

# Joshua M. Hall, Ph.D.

Tennessee Tech University, Department of Biology  
Pennebaker Hall, 1100 North Dixie Avenue

[www.devoeco.org](http://www.devoeco.org)  
[Google Scholar Profile](#)  
[Research Gate Profile](#)

## Professional Experience

---

- Current **Assistant Professor of Vertebrate Physiology**, Department of Biology, Tennessee Tech University, Cookeville, TN
- 2020-21 **Postdoctoral Fellow**, Department of Biological Sciences, Auburn University, Auburn, AL  
Funded by NSF DEB #[1942145](#)
- 2014-15 **High School Science Teacher**, Henry County High School, Paris, TN  
Courses Taught: Honors Biology II, Earth Science  
Level 5 Teacher (out of 5) according to TN Team Model
- 2011 **Adjunct Faculty**, Union University, Jackson, TN
- 2010-14 **High School Science Teacher**, Milan High School, Milan, TN  
Courses Taught: AP Biology, PreAP Biology, General Biology, Essential Biology, ACT Science Prep, Intro to Physics  
Level 4 Teacher according to TN Team Model (TVAAS Growth Measure of 4.7)  
97% Pass Rate on the AP Bio Exam with an average score of 3.52
- 2008-10 **Senior Order Processing Technician**, Ceco Door, Milan, TN  
Supervised by: Jim Sabella, Customer Service Supervisor

## Education

---

- 2015-20 **Ph.D in Biology**, Auburn University, Auburn, AL  
Advisor: Dr. Daniel A. Warner
- 2014-15 **M.S. in General Biology**, Mississippi State University, Starkville, MS.  
Nonthesis degree: Teachers in Biology
- 2010-13 **K-12 TN Teacher Licensure**, University of Tennessee at Martin, Martin, TN.
- 2007-08 Additional Study in Chemistry/Physics, Jackson State Community College, Jackson, TN.
- 2003-07 **B.S. with Majors in Biology and Writing**, Union University, Jackson, TN.

## University Teaching Experience; number of times taught in parenthesis

---

- (1) **Animal Physiology** (BIOL 3530), Instructor of Record, TN Tech University  
(2) **Human Anatomy and Physiology I** (BIOL 2010), Instructor of Record, TN Tech University  
(1) **Vertebrate Biodiversity** (BIOL 4020), Instructor of Record, Auburn University  
(2) **Vertebrate Development** (BIOL 4410), Graduate Teaching Assistant, Auburn University  
(1) **Survey of Life**, Instructor of Record, Alabama Prison Arts and Education Project  
(1) **Human Anatomy and Physiology**, Lab Instructor, Union University

## Peer-Reviewed Publications; \*Undergraduate student mentee; \*\*Graduate student mentee

---

- (22) **Hall JM. In Prep.** Measuring key thermal traits of reptile embryos: integrating new developments in thermal physiology with classic studies of nesting ecology. **Frontiers in Physiology (Invited Review)**
- (21) Pruettt JE, **Hall JM**, Tiatragul S, Warner DA. **In Review.** Nesting in *Anolis* lizards: An understudied

topic in a well-studied clade. **Frontiers in Ecology and Evolution. (Invited Review)**

- (20) **Hall JM. Accepted.** Rains from successive hurricanes reduce nesting success of the Marbled Salamander (*Ambystoma opacum*). **Herpetological Conservation and Biology**
- (19) Mitchell TS, Folt B, **Hall JM. 2021.** Dumpsters and other anthropogenic structures as habitat for invasive African rock agama lizards in Florida. **Biological Invasions.** 23(9), 2689–2693.  
<https://doi.org/10.1007/s10530-021-02537-0>
- (18) **Hall JM, \*Miracle J, \*Scruggs C, Warner DA. 2021.** Natural nest substrates influence squamate embryo physiology but have little effect on hatchling phenotypes. **Integrative Zoology.**  
<https://doi.org/10.1111/1749-4877.12553>
- (17) Warner DA, **Hall JM, Fargevieille A, \*Hulbert AC, Tiatragul S, Pruett JE, Mitchell TS. 2021.** Dependence on a human structure influences the extinction of a non-native lizard population after a major environmental change. **Biological Invasions.** 23(3), 825-842.  
[doi.org/10.1007/s10530-020-02405-3](https://doi.org/10.1007/s10530-020-02405-3)
- (16) **Hall JM and Sun B. 2021.** Heat tolerance of reptile embryos: current knowledge, methodological considerations, and future directions. **Journal of Experimental Zoology.** 335(1), 45-58.  
[doi.org/10.1002/jez.2402](https://doi.org/10.1002/jez.2402)
- (15) Taylor EN, Diele-Viegas LM, Gangloff EJ, **Hall JM, Halpern B, Massey MD, Rödder D, Rollinson N, Spears S, Sun B, Telemeco RS. 2021.** The Thermal Ecology and Physiology of Reptiles and Amphibians: A User's Guide. **Journal of Experimental Zoology.** 335(1), 13-44.  
[dx.doi.org/10.1002/jez.2396](https://doi.org/10.1002/jez.2396)
- (14) **Hall JM and Warner DA. 2021.** Thermal sensitivity of lizard embryo physiology indicates a mismatch between oxygen supply and demand at near-lethal temperatures. **Journal of Experimental Zoology.** 335(1), 72-85. [doi.org/10.1002/jez.2359](https://doi.org/10.1002/jez.2359)
- (13) **Hall JM, Warner DA. 2020.** Ecologically relevant thermal fluctuations enhance offspring fitness: biological and methodological implications for studies of thermal developmental plasticity. **Journal of Experimental Biology.** 223(19), jeb231902. [doi.org/10.1242/jeb.231902](https://doi.org/10.1242/jeb.231902);  
**Featured article:** Inside JEB <https://doi.org/10.1242/jeb.235473>; **Editors' Choice** for November 2020 Short List (1 of 12) for **Best JEB Paper of 2020:** <https://doi.org/10.1242/jeb.242266>
- (12) \*Dees A, \*Wilson K, \*Reali C, Pruett JE, **Hall JM, Brandt R, Warner DA. 2020.** Communal egg-laying behaviour and the consequences of egg aggregation in the brown anole (*Anolis sagrei*). **Ethology.** 26(7), 751-760. [dx.doi.org/10.1111/eth.13028](https://doi.org/10.1111/eth.13028)
- (11) \*Hulbert AC, **Hall JM, Mitchell TS, Warner DA. 2020.** Use of human structures, not thermal adaptation, facilitates persistence of a non-native ectotherm. **Biological Invasions.** 22(6), 2017-2031. [doi.org/10.1007/s10530-020-02236-2](https://doi.org/10.1007/s10530-020-02236-2)
- (10) **Hall JM, Mitchell TS, Thawley CJ, Stroud JT, Warner DA. 2020.** Adaptive seasonal shift towards investment in fewer, larger offspring: Evidence from field and laboratory studies. **Journal of Animal Ecology.** 89(5), 1242-1253. [doi.org/10.1111/1365-2656.13182](https://doi.org/10.1111/1365-2656.13182)
- (9) \*\*Tiatragul S, **Hall JM, and Warner DA. 2020.** Nestled in the city heat: lizard nesting behavior enhances fitness in the urban landscape. **Journal of Urban Ecology.** 6(1), juaa001.  
[doi.org/10.1093/jue/juaa001](https://doi.org/10.1093/jue/juaa001)
- (8) **Hall JM and Warner DA. 2019.** Thermal tolerance in the urban heat island: Thermal sensitivity Varies ontogenetically and differs between embryos of two sympatric ectotherms. **Journal of**

**Experimental Biology.** 222(19), jeb210708 [doi.org/10.1242/jeb.210708](https://doi.org/10.1242/jeb.210708)

- (7) \*\*Tiatragul S, **Hall JM**, Pavlik NG, and Warner DA. **2019**. Lizard nest environments differ between suburban and forest habitats. **The Biological Journal of the Linnean Society.** 126(3), 392-403. [doi.org/10.1093/biolinnean/bly204](https://doi.org/10.1093/biolinnean/bly204)
- (6) **Hall JM**, Buckelew A, Lovern M, Secor SM, and Warner DA. **2018**. Seasonal shifts in reproduction depend on prey availability for an income breeder. **Physiological and Biochemical Zoology**, 91(6), 1129-1147. [doi.org/10.1086/700341](https://doi.org/10.1086/700341)
- (5) Mitchell TS, **Hall JM**, and Warner DA. **2018**. Female investment in offspring size and number shifts seasonally in a lizard with single-egg clutches. **Evolutionary Ecology**, 32 (2-3), 231-245. [doi.org/10.1007/s10682-018-9936-5](https://doi.org/10.1007/s10682-018-9936-5)
- (4) **Hall JM** and Warner DA. **2018**. Thermal spikes from the urban heat island increase mortality and alter physiology of lizard embryos. **Journal of Experimental Biology**, 221(14), jeb181552. [doi.org/10.1242/jeb.181552](https://doi.org/10.1242/jeb.181552)
- (3) **Hall JM** and Warner DA. **2017**. Winter microhabitat selection and growth of Jacky Dragons (*Amphibolurus muricatus*). **Copeia**, 105(4), 618-625. [doi.org/10.1643/CH-16-548](https://doi.org/10.1643/CH-16-548)
- (2) **Hall JM** and Warner DA. **2017**. Body size and reproduction of a non-native lizard are enhanced in an urban environment. **The Biological Journal of the Linnean Society**, 122(4), 860-871. [doi.org/10.1093/biolinnean/blx109](https://doi.org/10.1093/biolinnean/blx109)
- (1)\*Hulbert AC, Mitchell TS, **Hall JM**, \*Guiffre C, \*Douglas D, and Warner DA. **2017**. The effects of incubation temperature and experimental design on heart rates of lizard embryos. **Journal of Experimental Zoology Part A**, 327(7), 466-476. [doi.org/10.1002/jez.2135](https://doi.org/10.1002/jez.2135)

### **Natural History Notes**

---

- (2) **Hall JM**, Glorioso BM, Doody JS. **2021**. *Ambystoma opacum* (Marbled Salamander). Atypical nest sites. **Herpetological Review** 52(3), pp. 595-596
- (1) **Hall JM**. **2020**. *Ambystoma opacum* (Marbled Salamander). Coloration. **Tennessee Journal of Herpetology**. 3, 37. ([link](#))

### **Popular Literature, Newsletters, Book Reviews**

---

- (3) **Hall JM**. **2021**. Temperature-dependent sex determination in reptiles. **Herpetoculture Magazine**. 17, 25-32. ([link](#))
- (2) **Hall JM**. **2020**. Book review: Lizards and snakes of Alabama. **Tennessee Journal of Herpetology**. 3, 43-46. ([link](#))
- (1) **Hall JM**, Mitchell TS, and Warner DA. **2019**. The brown anole (*Anolis sagrei*) as a model for studying life-history adaptation to seasonality. **Anolis Newsletter VII**. pp. 101-107. Eds. Stroud, JT, Geneva AJ, Losos LB. Washington University, St. Louis, MO. ([link](#))

### **Invited Oral Presentations**

---

- 2020    **World Congress of Herpetology, New Zealand;** Sex in the city: urbanization broadens the reproductive season of lizards; Invited presentation for symposium "Herps in the City"
- World Congress of Herpetology, New Zealand;** Factors affecting the thermal tolerance of reptile embryos: lessons from *Anolis* lizards; Invited presentation for symposium "Beyond

CTmax and CTmin”

### **Selected Oral Presentations**

---

- 2021 **Society for Integrative and Comparative Biology** Annual Meeting; Adaptive seasonal shifts towards investment in fewer, larger offspring: evidence from field and laboratory studies  
**Tennessee Herpetological Society** (Spring Conference); Multiple, successive hurricanes reduce nesting success of Marbled Salamanders (*Ambystoma opacum*) in central Alabama.  
**Tennessee Academy of Science** Annual Meeting; Highly convergent species of Anolis lizards exhibit divergence in fundamental life-history traits
- 2020 **Tennessee Academy of Science** Annual Meeting; Adaptive seasonal shifts towards investment in fewer, larger offspring: evidence from field and laboratory studies
- 2019 **Society for Integrative and Comparative Biology** Annual Meeting; Comparing the effects of sinusoidal and naturally fluctuating incubation temperatures on embryo development  
**Tennessee Herpetological Society** Annual Meeting; Comparing the effects of sinusoidal and naturally fluctuating incubation temperatures on embryo development
- 2018 **Tennessee Academy of Science** Annual Meeting; Embryo development and global change: how do reptile embryos respond to ecologically-relevant thermal stress?  
**Tennessee Herpetological Society** Annual Meeting; Embryo development and global change: how do reptile embryos respond to ecologically-relevant thermal stress?  
**Society for Integrative and Comparative Biology** Annual Meeting; Embryo development and global change: how do reptile embryos respond to thermal stress in urban environments?  
**Anolis Symposium V**; Does season-dependent reproductive value of offspring drive the evolution of life-history traits in *Anolis* lizards?
- 2017 **Society for Integrative and Comparative Biology** Annual Meeting; Thermal Spikes Caused by the Urban Heat Island Effect Result in Differential Egg Survival of a Non-native Lizard

### **Grants, Fellowships, Travel Funding, Monetary Awards** **\$83,094**

---

2020	Dean’s Research Award, Auburn University	\$250
2019	Auburn University, COSAM Graduate Travel Award	\$450
2019	Auburn University Graduate School, Travel Grant for World Congress	\$300
2019	Company of Biologists Travel Grant for World Congress of Herpetology	\$500
2019	NSF Alabama EPSCoR Graduate Research Fellowship (1 year of \$25k accepted)	\$75,000
2019	Harry Merriwether Fellowship, Auburn University	\$2000
2019	National Science Foundation, Travel Support for SICB annual meeting	\$444
2018	Auburn University, COSAM Graduate Travel Award	\$400
2017	Auburn University, BSGSA Travel Grant	\$300
2016	Alabama Academy of Science Student Research Grant	\$250
2013	Milan Education Association Grant for Classroom Technology	\$1000
2011	Milan Education Association Grant for Classroom Technology	\$2200

### **Undergraduate Mentee Projects**

---

- 2021 Jonah Powell, Emily Ellsworth. *Herpetological Collections Management at TTU*. **Ongoing**

- 2019 Josie Miracle, Cindy Scruggs. *Interactions of soil type and moisture concentration on embryo development*. **Published** in *Integrative Zoology*
- 2018 Andrew DeSana. *Lizard egg predation by marsh crabs: effects of microhabitat and crab density on egg survival*. **Presented** at the NSF REU (Warm Water Ecology) Research Symposium and the *Society for Integrative & Comparative Biology* annual meeting 2019
- 2018 Mallory Turner, David Quinn. *Methods in recreating ecologically relevant incubation conditions in the lab*. **Presented** at the *Society for Integrative & Comparative Biology* annual meeting 2019
- 2017 Allison Dees, Kayla Wilson, Chanel Reali. *Communal nesting in the brown anole (*Anolis sagrei*)*. **2<sup>nd</sup> Place Poster Presentation**, Auburn University Student Research Symposium (2020), Undergrad STEM Research; **Published** in *Ethology*
- 2016 Cassie Guiffre, Austin Hulbert, Dani Douglas. *Noninvasive heart rate detection using a digital egg monitoring system in *Norops sagrei* embryos*. **Published** in the *J. of Exp. Zoology*
- 2016 Austin Hulbert. *Thermoregulatory patterns of non-native *Norops sagrei* in a novel thermal environment*. **Published** in *Biological Invasions*

#### Peer Review; number of reviews in parentheses

---

Behaviour (1)	Behavioral Ecology and Sociobiology (1)
Biological Journal of the Linnaean Society (3)	Canadian Journal of Zoology (3)
Copeia (3)	Comparative Biochemistry and Physiology (2)
Ecology (1)	Ecography (2)
Evolution & Development (2)	Evolutionary Applications (2)
Herpetological Conservation and Biology (1)	Herpetologica (1)
Integrative and Comparative Biology (1)	Integrative Zoology (5)
Journal of Herpetology (1)	Oikos (2)
Oecologia (1)	PeerJ (1)
South American Journal of Herpetology (1)	Functional Ecology (2)
Sexual Development (1)	Diversity (1)

#### Grant Review Service

---

Mitacs Accelerate Fellowship, <https://www.mitacs.ca/en>

#### Selected Awards

---

2020	Outstanding Doctoral Student, Auburn University
2018	1 <sup>st</sup> Place, Zoology, Student Oral Presentation; Tennessee Academy of Science Annual Meeting
2018	Best Oral Presentation; Tennessee Herpetological Society Annual Meeting
2018	Margaret McNeal Arant Award for Outstanding Achievement in Zoology

#### Outreach, Community Engagement, University Service

---

2021	<i>Tennessee Academy of Sciences Annual Meeting</i> ; Student Talk/Poster Judge, Zoology
2021	<i>COSAM Undergraduate Research Fellowship Committee</i> , Auburn University
2021	<i>COSAM Research Awards Committee</i> , Auburn University
2021	<i>Department of Biological Sciences Student Awards Committee</i> , Auburn University
2021	<i>Society for Integrative and Comparative Biology</i> ; Student Poster Judge, Animal Behavior
2020	<i>Tennessee Academy of Sciences Annual Meeting</i> ; Student Talk/Poster Judge, Zoology

- 2020 *Learn the Reptiles*, Auburn Day School (Alabama's first STEM preschool)
- 2020 *Greater East Alabama Regional Science and Engineering Fair*; Judge, Junior Division
- 2019 *Bones and Boos* – Auburn University Natural History Museum
- 2019 *The Salamander Room*; Integrating Literature and Science, Auburn Early Ed. Center K-2
- 2019 *What is a species?* – Auburn Public Library STEM Storytime
- 2019 *Reptile Adaptations* - Auburn Early Education Center K-2
- 2019 *Greater East Alabama Regional Science and Engineering Fair*; Judge, Junior Division
- 2017 *Fall Open House*, Auburn University Museum of Natural History
- 2016 *BioBlitz*, Alabama Extension - Mary Olive Thomas Demonstration Forest
- 2016 *Fall Open House*, Auburn University Museum of Natural History
- 2010-2013 *Herpetoculture for Kids*; University of Tennessee Martin Kid's College

### **Professional Membership**

---

Tennessee Academy of Sciences (Lifetime member); Tennessee Herpetological Society; Society for Integrative and Comparative Biology; Society for the Study of Amphibians and Reptiles

---