CHRISTOPHER M. JERNIGAN, Ph.D. (he/him)
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NIH NEI K99 awardee
Research Associate
Sheehan/LASER Lab

Cornell University
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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/R00	Postdoctoral Awardee	2023-2025
Sheehan/LASER Lab	Research Associate	2023-present
Sheehan/LASER 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., Freiwald, W.A., and Sheehan, M.J. (*in review)* Neural correlates of individual facial recognition in a social wasp. *BioRxiv. 2024.04.11.589095; doi: https://doi.org/10.1101/2024.04.11.589095*

Jernigan, C.M., Mammen, L., Brown, R., Sheehan, M.J. (*in review*) Paper wasps: A model clade for social cognition. *Curr. Opin. Neurobiol.*

Jernigan, C.M., and Sheehan, M.J. (*in review*) How does communication evolve? Insights from geographic variation in facial signaling in *Polistes* paper wasps. *Curr. Opin. Insect. Sci.*

Jernigan, C.M., and Sheehan, M.J. (*2024*) Developmental biology: Wait a bit and then you'll smell it. *Current Biology. 34(14) https://doi.org/10.1016/j.cub.2024.06.002*

Sheehan, M.J., Zaba, N.K., Uy, F.M.K., **Jernigan**, **C.M.** (*in review*) 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. (*2023)*. Evidence for a selective link between cooperation and individual recognition. *Current Biology. 33(24) https://doi.org/10.1016/j.cub.2023.11.032*

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

RESEARCH INTERESTS

Neural percept encoding, experience dependent plasticity, neural and behavioral plasticity, neuroethology, visual neuroscience, olfactory neuroscience, 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	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	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 Pathway to Independence Award (K99EY035504) 2023-2025 K99 postdoctoral portion: $250,000 ($125,000 annually) 2025-2028 R00 startup funding: $750,000 ($250,000 annually)
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, Butler University

CONTRIBUTIONS TO ACADEMIC MEETINGS

2024	International Congress of Neuroethology, talk, Belin, Germany
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, virtual poster/talk
2019 Janelia Color Vision: Circuits and Behavior Conference, poster, Janelia, VA, USA
2018 V Colombian Congress of Zoology, invited talk, Native bees symposium, Bogotá, Colombia
2018 International Union for the Study of Social Insects, talk, Guarujá Brazil
2016 International Congress of Neuroethology, poster, Montevideo, Uruguay
2014 International Union for the Study of Social Insects, poster, 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

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-Würzburg 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 (IUSSI)
Animal Behavior Society (ABS)
Society for Neuroscience (SfN)

UNDERGRADUATE MENTORSHIP

*traditionally underrepresented background

2023-2024 Kendrik Nakamura- Cornell University
2018-2020 Natalie Zaba-Honors thesis- Cornell University
2017-2018 Maud Koopman- ASU
2015-2017 Rachel Halby*- Honors thesis student, ASU (currently PhD at Marquete)
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 IUSSI 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
Behavioral Ecology and Sociobiology
PlosOne

OUTREACH AND PUBLIC EDUCATION ACTIVITIES

2019-2023 Insectapalooza- Cornell University
2017 Ask-A-Biologist Bee Story and Game: https://askabiologist.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://askabiologist.asu.edu/zombie-ants
2014 Honey bee and Ant Presentations at Desert Vista High School, Phoenix, AZ
2013-2015 Bug Theatre, Phoenix, AZ
2012-present Ask-A-Biologist, Biologist contributor
2010 ESL science and math tutor at Crispus Attucks High school, Indianapolis, IN