

# CHRISTINE WHITNEY MILLER

Associate Professor  
Entomology and Nematology Department  
University of Florida, Gainesville, FL 32611

Email: [cwmiller@ufl.edu](mailto:cwmiller@ufl.edu)  
Website: <http://www.millerlab.net>

## ACADEMIC POSITIONS

**2017 - Present** Associate Professor, Entomology and Nematology Department, University of Florida  
**Easter Term 2018** Visiting Fellow of Sidney Sussex College, Dept. of Zoology, University of Cambridge  
**2011 - 2017** Assistant Professor, Entomology and Nematology Department, University of Florida  
**2007 - 2011** Assistant Research Scientist, University of Florida

## EDUCATION

The University of Montana – Missoula  
**Ph.D., Organismal Biology and Ecology**, 2007. Advisor: Dr. Douglas J. Emlen.  
Wesleyan University, Middletown, CT  
**B.A. Biology**, 1998.

## EXTERNAL AWARDS, GRANTS & FELLOWSHIPS

**USDA National Excellence in Teaching Award**, 2017. Awarded at a ceremony in Washington D.C.,  
**National Science Foundation CAREER Award, Behavioral Systems Program**, \$845,000. 2016-2022.  
“CAREER: Fighting behavior, performance, and the evolution of shape” PI: Christine W. Miller  
**United States Department of Agriculture, NIFA, Women and Minorities in Science, Technology, Engineering, and Mathematics Fields Program (WAMS)**, \$90,000. 2016-2018. “Increasing student diversity in food and agriculture-related STEM disciplines through undergraduate classroom-based research experiences” PI: Adam Dale, Co-PIs: Christine Miller & Anne Donnelly.  
**National Institutes of Health, Maximizing Access to Research Careers (MARC) U-STAR Program**, \$2,350,594, 2016-2021. “GatorSTAR: A New MARC U\*STAR Program at the University of Florida.” PI: David Julian, Co-PIs: Christine Miller, Ryan Duffy, & David Miller.  
**National Science Foundation, Behavioral Systems Program**, \$325,394. 2009-2013. “Selection in heterogeneous environments: a multi-trait perspective” PI: Christine W. Miller.  
**National Evolutionary Synthesis Center (NESCent) Postdoctoral Fellowship**, 2007-2009 (I declined).  
**Smithsonian Tropical Research Institute, Short Term Fellowship**, \$1000, 2005; **Ernst Mayr Fellowship**, \$4850, 2004; **Research Award**, \$1138, 2004; **Graduate Student Fellowship**, \$3700, 2003.  
**NSF Graduate Research Fellowship Program**, \$121,500. 2003-2006.

## INTERNAL AWARDS & GRANTS

**UF Term Professorship Award** 2017-2020; again 2020-2023. \$15,000 each term, total \$30,000. Award to recognize and reward UF faculty for outstanding accomplishments.  
**University of Florida, College of Agriculture and Life Sciences Undergraduate Teacher of the Year Award** 2018.  
**UF Internationalizing the Curriculum Grant** 2018, \$5000, support to bring in international course content and active learning activities as part of the Learning Without Borders initiative at UF; **UF International Center, Global Fellow Award** 2016, \$4000; **UF International Center, Faculty Grant** 2015, \$5000.

Christine W. Miller

**UF Interdisciplinary Research on Invasive Species Seed Grant** 2018-2019, \$64,500.

**UF Excellence Award for Assistant Professors** 2014, \$5000. Campus-wide honor.

**HHMI-UF Science for Life Distinguished Mentor Award** 2013, \$10,000. Award for excellence in mentoring undergraduate researchers.

**UF/IFAS Early-Career Seed Grant** 2013, \$55,000.

**UF Faculty Enhancement Opportunity Program** 2013, \$5,317.

**PEER-REVIEWED PUBLICATIONS** (complete list of publications at [www.millerlab.net](http://www.millerlab.net))

1. Woodman TE, Chen S, Emberts Z, Wilner D, Federle W & **Miller CW** (2021). Developmental nutrition affects the structural integrity of a sexually selected weapon. *Integrative & Comparative Biology*. 61: 723-735.
2. **Miller CW**, Joseph PN & Emberts Z (2021). Trade-offs between weapons and testes do not manifest at high social densities. *Journal of Evolutionary Biology*. 34: 726-735.
3. Greenway EV, Hamel J & **Miller CW** (2021). Exploring the effects of extreme polyandry on estimates of sexual selection and reproductive success. *Behavioral Ecology*. DOI: 10.1093/beheco/arab081
4. Cavender K, Ricker T, Lyon M, Shelby E, **Miller CW** & Moore PJ (2021). The trade-off between investment in weapons and fertility is mediated through spermatogenesis in the leaf-footed cactus bug *Narnia femorata*. *Ecology & Evolution*. DOI: 10.1002/ece3.7686
5. Allen PE, Cui Q & **Miller CW** (2021). Evidence of a rapid and adaptive response of hemipteran mouthparts to a physical barrier. *Journal of Evolutionary Biology*. 34: 653-66.
6. Cirino LA, Lenga SH & **Miller CW** (2021). Do males that experience weapon damage have greater reproductive potential than intact males in polygynous scenarios? *Behav. Ecol. & Soc.* 75: 1-8.
7. Miller CD, Forthman M, **Miller CW**, & Kimball RT (2021). Extracting 'legacy loci' from an invertebrate sequence capture data set. *Zoologica Scripta*. DOI: 10.1111/zsc.12513.
8. Greenway EV, Cirino LA, Wilner D, Somjee U, Anagnostou ME, Hepple RT & **Miller CW** (2020). Extreme variation in testes size in an insect is linked to recent mating activity. *Journal of Evolutionary Biology*. 33: 142-150.
9. Allen PE, **Miller CW**, and Dale AG (2020). Bringing the scientific process into the undergraduate classroom. *American Entomologist*. 66: 24-27.
10. Allen PE & **Miller CW** (2020). The hidden cost of group living for aggregating juveniles in a sexually dimorphic species. *Biological Journal of the Linnean Society* 131: 39-49.
11. Forthman M, **Miller CW**, Kimball RT. (2020) Phylogenomics of the leaf-footed bug subfamily Coreinae (Hemiptera: Coreidae). *Insect Systematics and Diversity*. 4:1-15.
12. Emberts Z, St. Mary CM, Howard CC, Forthman MP, Bateman B, Somjee U, Hwang W, Li D, Kimball R, **Miller CW** (2020). The evolution of autotomy in leaf-footed bugs. *Evolution*. 74: 897-910.
13. Wilner D, Greenway EG, Cirino LA & **Miller CW** (2020). Long-term reproductive success is predicted by sexual behavior and impaired by temporary nutritional stress during sexual maturation. *Behavioural Processes*. 175: 104122.
14. Emberts Z, **Miller CW**, Skojec C, Shepherd R, St. Mary C (2020). Leaf-footed bugs possess multiple hidden contrasting color signals, but only one is associated with increased body size. *Ecology & Evolution* 10: 8571-8578.

15. **Miller CW**, Joseph PN, Kilner RM, Emberts Z (2019). A weapons–testes trade-off in males is amplified in female traits. *Proceedings of the Royal Society of London (B)*. 286: 20190906. *Recipient of the 2019 UF/IFAS High-Impact Publication Award*.
16. Forthman M, Miller CW, Kimball RT (2019) Phylogenomic analysis suggests Coreidae and Alydidae (Hemiptera: Heteroptera) are not monophyletic. *Zoologica Scripta*. 48: 520-534.
17. Somjee U, Woods HA, Duell M, & Miller CW (2018). The hidden cost of sexually selected traits: the metabolic expense of maintaining a sexually selected weapon. *Proceedings of the Royal Society of London (B)*. DOI: 10.1098/rspb.2018.1685. [Press](#).
18. Joseph PN, Emberts Z, Sasson DA, & **Miller CW** (2018). Males that drop a sexually selected weapon grow larger testes. *Evolution*. 72: 113–122. DOI: 10.1111/evo.13387. [Press](#).
19. Somjee U, **Miller CW**, Tataric NJ, & Simmons LW (2018). Experimental manipulation reveals a trade-off between weapons and testes. *Journal of Evolutionary Biology*. 31: 57–65. DOI: 10.1111/jeb.13193. [Press](#).
20. Emberts Z, St. Mary CM, Herrington TJ, & **Miller CW** (2018). Males missing their sexually selected weapon have decreased fighting ability and mating success in a competitive environment. *Behavioral Ecology and Sociobiology*. 72: 81.
21. Allen PE, Dale AG, Diyaljee SI, Ector NJ, Petit-Bois D, Quinn JT, Ranieri AC, Sanchez JA, Smith HM, Tran DX, Winsor AM & **Miller CW**. (2018). Long-term sperm storage in the cactus-feeding bug, *Narnia femorata* (Hemiptera: Coreidae). *Annals of the Entomological Society of America*. 111:271-277.
22. Cattau CE, Fletcher RJ, **Miller CW**, Kimball RT & Kitchens, WM (2018). Rapid morphological change of a top predator with the invasion of a novel prey. *Nature Ecology and Evolution*. DOI:10.1038/s41559-017-0378-1. Press: [NY Times](#), [ARS Technica](#).
23. Allen PE & **Miller CW** (2017). Novel host plant leads to the loss of sexual dimorphism in a sexually selected male weapon. *Proceedings of the Royal Society of London (B)*. 284: 20171269. *Recipient of the 2017 UF/IFAS High-Impact Publication Award*.
24. Emberts Z, **Miller CW**, Kiehl D, & St. Mary C (2017). Cut your losses: self-amputation of injured limbs increases survival. *Behavioral Ecology*. 28: 1047–1054.
25. Emberts Z, **Miller CW**, Li D, Hwang WS, & St. Mary CM (2017). Multiple male morphs in the leaf-footed bug *Mictis longicornis* (Hemiptera: Coreidae). *Entomological Science*. 20: 396–401.
26. Nolen ZJ, Allen PE, & **Miller CW** (2017). Seasonal resource value and male size influence male aggressive interactions in the leaf footed cactus bug, *Narnia femorata*. *Behavioural Processes*. 138: 1-6.
27. Cirino LA & **Miller CW** (2017). Seasonal effects on the population, morphology and reproductive behavior of *Narnia femorata* (Hemiptera: Coreidae). *Insects*. 8: 1-16.
28. Cirino LA, Emberts Z, Joseph PN, Allen PE, Lopatto D, & **Miller CW** (2017). Broadening the voice of science: promoting scientific communication in the undergraduate classroom. *Ecology and Evolution*. 7: 10124–10130.
29. **Miller CW**, McDonald G, & Moore AJ (2016). The tale of the shrinking weapon: seasonal changes in nutrition affect weapon size and sexual dimorphism, but not contemporary evolution. *Journal of Evolutionary Biology*. 29: 2266-2275.
30. McCullough E, **Miller CW**, and Emlen DE (2016). Why sexually selected weapons are not ornaments. *Trends in Ecology and Evolution*. 31: 742-751.
31. Emberts Z, St. Mary CM, & **Miller CW** (2016). Coreidae (Insecta: Hemiptera) limb loss and autotomy. *Annals of the Entomological Society of America*, 109: 678–683.

32. Joseph PN, Sasson DA, Allen PE, Somjee U. and **Miller, CW** (2016). Adult nutrition, but not inbreeding, affects male primary sexual traits in the leaf-footed cactus bug *Narnia femorata* (Hemiptera: Coreidae). *Ecology & Evolution*. 6: 4792–4799.
33. Sasson DA, Munoz PR, Gezan SA, & **Miller CW** (2016). Resource quality affects weapon and testis size and the ability of these traits to respond to selection in the leaf-footed cactus bug, *Narnia femorata*. *Ecology & Evolution*. 6: 2098-2108.
34. Somjee U, Allen PE, & **Miller CW** (2015). Different environments lead to a reversal in the expression of weapons and testes in the heliconia bug, *Leptoscelis tricolor* (Hemiptera: Coreidae). *Biological Journal of the Linnean Society* 115: 802-209.
35. Hamel J, Nease SA, & **Miller CW** (2015). Male mate choice and female receptivity lead to reproductive interference. *Behavioral Ecology and Sociobiology* 69: 951-956. Press: [IFLScience](#), [Discover Magazine](#).
36. Gillespie SR, Tudor MS, Moore AJ, & Miller CW (2014). Sexual selection is influenced by both developmental and adult environments. *Evolution* 68: 3421-3432.
37. **Miller CW** & Somjee U (2014). Male-male competition. In *Oxford Bibliographies in Evolutionary Biology*. Ed. Jonathan Losos. New York: Oxford University Press.
38. Miller CW & Svensson E (2014). Sexual selection in complex environments. *Annual Review of Entomology* 59: 427-445.
39. Helmeý-Hartman W & Miller CW (2014). Context-dependent mating success in *Murgantia histrionica* (Hemiptera: Pentatomidae). *Annals of the Entomological Society of America* 107: 264-273.
40. Adesso KM, Short KA, Moore AJ, & **Miller CW** (2014). Context-dependent female mate preferences in leaf-footed cactus bugs. *Behaviour* 151: 479-492.
41. **Miller CW** (2013). Sexual selection: Male-male competition. In: J. Losos, Editor. *The Princeton Guide to Evolution*. Princeton University Press.
42. **Miller CW**, Hamel J, Holmes KD, Helmeý Hartman WL & Lopatto D (2013). Expanding your research team: learning gains when a laboratory partners with a classroom. *Bioscience* 63: 754-762.
43. **Miller CW**, Fletcher RJ & Gillespie SR (2013). Conspecific and heterospecific cues override resource quality to influence offspring production. *PLoS One* 8:e70268.
44. Procter DS, Moore AJ & **Miller CW** (2012). The form of sexual selection arising from male-male competition depends on the presence of females in the social environment. *Journal of Evolutionary Biology* 25: 803-812.
45. **Miller CW**, Fletcher RJ, Anderson BD, & Nguyen LD (2012). Natal social environment influences habitat selection later in life. *Animal Behaviour* 83: 473-477.
46. **Miller CW** & Emlen DJ (2010). Dynamic effects of oviposition site on offspring sexually selected traits and scaling relationships. *Evolutionary Ecology* 24(2): 375-390.
47. **Miller CW** & Emlen DJ (2010). Across and within population differences in the size and scaling relationship of a sexually selected trait in *Leptoscelis tricolor* (Hemiptera: Coreidae). *Annals of the Entomological Society of America* 103: 209-215.
48. **Miller CW** & Hollander SE (2010). Predation on heliconia bugs, *Leptoscelis tricolor* (Hemiptera: Coreidae): examining the influences of crypsis and predator color preferences. *Canadian Journal of Zoology* 88: 122-128.
49. Nageon de Lestang F & **Miller CW** (2009). Effects of diet on the development and survivorship of *Narnia femorata* nymphs (Hemiptera: Coreidae). *Florida Entomologist* 92:511-512.

50. **Miller CW** (2008). Seasonal effects on offspring reproductive traits through maternal oviposition behavior. *Behavioral Ecology* 19: 1297-1304.
51. Fletcher RJ & **Miller CW** (2008). The type and timing of social information alters offspring production. *Biology Letters* 4:482-485.
52. **Miller CW** & Moore AJ (2007). A potential resolution to the lek paradox through indirect genetic effects. *Proceedings of the Royal Society of London (B)* 274:1279-1286.
53. Fletcher RJ & **Miller CW** (2006). On the evolution of hidden leks and implications for reproductive and habitat selection behaviours. *Animal Behaviour* 71:1247-1251.

## COURSES TAUGHT

**Evolutionary Theory & Applications**, Graduate course, University of Florida, Spring 2022.

**Principles of Entomology**, Undergraduate/Graduate Course & Laboratory, 2008- present.

**Insect Research and Scientific Engagement**, Course-based Undergraduate Research Experience (CURE), 2012-2019. I have published three pedagogical manuscripts on our teaching approach and results (e.g., Miller et al. 2013)

**Animal Weapons**, Graduate seminar, Fall 2015

**Critical Analysis of Scientific Presentations**, Graduate seminar, Fall 2014

**Behavioral Plasticity and Evolution**, Graduate seminar, Spring 2012

**Sexual selection**, Graduate seminar, Spring 2008

**Advances in Evolution**, University of Montana, Fall 2006

## LEADERSHIP TRAINING & EXPERIENCE

**College of Agriculture and Life Sciences Faculty Mentor Academy Co-Facilitator**, Spring 2022. Provide bi-weekly, semester-long mentor training for 16-20 new faculty members at the University of Florida.

**Trained Facilitator for *Entering Mentoring Curriculum***, Week-long training by the Center for the Improvement of Mentored Experiences in Research (CIMER) Madison, WI. 2021.

**WFAB Co-Organizer & Panelist**. Weaving the Future of Animal Behavior (WFAB) is an NSF-sponsored series of professional-development workshops intended to support early-career women and members of underrepresented groups in STEM. I served as a co-organizer of a one-day workshop at the Animal Behavior Annual Meeting 2019 and a panelist at a three-day workshop held in Phoenix, AZ the same year.

**LEAD IFAS**, Year-long leadership training, University of Florida/IFAS. 2019.

**Co-Director**. University of Florida Campus Initiative to initiate 20 new Course-based Undergraduate Research Experience (CURE) across the university.

**UF CALS Teacher's College**, Trainee, Fall 2008

## MENTORING through RESEARCH

**Five postdoctoral researchers:** Jennifer Hamel, Michael Forthman, E.V. (Ginny) Greenway, Pablo Allen, and Benjamin Jarrett.

**Twelve graduate students:** Wendy Helmey-Hartman, Pablo Allen, Ummat Somjee, Daniel Sasson (major advisor: Jane Brockmann), Scarlett Tudor, Lauren Cirino, Paul Joseph, Zach Emberts (co-advised with Colette St. Mary), Daniela Wilner, Sam Zlotnik, James Boothroyd, Steven Smit

**Six visiting international student researchers:** Tamsin Woodman (University of Manchester, 2020), Duncan Procter (University of Exeter, 2010), Grant McDonald (Oxford University, 2010), Katherine Short (University of Exeter, 2011), Iain Gordon (University of Exeter, 2011), Aitor Alvarez-Fernandez (Oxford University, 2011)

### **Undergraduate Mentor and Recipient of 2013 Howard Hughes Medical Institute Distinguished**

**Mentor Award.** Together with my graduate students and postdocs, I have mentored over 200 undergraduates in my laboratory in the past fourteen years. Twenty-six undergraduate researchers have authored peer-reviewed publications, presented 96 talks and posters at conferences, won local and national awards (e.g., Three Animal Behavior Society Turner Awards, UF Best Undergraduate Paper Award). I have hosted ten UF University Scholars' Program students, two HHMI Science for Life students, and five College of Agriculture and Life Sciences internship students. In addition, I brought Classroom Undergraduate Research Experience (CURE) courses to UF undergraduates, leading to teaching publications and awards locally and nationally.

### **INVITED RESEARCH SEMINARS**

- University of Texas-Austin.** Integrative Biology, 2021.
- University of Oklahoma.** Department of Biology, 2020.
- University of Illinois.** Entomology Department, 2020.
- University of Cambridge, U.K.** Department of Zoology, 2018.
- University of Saint Andrews, U.K.** School of Biology, 2018.
- University of Minnesota,** Department of Ecology, Evolution and Behavior, 2014.
- University of Kentucky Symposium in Ecology, Evolution and Behavior.** Keynote, 2014.
- University of South Florida,** Department of Biology, 2012.
- University of Central Florida,** Department of Biology, 2011.
- University of Missouri,** Evolution and Ecology Seminar Series, 2010.
- University of Florida,** Department of Biology, 2007, 2013.
- Montana State University,** Entomology Symposium, 2006.
- Smithsonian Tropical Research Institute,** Tupper Seminar Series, 2004.

### **SYMPOSIUM TALKS**

- Florida Statewide Symposium on Best Practices in Undergraduate Research,** 2021. "Successful Implementation of a Campus Wide CURE Initiative."
- University of Florida,** Fusing Research and Teaching Symposium 2017. Featured speaker on bringing authentic research into the classroom.
- University of Florida, CALS Teaching Enhancement Symposium** 2017, 2016, 2013, 2012 (six presentations total). Invited presentations and workshops on best practices in graduate mentoring, undergraduate classroom instruction, and undergraduate mentoring.
- Behaviour 2015,** Cairns, Australia. Invited Symposium Speaker, 2015.
- Entomological Society of America Annual Meeting,** Invited Symposium Speaker, 2015.
- University of Florida,** Center for Undergraduate Research, Integrating Research Workshop. 2015. Featured speaker on bringing authentic research into the classroom.
- University of Florida,** Tropical Connections: Career Development Workshop for Post-Doctoral and Senior Graduate Scientists, 2015.
- Winter Animal Behavior Conference** 2014, 2013, 2010, 2009. Steamboat Springs, CO. Invited Speaker.
- Entomological Society of America Annual Meeting,** Invited Symposium Speaker, 2010.
- Gordon Conference – Genes and Behavior,** Italy. Invited "Data blitz" Speaker, 2008.

### **MEMBERSHIP in PROFESSIONAL SOCIETIES**

- |   |   |
|---|---|
| Society for the Study of Evolution              | American Society of Naturalists               |
| Entomological Society of America                | Animal Behavior Society                       |
| European Society for Evolutionary Biology       | British Ecological Society                    |
| Society for Integrative and Comparative Biology | International Society for Behavioural Ecology |

Christine W. Miller

## SERVICE to SCIENTIFIC COMMUNITY

- 2021 - Present Secretary for the Division of Ecology & Evolution, Society for Integrative and Comparative Biology
- 2021 - Present Associate Editor and Editorial Board Member for *Proceedings of the Royal Society: B*.
- 2016 - 2020 Associate Editor and Editorial Board Member for *Functional Ecology*
- 2010, 2012, 2015, 2017 Service on panels at the National Science Foundation, Washington D.C.
- 2011 - 2016 Editorial Board Member and Reviewing Editor for the *Journal of Evolutionary Biology*
- 2010 - Present Ad hoc grant proposal reviewer for the National Science Foundation

## SERVICE to UNIVERSITY of FLORIDA

- 2020-2021 **Founding Member**, Diversity, Equity, and Inclusion Committee for the Entomology & Nematology Department.
- 2017-2021 **Reviewer**, UF College of Agriculture and Life Sciences Annual Teaching & Advising Awards Committee.
- 2017 **Panelist and Reviewer**, Global Fellows Program, Office for Global Research Engagement, University of Florida International Center.
- 2017 **Graduate Curriculum Revision Committee**, Entomology & Nematology Department, University of Florida
- 2017 **Research Retreat Committee**, Entomology & Nematology Department, University of Florida
- 2015 - 2017 **Long-Range Strategic Planning Committee for Undergraduate Research**, University of Florida Center for Undergraduate Research.
- 2015 - 2017 **Scholarship & Leadership Awards Committee**, University of Florida, College of Agriculture and Life Sciences
- 2007 - Present **Graduate Committee Member** for 26 graduate students
- 2012 - 2014 **Graduate Admissions Committee**, University of Florida, Entomology and Nematology Department.
- 2012 - 2014 **Administrative Committee**, University of Florida, Entomology and Nematology Department.
- 2009 - 2014 **Seminar Committee Director**. Organized the University of Florida Entomology and Nematology Departmental Seminar Series and mentored students in professional development.