

**CHRISTOPHER M. JERNIGAN, Ph.D. (he/him)**

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Research Associate

Sheehan/LASER Lab

Cornell University

Department of Neurobiology and Behavior

215 Tower Rd,

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**EDUCATION**

Arizona State University      Ph.D. Animal Behavior      2018

Butler University      B.A. Biology & Chemistry, Summa Cum Laude      2011

**POSTDOCTORAL EXPERIENCE**

NIH NEI K99 Postdoctoral Awardee      2023-2025

Sheehan Lab Research Associate      2023-present

Sheehan Lab Postdoctoral Associate      2018-2023

**FELLOWSHIPS**

Smithsonian Tropical Research Institute Fellow      2011-2013

**PUBLICATIONS**

JOURNAL ARTICLES (\*=undergraduate co-author, ‡=Co-authors contributed equally)

**Jernigan, C.M., Uy, F.M.K.** (2023) Impact of the Social environment in insect sensory systems. *Curr. Opin. Insect. Sci.* <https://doi.org/10.1016/j.cois.2023.101083>

‡**Jernigan, C.M.,** ‡Stafstrom, J.A., \*Zaba, N.C., Vogt, C.C., Sheehan, M.J. (2022). Color is necessary for specialized face learning in the Northern paper wasp, *Polistes fuscatus*. *Anim. Cogn.* <https://doi.org/10.1007/s10071-022-01691-9>

Lei, H., ‡**Jernigan, C.M.,** ‡Haney, S.H., Guo, X., Cook, C., Bazhenov, M., Smith, B.H. (2022). Novelty detection in early olfactory processing of the honey bee, *Apis mellifera*. *PLoS One*. <https://doi.org/10.1101/2021.10.06.463371>

Uy, F.M.K., **Jernigan, C.M.,** \*Zaba, N.C., \*Mehrotra, E., Miller, S.E., Sheehan, M.J., (2021). Dynamic neurogenomic responses to social interactions and dominance outcomes in female paper wasps. *PLOS Genet.* doi: <https://doi.org/10.1101/2021.03.01.433260>

Miller, S.E., **Jernigan, C.M.,** Legan, A.W., Miller, C.H., Tumulty, J.P., Walton, A., Sheehan, M.J. (2021). Animal behavior missing from data archives. *Trends Ecol. Evol.* <https://doi.org/10.1016/j.tree.2021.07.008>

Legan, A.W., **Jernigan, C.M.,** Miller, S.E., \*Fuchs, M.F., Michael, M.J. (2021). Expansion and accelerated evolution of 9-exon odorant receptors in *Polistes* paper wasps. *Mol. Biol. Evol.* *Msab023*, <https://doi.org/10.1093/molbev/msab023>

**Jernigan, C.M.,** \*Zaba, N.C., Sheehan, M.J. (2021). Age and social experience induced plasticity across brain regions of the paper wasp *Polistes fuscatus*. *Biol. Lett.* 17, 20210073. <https://doi.org/10.1098/rsbl.2021.0073>

Recommended by Faculty Opinions Chittka L: Faculty Opinions Recommendation of [Jernigan CM et al., Biol Lett 2021 17(4):20210073]. In Faculty Opinions, 13 Oct 2021; 10.3410/f.739962161.793588839

**Jernigan, C.M.**, \*Halby, R., Gerkin, R., Sinakevitch, I., Locatelli, F., Smith, B.H. (2020). Experience-dependent tuning of early olfactory processing in the adult honey bee, *Apis mellifera*. *J. Exp. Biol.* doi:10.1242/jeb.206748

**Jernigan, C. M.**, Birgiolas, J., \*McHugh, C., Roubik, D. W., Wcislo, W. T., & Smith, B.H. (2018). Colony-level non-associative plasticity of alarm responses in the stingless honey bee, *Tetragonisca angustula*. *Behavioral Ecology and Sociobiology*, 72(3), <https://doi.org/10.1007/s00265-018-2471-0>

Birgiolas, J., **Jernigan, C.M.**, Gerkin, R.C., Smith, B.H., Crook, S.M. (2017). Real-time assessment of insect antenna movement and proboscis extension reflex. *J. Vis. Exp.* 130, e56803, doi:10.3791/56803

Birgiolas, J., **Jernigan, C.M.**, Smith, B.H., Crook, S. (2016). SwarmSight: Measuring the temporal evolution of animal group activity levels from natural scene and laboratory videos. *Behavior research methods*. doi:10.3758/s13428-016-0732-2

**Jernigan, C.M.**, Roubik, D. W., Wcislo, W.T., and Riveros, A.J. (2014). Color dependent learning in restrained africanized honey bees. *J. Exp. Biol.* 217, 337-343. doi:10.1242/jeb.091355

### **MANUSCRIPTS IN PREP**

**Jernigan, C.M.** and Sheehan, M.J. (*in prep*). 'Face cell-like' neural responses in the central brain of a wasp.

Sheehan, M.J., Zaba, N.K., Uy, F.M.K., **Jernigan, C.M.** (*in prep*) Dyadic aggressive encounters differ between paper wasps with visual signals of identity versus quality.

Tumulty, J.P., Miller, S.E., Van Belleghem, S.M., Weller, H.I., **Jernigan, C.M.**, \*Vincent, S., \*Staudenraus, R.J., Legan, A.W., Polnaszek, T.J., Uy, F.M.K., Walton, A., Sheehan, M.J. (*in revision*). Evidence for a selective link between cooperation and individual recognition. *bioRxiv*. <https://doi.org/10.1101/2021.09.07.459327>

### **RESEARCH INTERESTS**

neuroethology, neural and behavioral plasticity, experience dependent plasticity, olfaction, vision, sensory ecology, social insects

### **ACADEMIC WORK & TEACHING EXPERIENCE**

2023-present Research Associate Sheehan/LASER lab  
 2018-2023 Postdoctoral Associate Sheehan/LASER lab  
 2022-2023 Guest Lecture, Marquette University, BIOL4502, Experimental Neurobiology  
 2016-2018 Guest Lecture BIO331, ASU- Animal Behavior, Learning section

- 2016-2018 Research Assistantship Smith Lab  
 2015 BIO361, ASU- Animal Physiology Lab Teaching Assistant  
 2015 BIO182, ASU-General Biology II Teaching Assistant  
 2014-2015 BIO331, ASU- Animal Behavior, Innovative Teaching Assistant  
 2014 Phoenix Dessert Botanical Gardens instructor for honey bee ecology continued education course  
 2013-2014 BIO361, ASU- Animal Physiology Lab Teaching Assistant  
 2013 Led field workshop on stingless bee diversity and behavior in association with Marc Seid and The University of Scranton  
 2012 BIO 201, ASU- Human Anatomy and Physiology Teaching Assistant  
 2012 Course Assistant for Woods Hole Neural Systems & Behavior course  
 2012 Led workshop on honey bee olfactory learning with Dr. Andre Riveros in association with Butler University tropical field biology course  
 2010-2011 Biology Tutor Butler University

### **HONORS, GRANTS, AWARDS, & FELLOWSHIPS**

- 2023-2028 NIH NEI K99/R00- K99 postdoc \$250K (2 years)/ R00 funds \$750K (3 years)  
 2018 Social Insect Research Grant-SIRG ASU- \$730  
 2016 GPSA Travel Award for travel to ICN2016- \$950  
 2015 GPSA Jumpstart Research Grant- \$500  
 2015 GPSA Event Funding for Vision: From Behavior to Brains- \$1483.25  
 2014 ASU GPSA Travel Award for workshop with Fernando Locatelli- \$950  
 2014 NSF-GRFP Honorable Mention  
 2013 Smithsonian Tropical Research Institute Short Term Fellowship- \$2,510  
 2011 Smithsonian Tropical Research Institute Short Term Fellowship- \$3,700  
 2011 Outstanding Biology Senior  
       Butler University  
 2010 The Robert C. Karn Award, which recognizes an exceptional student planning a professional career in biological sciences  
       Butler University

### **CONTRIBUTIONS TO ACADEMIC MEETINGS**

- 2023 Society for Neuroscience, talk, Washington D.C., USA  
 2023 International conference on invertebrate vision, talk, Bäkaskog castle, Sweden  
 2022 International Congress of Neuroethology, talk, Lisbon, Portugal  
 2022 International Union for the Study of Social Insects, talk/posters, San Diego, CA, USA  
 2021 Animal Behavior Society meeting, Talk, virtual  
 2021 Cold Spring Harbor Meeting: Biology and Genomics of Social Insects, poster/talks  
 2019 Janelia Color Vision: Circuits and Behavior Conference, Poster, Janelia, VA, USA  
 2018 V Colombian Congress of Zoology, invited speaker, Native bees symposium, Bogotá, Colombia  
 2018 International Union for the Study of Social Insects, talk, Guarujá Brazil  
 2016 International Congress of Neuroethology Poster presentations, Montevideo, Uruguay  
 2014 International Union for the Study of Social Insects, Poster Presentation, Cairns, Australia

- 2014 Frontiers in Insect Behavior, Social organization and Evolution, poster, Julius-Maximilians-University of Würzburg, Germany
- 2014 Arizona Imaging and Microanalysis Society Conference, poster, Arizona State University
- 2012 International Congress of Neuroethology Poster presentation, University of Maryland
- 2011 Presented Honors Thesis work at the Undergraduate Research Conference at Butler University
- 2009 Presented Howler Monkey Independent Research at the Undergraduate Research Conference at Butler University

### **SELECTED PRESENTATIONS AT UNIVERSITIES AND RESEARCH INSTITUTIONS**

- 2023 **University of Scranton, invited talk**, Scranton, Pennsylvania, USA
- 2022 **University of Texas Austin, invited talk**, Austin, Texas, USA
- 2022 **University of Rochester, invited talk**, Rochester, New York, USA
- 2018 **University del Rosario, invited talk**, Bogota, Colombia,
- 2018 **Cornell University, invited talk**, Ithaca, New York, USA
- 2016 **ASU Social Insect Research Group talk**, Tempe, Arizona, USA
- 2015 **ASU-Wurzberg Workshop talk**, Tempe, Arizona, USA
- 2013 **Pontificia Universidad Javeriana, invited talk**, Bogota, Colombia
- 2013 **STRI Gamboa talk**, Gamboa, Panama
- 2012 **ASU Social Insect Research Group talk**, Tempe, Arizona, USA
- 2012 **STRI Bambi talk**, Panama city, Panama
- 2012 **Butler University, invited talk**, Indianapolis, Indiana, USA
- 2012 **STRI Gamboa talk**, Gamboa, Panama

### **EDUCATIONAL AND PROFESSIONAL SOCIETY AFFILIATIONS**

Phi Beta Kappa  
 International Society for Neuroethology (ISN)  
 International Union for the Study of Social Insects (IUSI)  
 Animal Behavior Society (ABS)  
 Society for Neuroscience (SfN)

### **UNDERGRADUATE MENTORSHIP**

- \*traditionally underrepresented background
- 2018-2020 Natalie Zaba-Honors thesis- Cornell University
- 2017-2018 Maud Koopman- ASU
- 2015-2017 Rachel Halby\*- Honors thesis student, ASU
- 2015-2017 Kyle Steinmetz- Honors thesis student, ASU
- 2015-2016 Jennell Jennett\* and Taryn O'Boyle- ASU
- 2013-2015 Cora McHugh- Honors thesis student- ASU
- 2014-2015 Zach Norris-ASU
- 2013-2014 Sonia Villa\*, Jordan Simmons\*, and Erik Rohner -ASU

### **INSTITUTIONAL & SOCIETY SERVICE EXPERIENCE**

- 2021-2022 IUSI 2022 Program Committee
- 2017-2018 ASU SOLS Graduate Executive Board Vice President

- 2016-2017 ASU SOLS Research Training Initiatives Grant Committee Graduate Representative  
2015-2016 ASU Graduate brown bag seminar coordinator  
2014-2016 ASU Graduate Professional Student Association Travel Grant Reviewer

### **ACADEMIC JOURNAL REVIEW SERVICE**

Frontiers in Insect Physiology- Reviews Editor  
Frontiers in Insect Science-Reviews Editor  
Biology Letters  
Journal of Experimental Biology  
Animal Cognition

### **OUTREACH AND PUBLIC EDUCATION ACTIVITIES**

- 2019 & 2022 Insectapalooza- Cornell University  
2017 Ask-A-Biologist Bee Story and Game:  
<https://askbiologist.asu.edu/explore/honey-bees>  
2017 ASU Night of the Open Door  
2014-2016 ASU Graduate Partners in Science Education  
2015 Ask-A-Biologist Zombie Ant PLOSable:  
<https://askbiologist.asu.edu/zombie-ants>  
2014 Honey bee and Ant Presentations at Desert Vista High School, Phoenix, AZ  
2013-2015 Bug Theatre, Phoenix, AZ  
2012-2019 Ask-A-Biologist contributor  
2010 ESL science and math tutor at Crispus Attucks High school, Indianapolis, IN