miami.

Undergraduate Honors Thesis: Growth inhibition in early life-stage tests predicts full life-cycle toxicity effects of lead in the freshwater pulmonate snail, *Lymnaea stagnalis*. *Mentor: Martin Grosell.*

PUBLICATIONS:

Google Scholar h-index: 5; i10-index: 4; total citations: 114

* denotes mentored undergraduate students

Peer-Reviewed Manuscripts (10)

Munley, K. M., Liu, D., & Galvez, F. (2021). Increased polyamine levels and maintenance of γ -aminobutyric acid (Gaba) homeostasis in the gills is indicative of osmotic plasticity in killifish. *Comparative Biochemistry and Physiology - Part A: Molecular & Integrative Physiology*, 257, 110969.

Munley, K. M., Trinidad, J. C., Deyoe, J. E., Adaniya, C. H.*, Nowakowski, A. M.*, Ren, C. C.*, Murphy, G. V.*, Reinhart, J. M.*, & Demas, G. E. (2021). Melatonin-dependent changes in neurosteroids are associated with increased aggression in a seasonally breeding rodent. *Journal of Neuroendocrinology*, 33, e12940.

Munley, K. M., Deyoe, J. E., Ren, C. C.*, & Demas, G. E. (2020). Melatonin mediates seasonal transitions in aggressive behavior and circulating androgen profiles in male Siberian hamsters. *Hormones and Behavior*, 117, 104608.

Ren, C. C.*, Sylvia, K. E., **Munley, K. M.**, Deyoe, J. E., Henderson, S. G.*, Vu, M. P.*, & Demas, G. E. (2020). Photoperiod modulates the gut microbiome and aggressive behavior in Siberian hamsters. *Journal of Experimental Biology*, 223, jeb212548.

Rendon, N. M., Petersen, C. L., **Munley, K. M.**, Amez, A. C., Boyes, D. L., Kingsbury, M. A., & Demas, G. E. (2020). Seasonal patterns of melatonin alter aggressive phenotypes of female Siberian hamsters. *Journal of Neuroendocrinology*, 32, e12894.

Munley, K. M., Rendon, N. M., & Demas, G. E. (2018). Neural androgen synthesis and aggression: insights from a seasonally breeding rodent. *Frontiers in Endocrinology*, 9, 136.

Heuer, R. M., **Munley, K. M.**, Narsinghani, N., Wingar, J., Mackey, T. M., & Grosell, M. (2016). Changes to intestinal transport physiology and carbonate production at various CO₂ levels in a marine teleost, the Gulf toadfish (*Opsanus beta*). *Physiological and Biochemical Zoology*, 89, 402-416.

Stickle, W. B., Lindeberg, M., Rice, S. D., **Munley, K. M.**, & Reed, V. (2016). Seasonal changes in the thermal regime and gastropod tolerance from the rocky intertidal zone in southeast Alaska. *Journal of Experimental Marine Biology and Ecology*, 482, 56-63.

Munley, K. M., Brix, K. V., Panlilio, J., Deforest, D. K., & Grosell, M. (2013). Growth inhibition in early life-stage tests predicts full life-cycle toxicity effects of lead in the freshwater pulmonate snail, *Lymnaea stagnalis*. *Aquatic Toxicology*, 128-129, 60-66.

Brix, K. V., Esbaugh, A. J., **Munley, K. M.**, & Grosell, M. (2012). Investigations into the mechanism of lead toxicity to the freshwater pulmonate snail, *Lymnaea stagnalis*. *Aquatic Toxicology*, 106-107, 147-156.

Invited Book Chapters (1)

Jalabert, C., **Munley, K. M.**, Demas, G. E., & Soma, K. K. (2018). Aggressive behavior. In M. K. Skinner (Ed.), *Encyclopedia of Reproduction* (2nd ed., Vol. 1, pp. 242-247). Amsterdam: Elsevier.

Works in Progress (3)

Munley, K. M., Dutta, S., Jasnow, A. M., & Demas, G. E. (*anticipated submission: Summer 2021*). Adrenal MT₁ melatonin receptor signaling is linked with seasonal variation in social behavior in male Siberian hamsters. *Hormones and Behavior*.

Munley, K. M., Wade, K., & Pradhan, D. S. (*invited review; anticipated submission: Summer 2021*). Uncovering the seasonal brain: liquid chromatography-tandem mass

spectrometry (LC-MS/MS) as a biochemical approach to the study of comparative endocrinology. *Hormones and Behavior*.

Munley, K. M., Trinidad, J. C., & Demas, G. E. (*anticipated submission: Fall 2021*). The agonistic, but synergistic adrenal: neural and adrenal steroidogenic enzyme activity predict individual differences in aggression in a seasonally breeding rodent. *Proceedings of the Royal Society B: Biological Sciences*.

Thesis

Munley, K. M. (2013). Growth inhibition in early life-stage tests predicts full life-cycle toxicity effects of lead in the freshwater pulmonate snail, *Lymnaea stagnalis*. *Undergraduate Honors Thesis, University of Miami, Coral Gables, FL. 7 pp.*

PRESENTATIONS:

Conference Presentations and Published Abstracts (21)

Munley, K. M., Trinidad, J. C., & Demas, G. E. (2021). Seasonal and sex-specific regulation of 3 β -hydroxysteroid dehydrogenase (3 β -HSD) activity and aggressive behavior in Siberian hamsters. *Society for Behavioral Neuroendocrinology; virtual conference*.

Munley, K. M., Dutta, S., Jasnow, A. M., & Demas, G. E. (2021). Adrenal melatonin 1a receptor (Mel1aR) signaling is linked with seasonal variation in social behavior in male Siberian hamsters. *Animal Behavior Conference; virtual conference*.

Munley, K. M., Dutta, S., Jasnow, A. M., & Demas, G. E. (2021). Adrenal melatonin 1a receptor (Mel1aR) signaling regulates territorial aggression in male Siberian hamsters (*Phodopus sungorus*). *Society for Integrative and Comparative Biology; virtual conference*.

Munley, K. M., Dutta, S., Jasnow, A. M., & Demas, G. E. (2020). The role of peripheral melatonin signaling in regulating aggression in male Siberian hamsters. *Animal Behavior Society; virtual conference*.

Munley, K. M., Dutta, S., Jasnow, A. M., & Demas, G. E. (2020). The potential role of peripheral melatonin 1a receptor (Mel1aR) signaling in regulating territorial aggression in male Siberian hamsters. *Society for Behavioral Neuroendocrinology; Atlanta, GA [canceled due to COVID-19]*.

Munley, K. M., Trinidad, J. C., Deyoe, J. E., Adaniya, C. H.*, Nowakowski, A. M.*, Ren, C. C.*, Murphy, G. V.*, Reinhart, J. M.*, & Demas, G. E. (2020). Melatonin-induced changes in neurosteroid synthesis elevate aggressive behavior in a seasonally breeding rodent. *Animal Behavior Conference; Bloomington, IN [canceled due to COVID-19]*.

Munley, K. M., Deyoe, J. E., Adaniya, C. H.*, Nowakowski, A. M.*, Ren, C. C.*, Murphy, G. V.*, Reinhart, J. M.*, & Demas, G. E. (2020). Melatonin modulates seasonal changes in neurosteroid levels and territorial aggression in male Siberian hamsters (*Phodopus sungorus*). *Society for Integrative and Comparative Biology; Austin, TX*.

Munley, K. M., Deyoe, J. E., Adaniya, C. H.*, Nowakowski, A. M.*, Ren, C. C.*, Murphy, G. V.*, Reinhart, J. M.*, & Demas, G. E. (2019). Melatonin regulates seasonal variation in neurosteroid profiles and aggressive behavior in male Siberian hamsters. *Neuroscience 2019; Chicago, IL*.

- Munley, K. M.**, Deyoe, J. E., Adaniya, C. H.* , Nowakowski, A. M.* , Ren, C. C.* , Murphy, G. V.* , Reinhart, J. M.* , & Demas, G. E. (2019). Melatonin facilitates seasonal changes in steroidogenesis and aggressive behavior in male Siberian hamsters. *Society for Behavioral Neuroendocrinology; Bloomington, IN.*
- Morrison, E. A., **Munley, K. M.**, Shortridge, A. L.* , Canabal, D. N.* , & Demas, G. E. (2019). Fecal transplantation alters circulating cortisol of male and female Siberian hamsters. *Society for Behavior Neuroendocrinology; Bloomington, IN.*
- Morrison, E. A., **Munley, K. M.**, Shortridge, A. L.* , Canabal, D. N.* , & Demas, G. E. (2019). Fecal transplantation alters circulating cortisol of male and female Siberian hamsters. *Purdue University Microbiome Symposium; West Lafayette, IN.*
- Munley, K. M.**, Deyoe, J. E., Ren, C. C.* , & Demas, G. E. (2019). Rising to the challenge: melatonin modulates circulating androgens and aggression in a seasonally breeding rodent. *Animal Behavior Conference; Bloomington, IN.*
- Munley, K. M.**, Deyoe, J. E., Ren, C. C.* , & Demas, G. E. (2019). Melatonin mediates seasonal transitions in circulating androgen profiles and aggression in male Siberian hamsters. *Society for Integrative and Comparative Biology; Tampa, FL.*
- Munley, K. M.**, Deyoe, J. E., Jalabert, C., Ma, C., Ren, C. C.* , Soma, K. K., & Demas, G. E. (2018). Effects of melatonin on seasonal shifts in androgen levels and aggression in male Siberian hamsters. *International Congress of Neuroendocrinology; Toronto, Canada.*
- Munley, K. M.**, Deyoe, J. E., Jalabert, C., Ma, C., Ren, C. C.* , Soma, K. K., & Demas, G. E. (2018). Effects of melatonin on seasonal shifts in androgen levels and aggression in male Siberian hamsters. *Animal Behavior Conference; Bloomington, IN.*
- Ren, C. C.* , Deyoe, J. E., Sylvia, K. E., **Munley, K. M.**, & Demas, G. E. (2018). Photoperiod modulates gut microbiome and behavior in Siberian hamsters (*Phodopus sungorus*). *Animal Behavior Conference; Bloomington, IN.*
- Munley, K. M.**, Whitehead, A., Liu, D., & Galvez, F. (2017). Upregulation of polyamine biosynthesis and γ -aminobutyric acid (GABA) production are indicative of osmotic plasticity in killifish (*Fundulus sp.*). *Animal Behavior Conference; Bloomington, IN.*
- Munley, K. M.**, Liu, D., & Galvez, F. (2014). The roles of glutamate and putrescine in γ -aminobutyric acid (GABA) synthesis in *Fundulus heteroclitus* during osmotic stress. *American Physiological Society Intersociety Meeting: Comparative Approaches to Grand Challenges in Physiology; San Diego, CA.*
- Heuer, R. M., **Munley, K. M.**, Narsinghani, N., Wingar, J., Mackey, T., & Grosell, M. (2014). Changes to intestinal transport physiology at varying levels of hypercapnia in the Gulf toadfish (*Opsanus beta*). *American Physiological Society Intersociety Meeting: Comparative Approaches to Grand Challenges in Physiology; San Diego, CA.*
- Heuer, R. M., **Munley, K. M.**, Narsinghani, N., & Grosell, M. (2014). Influence of hypercapnia on intestinal transport and calcium carbonate formation in the Gulf toadfish. *International Congress on the Biology of Fish; Edinburgh, Scotland.*

Munley, K. M. (2013). Growth inhibition in early life-stage tests predicts full life-cycle toxicity effects of lead in the freshwater pulmonate snail, *Lymnaea stagnalis*. *Atlantic Coast Conference Meeting of the Minds; Winston Salem, NC.*

Invited Presentations and Seminars (2)

Munley, K. M. (2021). Fighting around the clock: unwinding the role of melatonin in regulating aggressive behavior in a seasonally breeding rodent. *Current Topics in Neurobiology Seminar Series, University of Oklahoma Cellular & Behavioral Neurobiology Graduate Program; virtual presentation.*

Munley, K. M. (2019). Aggression and the seasonal clock: unwinding the actions of melatonin on aggressive behavior in a seasonally breeding rodent. *Indiana University Evolution, Ecology, and Behavior Brown Bag Seminar Series; Bloomington, IN.*

Other Presentations (5)

Funkhouser, L. K.* , Deckard, T. E.* , Proffitt, M. R., Demas, G. E., & **Munley, K. M.** (2021). Seasonal and sex-specific regulation of neural arginine vasopressin (AVP) and aggressive behavior in Siberian hamsters. *Indiana University Science, Technology, and Research Scholars (STARS) Spring Research Symposium; Bloomington, IN.*

Munley, K. M., Trinidad, J. C., & Demas, G. E. (2021). Seasonal and sex-specific regulation of 3 β -hydroxysteroid dehydrogenase (3 β -HSD) activity in Siberian hamsters. *Center for Behavioral Neuroscience Brains & Behavior Retreat; virtual conference.*

Ren, C. C.* , Deyoe, J. E., Sylvia, K. E., **Munley, K. M.**, & Demas, G. E. (2018). Photoperiod modulates gut microbiome and behavior in Siberian hamsters (*Phodopus sungorus*). *Indiana University Hutton Honors College Research Symposium; Bloomington, IN.*

Munley, K. M., Liu, D., & Galvez, F. (2015). From salinity to behavior: the effect of osmotic stress on GABA production in the killifish, *Fundulus heteroclitus*. *Louisiana Environmental Education Symposium; Baton Rouge, LA.*

Munley, K. M., Liu, D., & Galvez, F. (2014). The roles of glutamate and putrescine in γ -aminobutyric acid (GABA) synthesis in *Fundulus heteroclitus* during osmotic stress. *Louisiana State University BioGrads Symposium; Baton Rouge, LA.*

RESEARCH GRANTS AND FELLOWSHIPS (\$116,275):

2021	College of Arts and Sciences Dissertation Research Fellowship (1 yr.), Indiana University (\$20,000)
2020	Indiana Clinical and Translational Sciences Institute (CTSI) Pilot Grant for Research Use of Core Facilities (2 yrs., co-PI with Dr. Gregory Demas): "Steroidogenic Enzyme Regulation of Aggression" (\$10,000)
2020	Animal Behavior Society Student Research Grant (\$2,000)
2020	Louise Constable Hoover Fellowship (1 sem.); Department of Biology, Indiana University (\$2,000)
2020	Center for the Integrative Study of Behavior Predoctoral Fellowship (2 sem.), Indiana University (\$15,383)
2019	Indiana University Graduate and Professional Student Government Research Award (\$1,000)
2019	Indiana Academy of Science Senior Research Grant (\$3,000)

2019	Society for Integrative and Comparative Biology Grant-in-Aid of Research (\$1,000)
2018	NIH Ruth L. Kirschstein NRSA Institutional Predoctoral Fellowship (NICHD T32HD049336 – “Common Themes in Reproductive Diversity,” 2 yrs.): “ <i>Neuroendocrine modulation of seasonal aggression in Siberian hamsters</i> ” (\$48,192)
2016	Department of Biology Research Recruitment Fellowship (1 sem.), Indiana University (\$12,500)
2014	Louisiana Environmental Education Commission University Research Grant, Louisiana Department of Wildlife and Fisheries (\$1,200)

HONORS, AWARDS, AND SCHOLARSHIPS:

2021	Nominee, Philanthropic Educational Organization (P.E.O.) Scholar Award
2020	Nominee, Aubrey Gorbman Award for Best Student Oral Presentation; Division of Comparative Endocrinology, Society for Integrative and Comparative Biology (SICB)
2020	Charlotte Magnum Student Support Program Award, Society for Integrative and Comparative Biology
2019, 2018	Center for the Integrative Study of Animal Behavior Travel Grant, Indiana University (\$1,250)
2019, 2018	Provost’s Travel Award for Women in Science, Indiana University (\$1,200)
2018	Trainee Travel Award, International Neuroendocrine Federation (\$485)
2018	College of Arts and Sciences Fall Travel Award, Indiana University (\$200)
2018	Enrichment Travel Award; Department of Biology, Indiana University (\$250)
2014	Travel Grant; Graduate Student Association, Louisiana State University (\$200)
2013	Graduated <i>cum laude</i> with departmental honors distinction in Marine and Atmospheric Science Program (B.S.) and <i>summa cum laude</i> in Creative Writing Program (B.A.), University of Miami. Made Provost’s Honor Roll and/or Dean’s List for 7 out of 8 semesters (B.S. GPA = 3.516, B.A. GPA = 4.0, cumulative GPA = 3.628).
2009-2013	University Scholarship, University of Miami (\$24,000/yr.)

RESEARCH SKILLS:

- **Animal behavior**
 - Sampling techniques: focal individuals, time
 - Assays: resident-intruder paradigm, open field test
 - Types of behavior: aggression, territoriality, investigation, scent marking, self-grooming, submissive behaviors, anxiety-like behaviors
- **Husbandry** – maintain and breed colony of Siberian hamsters, maintain fish and aquatic invertebrate aquaria, develop IACUC protocols and standard operating procedures
- **Surgical Experience** – stereotaxic surgery, lentiviral vector microinjections into adrenal glands, and perfusions in rodents
- Rodent and fish handling and live sampling
- Perform necropsies and collect blood and tissue samples from rodents, fishes, and aquatic invertebrates at various life-history and developmental stages
- **Tissue processing** – sectioning (cryostat and freezing microtome), micropunching
- **In vitro laboratory assays** – enzymatic activity assays, steroid hormone extraction from blood, serum, and tissue samples (solid phase extraction using OMIX C18 pipette tips and C18 columns), liquid chromatography-tandem mass spectrometry (LC-MS/MS),

- enzyme immunoassays (EIAs), high performance liquid chromatography (HPLC), atomic absorption spectrophotometry, anion chromatography, fluorescence spectroscopy
- **Molecular biology** – qPCR, RNA extraction (TRIzol and automated extraction methods) and quantification, cDNA synthesis, primer design, PCR, gel electrophoresis, western blot
 - **Histology and Microscopy** – immunohistochemistry, fluorescence microscopy and quantitative image processing, Nissl staining
 - **Statistical analysis**
 - Programs: R, SigmaPlot, PoloPlus
 - Analyses: generalized linear models, generalized linear mixed models, univariate and multivariate analyses of variance (ANOVAs), permutational analyses of variance, simple and multiple linear regressions, t-tests, non-parametric tests of group differences (Mann-Whitney U test, Kruskal-Wallis test, Friedman test), principal component analysis

SCIENCE WRITING AND SELECTED RESEARCH PRESS:

- 2020 *“Expert or poser? Debunking the psychology behind imposter syndrome,”* SclU: Conversations in Science at Indiana University
- 2020 *“What’s in a name? How the Black Lives Matter movement is reshaping bird taxonomy,”* SclU: Conversations in Science at Indiana University
- 2019 *“Melatonin and seasonal aggression in hamsters,”* Endocrine Disruptors podcast.
- 2019 *“The early bird gets the worm, part II: how behavioral ecology is connecting the dots between early-life stress and aging,”* SclU: Conversations in Science at Indiana University.
- 2019 *“Winter makes me SAD: the biological story behind seasonal affective disorder and its potential treatments,”* SclU: Conversations in Science at Indiana University.
- 2019 *“The early bird gets the worm, part I: what can behavioral ecology tell us about female aggression and its underlying mechanisms?”* SclU: Conversations in Science at Indiana University.
- 2018 *“Not your typical summer school: an IU program engages high school students in the wonders of science,”* SclU: Conversations in Science at Indiana University.
- 2018 *“Fatherhood in the animal kingdom and its intricate relationship with aggression,”* SclU: Conversations in Science at Indiana University.
- 2018 *“A gut feeling: Demas lab explores how microbiome influences social behavior,”* SclU: Conversations in Science at Indiana University.

TEACHING AND MENTORING EXPERIENCE:

- 2021 **Guest Speaker; Department of Biological Sciences, University of Pittsburgh** – Participated in Q&A session with students in Animal Behavior (BIOSC 0370) undergraduate course about the role of melatonin in modulating peripheral steroid synthesis and aggression in Siberian hamsters.
- 2020 **Guest Speaker; Department of Zoology, Ohio Wesleyan University** – Participated in Q&A session with students in Behavioral Endocrinology (ZOO 300) undergraduate course about the role of melatonin in regulating neurosteroids and aggression in Siberian hamsters.
- 2018 **Associate Instructor; Center for the Integrative Study of Animal Behavior, Indiana University** – Research and Professional Ethics for the Bio-behavioral Sciences (ABEH-A 502).
- 2018 **Mentor, Research Experience for Undergraduates (REU) Program in Animal Behavior; Center for the Integrative Study of Animal Behavior, Indiana**

University – Mentored 2 undergraduate students conducting independent research projects in the Demas lab.

CISAB REU Program in Animal Behavior Students Mentored (2):

Desirée Nieves Canabal (University of Puerto Rico at Mayagüez, 2018)

Project Title: Fecal transplantation and the role of the gut microbiome in aggressive behavior

Ayley Shortridge (Michigan State University, 2018)

Project Title: Modulation of the HPA axis and anxiety-like behavior following fecal transplantation in Siberian hamsters

2017-Present **Mentor, Indiana University** – Mentored 1 undergraduate student conducting an independent research project in the Demas lab and supervised and taught techniques to 12 undergraduate research assistants in the Demas lab.

Indiana University Undergraduate Students Mentored (1):

Clarissa Ren (Hutton Honors College Research Program, 2017-2019)

Project Title: Photoperiod modulates the gut microbiome and behavior in Siberian hamsters

Indiana University Undergraduate Research Assistants Mentored (12):

Kate Adaniya (2018-2019, Cox Scholars Program); Taylor Deckard (2019-Present); Eamonn Duffy (2019-2020, Hutton Honors College); Lizbeth Funkhouser (2020-Present, Science, Technology, and Research Scholars Program); Sarah Henderson (2017-2019, Cox Scholars Program); Cameron Logan (2017-2019); Caroline McCord (2019, Hutton Honors College); Grace Murphy (2018-2019, Hutton Honors College); Andi Nowakowski (2018-2019, Hutton Honors College); Molly Pendergast (2019, Hutton Honors College); John Reinhart (2018-2019); Sydney Szwed (2021-Present).

2016-2017 **Assistant Instructor; Department of Biology, Indiana University** – Integrative Human Physiology (BIOL-P 451) and Biology Laboratory (BIOL-L 113) undergraduate courses.

2015 **Guest Instructor; Department of Biology, University of Washington** – Presented lecture on renal physiology in Survey of Physiology (BIOL 118) undergraduate course.

2014 **Content Tutor; Cox Communications Academic Center for Student-Athletes, Louisiana State University** – General Biology (BIOL 1001), General Chemistry I (CHEM 1201), General Chemistry II (CHEM 1202), and Introduction to Oceanography (OCS 1005) undergraduate courses. Received College Reading & Learning Association (CRLA) 1 certification.

2013-2016 **Mentor, Louisiana State University** – Supervised and taught techniques to 5 undergraduate research assistants in the Galvez lab.

Louisiana State University Undergraduate Research Assistants Mentored (5):

Jamie Drummond (2014-2016); Ryan Hoffman (2015-2016, Roger Hadfield Ogden Honors College); Brittney Keosayasing (2015-2016); Christina Rubio (2015-2016, Roger Hadfield Ogden Honors College); Veronica Rubio (2014-2016, Initiative for Maximizing Student Development).

2013-2016 **Teaching Assistant; Department of Biological Sciences, Louisiana State University** – Vertebrate Physiology Laboratory (BIOL 4161) and Marine Communities Laboratory (BIOL 4263) undergraduate courses.

2013 **Instructor, High School Careers in Medicine Workshop; Miller School of Medicine, University of Miami** – Designed and taught Introduction to Physiology course to rising high school seniors from underrepresented backgrounds in the Miami-Dade County Public School system.

OUTREACH:

2020, 2019 **Volunteer, Science Fest; College of Arts and Sciences, Indiana University** – Organized and led hands-on activities and demonstrations for children and adults in the greater Bloomington community.

2019-Present **Volunteer, Skype a Scientist** – Speaks with elementary, middle, and high school students from across the world about research and career as a scientist via Skype.

2019 **Graduate Mentor, Jim Holland Summer Science Research Program (SSRP); Department of Biology, Indiana University** – Mentored 1 high school student conducting an independent research project in the Demas lab.

Jim Holland SSRP Students Mentored (1):

Kennedi Cole (Hammond Academy of Science and Technology, 2019)

Project Title: Sex differences in seasonal aggression in male and female Siberian hamsters

2018, 2017 **Instructor, Foundations in Science and Mathematics Program; College of Arts and Sciences, Indiana University** – Designed and taught Zoology (Animal Diversity) course to local middle and high school students in the greater Bloomington area.

2019, 2018 **Abstract Judge, Outstanding Junior Scientist Competition; Indiana Junior Academy of Science** – Evaluated abstracts submitted by high school students from across the state of Indiana that conducted independent research projects.

2018-2020 **Recruitment Chair; SciU Blog, Indiana University** – Organized and coordinated events to recruit new writers and editors for SciU: Conversations in Science at Indiana University, a graduate student-run blog at the Indiana University Bloomington campus.

2017-Present **Copy Editor, Associate Editor, and Writer; SciU Blog, Indiana University** – Composes and edits bimonthly blog posts about cutting-edge science and current events at Indiana University. Website: <http://blogs.iu.edu/sciu/>.

2017 **Guest Speaker; STEM Research Bootcamp, Indiana University** – Lead workshop on writing abstracts and giving poster presentations to undergraduate STEM research boot camp hosted by the Groups and Hudson & Holland Scholars programs.

2014-2015 **Graduate Mentor, EnvironMentors Program; College of the Coast & Environment, Louisiana State University** – Mentored 1 high school student in conducting an independent research project and designing and presenting a scientific poster at the LSU EnvironMentors Science Fair.

LSU EnvironMentors Program Students Mentored (1):

De'Marcus Goins*, Scotlandville Magnet High School (2014-2015)

Project Title: Whodunnit: Investigations into the eating preferences of carnivorous plants

** Was awarded 1st place at the LSU EnvironMentors Science Fair and 3rd place at the EnvironMentors National Fair in Washington, D.C., earning himself an \$800 college scholarship.*

2014 **Graduate Mentor, Biology Intensive Orientation for Students (BIOS); College of Science, Louisiana State University** – Mentored incoming

freshman undergraduate students during a summer biology boot camp program, which helps students make the transition to the expectations of college prior to the start of their first semester.

- 2014 **Volunteer, Ocean Commotion; Louisiana Sea Grant** – Organized and led hands-on activities for children and adults in the greater Baton Rouge community.

PROFESSIONAL ACADEMIC SERVICE AND RELEVANT EXPERIENCE:

- 2021 Session Moderator, Animal Behavior Conference – “Social Communication.”
 2021, 2019 Undergraduate Poster Judge, Animal Behavior Conference
 2021, 2019, Hospitality Committee Chair, Animal Behavior Conference
 2018
 2020-Present Member, COVID-19 Ad Hoc Committee; Graduate and Professional Student Government, Indiana University
 2020-2021 Member, Diversity Advocacy Committee; Graduate and Professional Student Government, Indiana University
 2020 Attendee, Preparing Future Faculty Conference; Indiana University
 2019-Present Social Media Coordinator and Founding Member; Evolution, Ecology, and Behavior Organization Representing Graduate Students, Indiana University
 2019-Present Graduate Student Representative, Department of Biology; Graduate and Professional Student Government, Indiana University
 2019 Session Moderator, Animal Behavior Conference – “Physiological Effects of Stress.”
 2019 Session Chair, Society for Integrative and Comparative Biology Annual Meeting – “Hormones & Behavior II: Everything but the Birds”
 2018 Session Moderator, Animal Behavior Conference – “Sex Differences in the Brain and Behavior”
 2017-Present **Ad Hoc Reviewer** – *Brain, Behavior, and Immunity; Hormones and Behavior; Journal of Experimental Zoology, Part A; Journal of Mammalogy; Physiology & Behavior; Proceedings of the Royal Society B: Biological Sciences.*
 2017-2020 Graduate Recruitment Weekend planning committee; Department of Biology, Indiana University

MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS:

Society for Behavioral Neuroendocrinology (SBN); Society for Integrative and Comparative Biology (SICB); Society for Neuroscience (SfN); Animal Behavior Society (ABS); American Physiological Society (APS); Indiana Academy of Science (IAS).