

## Douglas D Gaffin

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### EDUCATION

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- 1994 Ph.D. Oregon State University; Corvallis, OR;  
Major: Zoology/Neurophysiology; Thesis Title: Chemosensory Physiology and Behavior of the Desert Sand Scorpion, *Paruroctonus mesaensis*. (P Brownell, advisor).
- 1982 Teaching Credential Sonoma State University; Rohnert Park, CA;  
Secondary Education/Science.
- 1979 B.S. University of California; Berkeley, CA.

### PROFESSIONAL EXPERIENCE

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- 2022-  
2018-2020 Professor Emeritus, Department of Biology, University of Oklahoma  
Interim Dean / C.E. Young Chair in Honors; Honors College, University of Oklahoma
- 2015-2017 Presidential Teaching Fellow in Honors, University of Oklahoma
- 2013, spring Visiting Professorial Fellow, School of Engineering and Informatics, University of Sussex
- 2003-2012 Dean, University College, University of Oklahoma
- 2009-present Professor, Department of Biology, University of Oklahoma  
Taught Introductory Zoology Lecture Course (~ 1500 students/year); Senior Seminar;  
Research: Sensory biology of scorpions.
- 2002-2003 Interim Dean, University College, University of Oklahoma
- 2001-2009 Associate Professor, Department of Zoology, University of Oklahoma
- 1995-2001 Assistant Professor, Department of Zoology, University of Oklahoma
- 1993-1995 Instructor, Human Anatomy and Physiology, Department of Zoology,  
Oregon State University; Lecture in Z331-3 series; coordinate Z341-3 and Z441-3 laboratory  
courses; total enrollment approx. 500 students/qtr
- 1992 Research Assistant, USDA National Forage Seed Laboratory.  
Developed data acquisition and analysis software, ran ELISAs.
- 1987-93 Graduate Teaching and Research Assistant, Department of Zoology,  
Oregon State University. Courses: Embryology, Animal Physiology, Vertebrate Physiology,  
Human Anatomy and Physiology, Physiological Research Methods.
- 1990 Research Fellow, Deutscher Akademischer Austauschdienst Institute  
for Zoology, University of Regensburg, Germany.
- 1989 Visiting Researcher, Univ. of Regensburg, Germany (summer).
- 1985 Chemistry Instructor, Yuba College, Lower Lake, CA.
- 1982-85 Science Teacher (Biology, Chemistry, Physics); Middletown Jr and Sr High  
School, Middletown, CA. Department Chair: 1984-85.
- 1982 Science Teacher (summer session); Sonoma High School; Sonoma CA.

### AWARDS AND HONORS (most significant awards are denoted in **bold**)

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- 2015 **Selected as Presidential Teaching Fellow in Honors for OU Honors College**
- 2015 Outstanding Faculty Award at Pi Beta Phi's Scholarship Recognition Program
- 2014 Outstanding Faculty Award at Pi Beta Phi's Scholarship Recognition Program; CAS Travel  
Assistance Program
- 2013 OU Research Council Faculty Investment Program: The pixel eye: a bee-inspired, one-trial learning  
system for fast visual learning and route guidance.

- 2012 Course Innovation Program Award - for transforming the Introductory Zoology course (D Gaffin (chair), M Brooks, M Hoefnagels, P Hopkins, H Ketchum and R Hewes (department chair))  
Best Speaker Award, Oklahoma Mensa Society  
OU College of Arts & Sciences Faculty Enrichment Grant  
Most Inspiring Professor, Scholar Athlete Banquet, University of Oklahoma.
- 2010 **David Ross Boyd Professorship, University of Oklahoma**
- 2008 **Joseph A. Brandt Professorship, University of Oklahoma**  
College of Arts and Sciences Information Technology Grant: LON-CAPA in Introductory Zoology and Concepts in Biology. Co-PI with M Hoefnagels  
Honorary Member of Phi Kappa Phi, National Honor Society
- 2007 OU Foundation Excellence in Teaching Award  
PII Instructional Innovation Award: Designing a Hybrid Large Lecture Course for Introductory Zoology
- 2006 Finalist for National Society of Collegiate Scholars Faculty of the Year Award
- 2004 **OU Regents' Award for Superior Teaching**  
Distinguished Alumnus Award, Sonoma State University
- 2003 Honorary Member of Alpha Lambda Delta, National Academic Honor Society
- 2001 Honorary Member of National Society of Collegiate Scholars  
Outstanding Professor Award, University of Oklahoma Inter-Fraternity Council
- 2000 Presidential Professorship, University of Oklahoma  
Honorary Inductee, Golden Key Honors Society
- 1999 **Outstanding First-Year-Advocate Award (National Award given by the National Resource Center for the First-Year Experience and Students in Transition, University of South Carolina)**  
**General Education Teaching Award, University of Oklahoma.**  
Most Inspiring Professor, Scholar Athlete Banquet, University of Oklahoma.  
Outstanding Faculty Member Award, OU Panhellenic Association.  
Alpha Phi Omega "Leader of the 20<sup>th</sup> Century" (recognition for teaching).  
Elected Honorary Brother of Phi Sigma Pi National Honor Fraternity.  
Selected to Outstanding Professors' Academy, Oklahoma Leadership Academy.
- 1998 College of Arts and Sciences Faculty Enrichment Grant, University of Oklahoma.
- 1997 **Irene Rothbaum Award for the outstanding assistant professor in the college of Arts and Sciences.**  
College of Arts and Sciences Junior Faculty Summer Fellowship, University of Oklahoma.  
Whitehall Foundation Research Award
- 1996 OU Research Council Computer Infrastructure Investment Program.
- 1995 Oregon State University Alumni Physicians Council Grant.
- 1994 Oregon State University Alumni Physicians Council Grant.  
Oregon State University College of Science Instructional Equipment Award.
- 1993 Winner: Sigma Xi Research Poster Competition.  
Departmental nominee, Frolander Graduate Teaching Award.
- 1992 Grass Foundation Travel Grant; Neuroethology Conference.  
Winner: OSU Graduate Student Symposium Poster Competition.  
Winner: Sigma Xi Research Poster Competition.  
Departmental nominee, Frolander Graduate Teaching Award.
- 1987-92 Departmental letters for outstanding teaching performance.
- 1991,92 OSU Graduate Student Senate Travel Grant.
- 1991 American Society of Zoologists Travel Grant.  
OSU Zoology Department Research Award.  
Association for Chemoreceptive Sciences Travel Grant.
- 1990 Deutscher Akademischer Austauschdienste (DAAD) Scholarship.

1988 Association for Chemoreceptive Sciences Travel Grant.  
OSU Zoology Department Research Award.  
Block "O" recipient: Oregon State Men's Volleyball.  
1987 U.S. Forest Service Certificate of Merit and Cash Award.

## PEER-REVIEWED JOURNAL ARTICLES

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Principal Publications (<sup>1</sup> denotes undergraduate at time of manuscript production)

- [56] <sup>1</sup>Merchant AB, **Gaffin DD**. No evidence of internal path integration in sand scorpion homing behavior in artificial arenas. (Submitted: Jan 2023); Preprints, 2023010490; doi: [10.20944/preprints202301.0490.v1](https://doi.org/10.20944/preprints202301.0490.v1).
- [55] <sup>1</sup>Sims JR, **Gaffin DD** (2022) Testing scorpion behavior under natural UV conditions. (Resubmitted Nov 2022)
- [54] Ortega-Escobar J, Hebets EA, Bingman VP, Wiegmann DD, **Gaffin DD** (2022) Comparative biology of spatial navigation in three arachnid orders (Amblypygi, Araneae, and Scorpiones). (Accepted)
- [53] <sup>1</sup>Peebles HM, **Gaffin DD** (2022) An assessment of the mechanosensory responses of peg sensilla on scorpion pectines. (In press)
- [52] **Gaffin DD**, <sup>1</sup>Muñoz MG, Hoefnagels MH (2022) Evidence of learning walks related to scorpion home burrow navigation. *JEB* 225:jeb243947. <https://doi.org/10.1242/jeb.243947>
- [51] **Gaffin DD**, <sup>1</sup>Shakir SF (2021) Synaptic interactions in scorpion peg sensilla appear to maintain chemosensory neurons within dynamic firing range. *Insects* 12:904. <https://doi.org/10.3390/insects12100904>
- [50] <sup>1</sup>Musaelian A, **Gaffin DD** (2020) High-throughput simulations indicate feasibility of navigation by familiarity with a local sensor such as scorpion pectines. bioRxiv preprint <https://doi.org/10.1101/2020.06.17.156612>
- [49] **Gaffin DD**, Curry CM (2020) Arachnid navigation – a review of classic and emerging models. Invited review article for *Journal of Arachnology* 48:1–25. <https://doi.org/10.1636/0161-8202-48.1.1>
- [48] <sup>1</sup>Hughes KL, **Gaffin DD** (2019) Investigating sensory processing in the pectines of the striped bark scorpion. *Invertebrate Neuroscience* 19:9 <https://doi.org/10.1007/s10158-019-0228-8>.
- [47] Knowlton ED, **Gaffin DD** (2019) Female wolf spider (*Schizocosa avida*) vibration receptor responses to male courtship. *Southwestern Entomologist* 44(1):213–228.
- [46] <sup>1</sup>Kelley S, <sup>1</sup>Yut K, <sup>1</sup>Kulkarni R, **Gaffin DD** (2019) Avoidance of rosemary oil by scorpions. *Journal of Arachnology* 47(1):159-161.
- [45] <sup>1</sup>Rivera Roldan NM, **Gaffin DD** (2018) New, sensitive behavioral assay shows scorpions are attracted to multiple wavelengths of light. *Journal of Arachnology* 46:432–437.
- [44] <sup>1</sup>Ashford K, <sup>1</sup>Blankenship R, <sup>1</sup>Carpenter W, <sup>1</sup>Wheeler I, **Gaffin DD** (2018) Response of the desert grassland scorpion to air movement from moth analog. *Journal of Arachnology* 46:226–230.
- [43] **Gaffin DD**, Brayfield BP (2017) Exploring the chemo-textural familiarity hypothesis for scorpion navigation. *Journal of Arachnology* 45:265–270.
- [42] **Gaffin DD**, Brayfield BP (2016) Autonomous visual navigation of an indoor environment using a parsimonious, insect inspired familiarity algorithm. *PLoS ONE* 11(4): e0153706, doi:10.1371/journal.pone.0153706.
- [41] **Gaffin DD**, Dewar A, Graham P, Philippides A (2015) Insect-inspired navigation algorithm for an aerial agent using satellite imagery. *PLoS ONE* 10(4): e0122077, doi:10.1371/journal.pone.0122077.
- [40] <sup>1</sup>Vinnedge J, **Gaffin DD** (2015) Determination of in-lab site fidelity and movement patterns of *Paruroctonus utahensis*. *Journal of Arachnology* 43:54–58.
- [39] **Gaffin DD**, Barker TN (2014) Comparison of scorpion behavioral responses to UV under sunset and nighttime irradiances. *Journal of Arachnology* 41: 111–118.

- [38] Cushing PE, Casto P, <sup>1</sup>Knowlton ED, Royer S, Laudier D, **Gaffin DD**, Prendini L, Brookhart JO (2014) Comparative morphology and functional significance of setae called papillae on the pedipalps of male camel spiders (Arachnida, Solifugae). *Annals of the Entomological Society of America* 107(2):510–520.
- [37] **Gaffin DD** (2013) Why do scorpions glow under ultraviolet light? Invited contribution for the book *Does My Goldfish Know Who I Am? - Big Questions from Little People*. In: Harris, GE, editor. Faber & Faber. pp 86–87.
- [36] Taylor MS, <sup>1</sup>Cosper C, **Gaffin DD** (2012) Behavioral evidence of pheromonal signaling in desert grassland scorpions, *Paruroctonus utahensis*. *Journal of Arachnology* 40:240–244.
- [35] **Gaffin DD**, Bumm LA, Taylor MS, <sup>1</sup>Popokina NV, Mann S (2012) Scorpion fluorescence and reaction to light. *Animal Behaviour* 83:429–436.
- [34] **Gaffin DD** (2011) In situ infrared videography of sand scorpion nighttime surface activity. In: Fet V, Selden PA, editors. “SCORPIONS 2011” John L. Cloudsley-Thompson 90th Birthday Commemorative Volume. *Euscorpius* 122:1–13.
- [33] **Gaffin DD**, Taylor MS (2011) Introductory zoology selected class figures guide to accompany *Biology: Concepts and Investigations*. McGraw-Hill Companies, Inc, Boston, USA.
- [32] <sup>1</sup>Knowlton, ED, **Gaffin DD** (2011) Functionally redundant peg sensilla on the scorpion pecten. *Journal of Comparative Physiology A* 197:895–902.
- [31] <sup>1</sup>Knowlton ED, **Gaffin DD** (2011) Electrophysiology of scorpion peg sensilla. *Journal of Visualized Experiments* 50. (<http://www.jove.com/details.php?id=2642>)
- [30] <sup>1</sup>Knowlton ED, **Gaffin DD** (2010) A new tip-recording method to test scorpion pecten chemoresponses to water-soluble stimulants. *Journal of Neuroscience Methods* 193:264–270.
- [29] **Gaffin DD**, Carney, MC (2010) Three initiatives making a difference in student success at the University of Oklahoma. *Case Study for Portals of Entry: University Colleges and Undergraduate Divisions*. pp 136–139.
- [28] Hoefnagels, MH, **Gaffin DD** (2010) Computerized pre- and post-lab assignments in LON-CAPA. In: *Tested Studies for Laboratory Teaching*. Kari Clase, Editor. Proceedings of the 31st Workshop/Conference of the Association for Biology Laboratory Education (ABLE). June 8-13, 2009. University of Delaware, Newark.
- [27] **Gaffin DD** (2010) Analysis of sensory processing in scorpion peg sensilla. *Journal of Arachnology* 38:1–8.
- [26] <sup>1</sup>Knowlton ED, **Gaffin DD** (2009) A new approach to examining scorpion peg sensilla: the mineral oil flood technique. *Journal of Arachnology*, 37:379–382.
- [25] Eodice M, **Gaffin DD** (2008) Let’s Face Facebook. *The National Teaching & Learning Forum* 17(6):1–4.
- [24] **Gaffin DD**, Brooks ME (2008) Selected class figures guide to accompany *Biology: Concepts and Investigations*. McGraw-Hill Companies, Inc, Boston, USA.
- [23] <sup>1</sup>Blass GRC, **Gaffin DD** (2008) Light wavelength biases of scorpions. *Animal Behaviour*, 76:365–373.
- [22] Walvoord ME, Hoefnagels MH, **Gaffin DD**, Long D, Chumchal M (2008) An assessment of Calibrated Peer Review (CPR) in a biology classroom. *Journal of College Science Teaching*, 37(4):66–73.
- [21] **Gaffin DD** (2007) Building student success at the University of Oklahoma. *e-Source for College Transitions* 4(4):10–12.
- [20] Lewis R, Parker B, **Gaffin DD**, Hoefnagels M (2007) *Life*, 6th ed. McGraw-Hill Corporation. (General biology textbook).
- [19] Fet V, Gaffin DD (2004) Preface. Proceedings of the 3rd Scorpology Symposium, American Arachnological Society 28<sup>th</sup> Annual Meeting, Norman, Oklahoma, 28 June 2004. *Euscorpius* 17:i–v.

- [18] <sup>1</sup>Porterfield JZ, **Gaffin DD**, <sup>1</sup>Porterfield C, <sup>1</sup>Johnston C (2004) Screening for scorpions: a non-invasive approach to tracking the movements of arachnids in sand. *Euscorpius* 17:17–24.
- [17] Bost KC, **Gaffin DD** (2004) Sand scorpion home burrow navigation in the laboratory. *Euscorpius* 17:1–5.
- [16] **Gaffin DD**, Walvoord ME (2004) Scorpion peg sensilla: are they the same or are they different? *Euscorpius* 17:7–15.
- [15] <sup>1</sup>Steinmetz SB, Bost KC, **Gaffin DD** (2004) Response of male *Centruroides vittatus* (Scorpiones: Buthidae) to aerial and substrate-borne chemical signals. *Euscorpius* 12:1–6.
- [14] Lewis R, **Gaffin DD**, Hoefnagels M, Parker B (2004) Life, 5th ed. McGraw-Hill Corporation. (General biology textbook).
- [13] **Gaffin DD**, Walvoord ME (2003) Selected class figures guide to accompany LIFE. McGraw-Hill Companies, Inc, Boston, USA.
- [12] **Gaffin DD** (2002) Electrophysiological analysis of synaptic interactions within peg sensilla of scorpion pectines. *Microscopy Research and Technique* 58:325–334.
- [11] Lewis R, **Gaffin DD**, Hoefnagels M, Parker B (2002) Life, 4th ed. McGraw-Hill Corporation. (General biology textbook).
- [10] **Gaffin DD** (2001) Electrophysiological evidence of synaptic interactions between sensory neurons in peg sensilla of *Centruroides vittatus* (Say, 1821) (Scorpiones: Buthidae). In: Fet V, Selden PA, editors. *Scorpions 2001. In memoriam Gary A. Polis*. Burnham Beeches, Bucks: British Arachnological Society. pp 325–330.
- [9] **Gaffin DD**, Brownell PH (2001) Chemosensory behavior and physiology. In: Brownell PH, Polis GA, editors. *Scorpion Biology and Research*. Oxford University Press. pp 184–203.
- [8] <sup>1</sup>Camp EA, **Gaffin DD** (1999) Escape behavior mediated by negative phototaxis in the scorpion *Paruroctonus utahensis* (Scorpiones, Vaejovidae). *The Journal of Arachnology* 27:679–684.
- [7] **Gaffin DD**, Brownell PH (1997) Electrophysiological evidence of synaptic interaction within chemosensory peg sensilla of scorpion pectines. *Journal of Comparative Physiology A* 181:301–307.
- [6] **Gaffin DD**, Brownell PH (1997) Response properties of chemosensory peg sensilla on the pectines of scorpions. *Journal of Comparative Physiology A*, 181:291–300.
- [5] **Gaffin DD** (1994) Chemosensory physiology and behavior of the desert sand scorpion, *Paruroctonus mesaensis*. PhD thesis, Oregon State University.
- [4] **Gaffin DD**, <sup>1</sup>Wennstrom KL, Brownell PH (1992) Water detection in the desert sand scorpion *Paruroctonus mesaensis* (Scorpionida, Vejovidae). **Journal of Comparative Physiology A**, 170:623–629.
- [3] **Gaffin DD**, Brownell PH (1992) Evidence of chemical signaling in the sand scorpion, *Paruroctonus mesaensis* (Scorpionida:Vejovidae). *Ethology*, 91:59–69.
- [2] **Gaffin DD**, Jubran I (1991) TSG Software: Data acquisition and analysis program. *Biotechnology Software*, 8:4–7.
- [1] **Gaffin DD**, Gaffin AZ (1988) Thinking objectively: a biological approach to designing neural networks. *Micro Cornucopia*, 44:26–31.

Manuscripts in preparation (<sup>1</sup> denotes undergraduate at time of manuscript preparation)

- <sup>1</sup>Howard WC, **Gaffin DD**. A biological approach to indoor localization: Modifying an insect-inspired navigation technique to accurately locate a point.

Non-Refereed Publications & Reports

- Developed Active Art program – an ancillary teaching resource for McGraw-Hill Textbooks

- Teaching Incentives – Attracting, Rewarding, and Keeping OU's Best Teachers – special report for the President of the University of Oklahoma; 2006
- University College, Programs for Success – report to the OU Graduation and Retention Task Force; co-authored with ML Carney (Assistant Dean); 2006, updated 2008
- Contributing author for McGraw-Hill's Biology (7e) by Raven, Johnson, Losos, Singer, Mason; 2005
- Report from the 28<sup>th</sup> Annual Meeting of the American Arachnological Society. American Arachnology Newsletter, No. 70; 2005
- Report to British Department of Defense on sensitivity of scorpion pectines to 2,4 DNT; 2003
- Report to Guadalupe Mountain National Park – scorpion survey; 2001
- Report to Sevilleta National Wildlife Refuge – scorpion survey; 1997

#### Student Projects (1 denotes undergraduate)

- <sup>1</sup>Shakir S (2021) Analysis of synaptic integration in peg sensilla of scorpion pectines. Honors Thesis.
- <sup>1</sup>Speer K (2019) Can scorpions detect the “flash” of an infrared camera?: An investigation into scorpion infrared sensitivity. Honors Thesis.
- <sup>1</sup>Kelley S (2019) Do inhibitory neurons function as a governor in scorpion peg sensilla? Honors Thesis.
- <sup>1</sup>Vanderslice J (2018) Across the rainbow: assessment of scorpion light responses to different wavelengths of light. Honors Thesis.
- <sup>1</sup>Howard C (2018) A biological approach to indoor localization: modifying an insect-inspired navigation technique to accurately locate a point. Honors Thesis.
- <sup>1</sup>Mont M (2016) Technological applications of navigation by scene familiarity. Honors Thesis.
- <sup>1</sup>Vinnedge D (2013) Sensory biology of scorpion pectines and pedipalps? Honors Thesis.
- <sup>1</sup>Cosper C (2013) Assay of shelter-seeking behavior in desert grassland scorpions. Honors Thesis.
- <sup>1</sup>Jordan AM (2010) Can scorpions detect fluorescing scorpions? Honors Thesis.
- <sup>1</sup>Carter SN (2003) Is the mechanoreceptor involved in the neural circuitry of scorpion peg sensilla? Honors Thesis.
- <sup>1</sup>Hines MA (2002) Use of a micro-engineered chemical delivery device to evaluate scorpion peg sensillum response to organic stimulants. Honors Thesis.
- <sup>1</sup>Stephens AV (2000) Seismic echolocation: do scorpions use this novel method of orientation to aid in locomotion? Honors Thesis.
- <sup>1</sup>Falgiani M (1999) Electrophysiological investigation of the sensitivity of scorpion basitarsal compound slit sensilla to vibratory stimuli. Honors Thesis.
- <sup>1</sup>Parizi M (1998) Investigation of spiking frequency of chemosensitive neurons in scorpion pectines in relation to photoperiod. Honors Thesis.

#### Other Reports/Media Contributions

- *Deep Look* produced by KQED Public Television, San Francisco; [video about scorpion pectines; 2021](#)
- Animal Planet program: *Nature's Strangest Mysteries: Solved – The Glow of the Scorpion*; summer 2019
- Call out in NY Times: <https://www.nytimes.com/2017/12/04/science/scorpions-fluorescence-ultraviolet.html>
- Scorpion Sense; Oklahoma Magazine <http://www.okmag.com/index.cfm?id=44&homepageid=72>
- BBC radio interview about scorpions
- “Scorpion King” video – OU video productions.

- Interview on scorpion home infestations for Animal Planet documentary; May 19, 2011.

## PAPERS PRESENTED AT NATIONAL/INTERNATIONAL MEETINGS

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(\* indicates presenter; <sup>1</sup> denotes undergraduate)

- <sup>1</sup>Merchant AB\*, Gaffin DD (2022) Investigating homing by path integration in desert grassland scorpions. Annual Meeting of the American Arachnological Society, June 28, 2022, UC Davis, California.
- <sup>1</sup>Peeples HM\*, Gaffin DD (2022) Assessment of the mechanosensory responses of peg sensilla on scorpion pectines. Annual Meeting of the American Arachnological Society, June 27, 2022, UC Davis, California.
- Gaffin DD\*, <sup>1</sup>Muñoz MG (2021) Evidence of learning walks related to scorpion home burrow navigation. Virtual Meeting of the American Arachnological Society, June 30, 2021.
- Gaffin DD\*, <sup>1</sup>Shakir SF (2021) Synaptic interactions in scorpion peg sensilla appear to maintain chemosensory neurons within dynamic firing range. Virtual Meeting of the American Arachnological Society, June 30, 2021.
- <sup>1</sup>Musaelian A\*, Gaffin DD (2020) Is navigation by scene familiarity feasible using scorpion pectines? Computer simulations say yes. Virtual Meeting of the American Arachnological Society, June 29, 2020.
- Gaffin DD\*, <sup>1</sup>Musaelian A (2019) Reverse-engineering scorpion pectines: The making of a navigational algorithm. Annual Meeting of the American Arachnological Society, June 19, 2019, Lexington, Virginia.
- <sup>1</sup>Musaelian A\*, Gaffin DD (2019) Supercomputer to the rescue: Optimizing a scorpion navigational algorithm across environmental parameters. Annual Meeting of the American Arachnological Society, June 18, 2019, Lexington, Virginia.
- Knowlton ED\*, Gaffin DD (2018) Female wolf spider (*Schizocosa avida*) receptor responses to male courtship. SICB January 2018, San Francisco, CA.
- Gaffin DD (2017) Combing the sand: Using a textural familiarity algorithm to simulate scorpion navigation. Annual Meeting of the American Arachnological Society, July 26, 2017, Querétaro, Juriquilla, Mexico.
- <sup>1</sup>Hughes KL\*, Gaffin DD. (2017) Deciphering sensory processing in the pectines of the striped bark scorpion. Annual Meeting of the American Arachnological Society, July 26, 2017, Querétaro, Juriquilla, Mexico.
- <sup>1</sup>Daniels M\*, Gaffin DD. (2017) Paired-wheel scorpion testing apparatus. Annual Meeting of the American Arachnological Society, July 26, 2017, Querétaro, Juriquilla, Mexico.
- <sup>1</sup>Rivera Roldan NM\*, Gaffin DD. (2017) New, sensitive behavioral assay shows that scorpions respond to UV, green, and red light. Annual Meeting of the American Arachnological Society, July 26, 2017, Querétaro, Juriquilla, Mexico.
- Brayfield BP\*, Gaffin DD (2016) Homing and burrow choice of the desert grassland scorpion *Paruroctonus utahensis* in a lab arena. International Congress of Arachnology, July 7, 2016, Colorado School of Mines, Golden, Colorado.
- Gaffin DD\*, Brayfield BP (2016) Exploring the chemo-textural familiarity hypothesis for scorpion navigation. International Congress of Arachnology, July 7, 2016, Colorado School of Mines, Golden, Colorado.
- Suhren A\*, Andalibi M, Chowdhary G, Crick C, Gaffin DD, Brayfield B (2015) A framework for navigation based on familiarity. AIAA/ASME Oklahoma Symposium XXXV, April 18, 2015, Oklahoma State University, Stillwater, Oklahoma.
- Gaffin DD, Zhao K\* (2014) A new hypothesis for scorpion navigation: chemo-textural familiarity. Annual Meeting of the American Arachnological Society, June 20-24, 2014, Ohio State University, Newark, Ohio.
- <sup>1</sup>Vinnedge JE\*, Gaffin DD (2014) In-lab homing behavior and movement patterns in *Paruroctonus utahensis*. Annual Meeting of the American Arachnological Society, June 20-24, 2014, Ohio State University; Newark, Ohio.

- <sup>1</sup>Mitchell J\*, Gaffin DD (2014) A new behavioral assay for testing scorpion light sensitivity and its relationship to fluorescence. Annual Meeting of the American Arachnological Society, June 20-24, 2014, Ohio State University; Newark, Ohio.
- Gaffin DD\*, <sup>1</sup>Vinnedge JE, Barker TN (2012) Initial evidence of path integration in desert sand scorpions. 10th International Congress of Neuroethology, University of Maryland, College Park, MD, USA.
- Gaffin DD\*, Bumm LA, Taylor MS, <sup>1</sup>Popokina NV, Mann S (2011) Scorpion fluorescence and reaction to light. Annual Meeting of the American Arachnological Society, July 8-11, 2011, Lewis and Clark College; Portland, Oregon.
- Taylor MS\*, <sup>1</sup>Cosper C, Gaffin DD (2011) Behavioral evidence of pheromonal signaling in desert grassland scorpions. Annual Meeting of the American Arachnological Society, July 8-11, 2011, Lewis and Clark College; Portland, Oregon.
- <sup>1</sup>Knowlton ED\*, Gaffin DD (2010) Hasty tasting of chemical information: functionally redundant peg sensilla on the scorpion pecten. Ninth International Congress of Neuroethology, Salamanca, Spain.
- Gaffin DD\* (2009) Going out for dinner and taking a new way home: videotaping the scorpion's evening walk. Annual Meeting of the American Arachnological Society, June 26-30, 2009, Arkansas Tech University; Russellville, Arkansas.
- <sup>1</sup>Knowlton ED\*, Gaffin DD (2009) Tip-recordings of scorpion pecten chemosensory neurons in response to biological stimulants. Annual Meeting of the American Arachnological Society, June 26-30, 2009, Arkansas Tech University; Russellville, Arkansas.
- <sup>1</sup>Knowlton ED\*, Gaffin DD (2008) A new approach to examining scorpion peg sensilla: the mineral oil flood technique. Annual Meeting of the American Arachnological Society, June 25-30, 2008, University of California; Berkeley, California.
- Gaffin DD\* (2008) Spatial resolving power of peg sensilla on scorpion pectines. Annual Meeting of the American Arachnological Society, June 25-30, 2008, University of California; Berkeley, California.
- Gaffin DD\* (2006) Does  $A1 + A2 = B$  in scorpion peg sensilla? Annual Meeting of the American Arachnological Society, June 17-21, 2006, University of Notre Dame; Baltimore, Maryland. ([link](#))
- <sup>1</sup>Blass GRC\*, Gaffin DD (2006) Scorpion locomotion regulation by light wavelengths. Annual Meeting of the American Arachnological Society, June 17-21, 2006, University of Notre Dame; Baltimore, Maryland.
- <sup>1</sup>Blass GRC\*, Gaffin DD (2005) Light wavelength biases of the desert grassland scorpion. Annual Meeting of the American Arachnological Society, June 26-30, 2005, University of Akron; Akron, Ohio.
- Gaffin DD\*, <sup>1</sup>McGowan P, Walvoord ME (2004) Scorpion peg sensilla: are they the same or are they different? Annual Meeting of the American Arachnological Society, June 23-27, 2004, University of Oklahoma; Norman, Oklahoma.
- Bost KC\*, Gaffin DD (2004) Proposal: behavioral assay to identify the important sensory cues involved in sand scorpion navigation to their home burrow. Annual Meeting of the American the Arachnological Society, June 23-27, 2004, University of Oklahoma; Norman, Oklahoma.
- <sup>1</sup>Porterfield JZ\*, Gaffin DD, Porterfield C, Johnston C (2004) Screening for scorpions: a non-invasive approach to tracking the movements of arachnids in sand. Annual Meeting of the American Arachnological Society, June 23-27, 2004, University of Oklahoma; Norman, Oklahoma.
- <sup>1</sup>McKee R\*, Gaffin DD (2004) Non-visual orientation of sand scorpions. Annual Meeting of the American Arachnological Society, June 23-27, 2004, University of Oklahoma; Norman, Oklahoma.
- Gaffin DD\*, <sup>1</sup>Hines MA (2003) A new approach to chemostimulation of scorpion peg sensilla reveals high-resolution response properties to near-range chemostimulants. Annual Meeting of the American Arachnological Society, July 2003, Denver Museum of Nature & Science; Denver, Colorado.



- <sup>1</sup>Carter SN\*, Gaffin DD (2002) Is the mechanoreceptor involved in the neural circuitry of scorpion peg sensilla? Annual Meeting of the American Arachnological Society, June 2002, University of California; Riverside, California.
- <sup>1</sup>Hines MA\*, Gaffin DD (2002) Use of a micro-engineered chemical delivery device to evaluate scorpion peg sensillum response to organic stimulants. Annual Meeting of American the Arachnological Society, June 2002, University of California; Riverside, California.
- <sup>1</sup>Steinmetz S\*, Gaffin DD (2002) Response of male *Centruroides vittatus* to aerial and substrate-borne chemical signals. Annual Meeting of the American Arachnological Society, June 2002, University of California; Riverside, California. (Won 2<sup>nd</sup> place in student poster contest)
- Gaffin DD\* (2001) Synaptic interactions within peg sensilla of scorpion pectines: what do they mean and where do we go from here? Annual Meeting of the American Arachnological Society, July 9, 2001, Keene State College; Keene, New Hampshire.
- Gaffin DD\* (2000) Electrophysiological investigation of a unique, ground-directed chemosensory organ in scorpions. 103<sup>rd</sup> Annual Meeting of the Texas Academy of Science, March 10, 2000, Kingsville, Texas.
- Gaffin DD\*, Hoefnagels MH\*, (2000) Using vectorized text art for lecture presentations. McGraw-Hill General Biology Symposium IV, June 3, 2000, Key West, Florida.
- <sup>1</sup>Stephens AV, Gaffin DD\* (2000) Walking in the dark: can sand scorpions orient to objects in complete darkness? Annual Meeting of the American Arachnological Society, July 18, 2000, Lexington, Kentucky.
- Blank G\*, Hess G\*, Wellman D\*, Cabbage F\*, Gaffin D\* (2000) The Academic Nexus of Teaching, Research, Consulting, Advising, and Service. Third Biennial Conference on University Education in Natural Resources, March 25-28, 2000, Columbia, MO.
- Cintron R\*, Gaffin D\*, Owens T\*, Connell E\*, Schrage D\* (2000). Faculty living in the residence halls: learning and living among students. National Association of Student Personnel Administrators (NASPA), March 19-22, 2000, Indianapolis, IN.
- Gaffin DD\* (1999) The Faculty-in-Residence Program at the University of Oklahoma. Annual Conference of the First-Year Experience, February 21, 1999, University of South Carolina; Columbia, South Carolina.
- Gaffin DD\* (1999) Tasting the ground: chemosensory function in the pectines of the striped scorpion, *Centruroides vittatus*. Annual Meeting of the Oklahoma Academy of Science, November 13, 1999, Oklahoma City, Oklahoma.
- <sup>1</sup>Stephens AV\*, Gaffin DD (1999) Seismic echolocation: do scorpions use this novel method of orientation to aid locomotion? Annual Meeting of the Oklahoma Academy of Science, November 13, 1999, Oklahoma City, Oklahoma. (Won best student paper award for biological sciences, zoology)
- Gaffin DD\*, <sup>1</sup>Camp EA (1998) Response properties of scorpion pectinal nerves to chemical and mechanical stimulation. 5<sup>th</sup> International Congress of Neuroethology, August 23, 1998, University of California at San Diego, La Jolla, California.
- Gaffin DD\*, <sup>1</sup>Turner TA (1998) Electrophysiological properties of peg sensilla on the pectines of a buthid scorpion (*Centruroides vittatus*). XIV International Congress of Arachnology, July 1, 1998, Field Museum, Chicago, Illinois.
- <sup>1</sup>Camp EA\*, Gaffin DD (1998) Escape behavior in *Paruroctonus utahensis* mediated by phototaxic response. XIV International Congress of Arachnology, July 1, 1998, Field Museum, Chicago, Illinois.
- <sup>1</sup>Parizi M\*, Gaffin DD (1998) Investigation of spiking frequency of chemosensitive neurons in scorpion pectines in relation to photoperiod. XIV International Congress of Arachnology, July 1, 1998, Field Museum, Chicago, Illinois.

- Gaffin DD\* (1997) Electrophysiological evidence of synaptic interactions between sensory neurons in peg sensilla of the scorpion, *Centruroides vittatus*. Annual Meeting of the American Arachnological Society, July 20, 1997, Dickinson State University, North Dakota.
- Cohen NE\*, deBoer G, Cutler B, Gaffin DD (1997) Newly discovered tarsal chemosensilla in ants. ESA National Conference.
- Gaffin DD\* (1995) The use of cadavers in the human anatomy and physiology laboratory. Northwest Biology Instructors Organization, March 1995, Mt. Hood Community College, Portland, Oregon.
- Gaffin DD, Brownell PH\* (1995) An accessible chemosensory circuit in individual peg sensilla of scorpion pectines. 4<sup>th</sup> International Congress of Neuroethology, September 1995, Cambridge, England.
- Gaffin DD\*, Brownell PH (1992) Detection and sensory processing of chemical stimuli by single peg-sensilla of scorpion pectines. International Congress of Neuroethology, Montreal, Canada.
- Gaffin DD\*, Wennstrom KL, Brownell PH (1991) Water detection in the desert sand scorpion, *Paruroctonus mesaensis*. American Society of Zoologists, Atlanta, Georgia.
- Gaffin DD\*, Brownell PH, Godde J (1991) Electrophysiological evidence for synaptic interaction in single peg sensilla of scorpion pectines. Association for Chemoreception Sciences, Sarasota, Florida.
- Gaffin DD\*, Brownell PH (1990) Electrophysiological studies of the pectinal chemosensory system of the scorpion. Association for Chemoreception Sciences, Sarasota, Florida.

#### INVITED LECTURES / SEMINARS

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- Gaffin DD\* (2019) Navigation by déjà vu: How scorpions find their way home. Biology of Scorpions Symposium. Chiricahua Desert Museum, August 10-11, 2019, Rodeo, New Mexico.
- Gaffin DD\* (2016) Combing the sand: The scorpion's secrets. Alumni All-Access Event, University of Oklahoma Alumni Association November 18, 2016.
- Gaffin DD\* (2014) Mind-melding a scorpion. Annual Meeting of the American Arachnological Society, June 20-24, 2014, Ohio State University; Newark, Ohio.
- Gaffin DD\* (2014) Insect-inspired navigation algorithms for robotic agents using visual familiarity. Mechanical and Aerospace Engineering Seminar, Oklahoma State University, Stillwater, OK.
- Gaffin DD\* (2013) There's no place like home: sensory biology of scorpions and bees. Department of Biology Seminar, November 18, 2013. Wichita State University, Wichita, Kansas.
- Hoefnagels MH\*, Gaffin DD\* (2012) Studying for the sciences. Introductory Biology Project workshop, June 29, 2012, AAAS, Washington DC.
- Gaffin DD\* (2012) The nighttime is the right time for scorpions. Refuge Day. October 13, 2012. Sevilleta National Wildlife Refuge, La Joya, New Mexico.
- Gaffin DD\* (2011) What can scorpions tell us about how neural networks encode the natural world? Science Lecture Series, April 8, 2011, Saddleback College, Mission Viejo, California.
- Gaffin DD\* (2010) How has technology informed and changed the university teaching experience over time? David Ross Boyd Professor Panel Discussion at 8<sup>th</sup> Annual Meeting of the Teaching Scholars Initiative, November 5, 2010, University of Oklahoma, Norman, Oklahoma.
- Gaffin DD\* (2010) The genetics, inheritance, and neurology of Woody Guthrie's disease: Huntington's chorea. 7<sup>th</sup> Annual Oklahoma Nursing Student Association State Convention, October 15, 2010, Norman, Oklahoma.
- Gaffin DD\* (2009) Scorpion pectines: exquisite "tummy tongues" with a 400-million-year evolutionary history. Darwinathon Conference, November 2, 2009, University of Oklahoma, Norman, Oklahoma.

- Gaffin DD\* (2009) A skin that glows and a broom-like tongue: the curious sensory biology of scorpions. Department of Biology Seminar, Case Western University, Cleveland, Ohio.
- Carney M\*, Lanning A\*, Gaffin D\*, Lucas J\*, Kyncyl R\* (2008) Freshman learning communities: the UCOL version. 5<sup>th</sup> Annual Meeting of the Teaching Scholars Initiative, April 7, 2008, University of Oklahoma, Norman, Oklahoma.
- Gaffin DD\* (2006) Clickers in class. Oklahoma Computing Conference, September 15, 2006, University of Oklahoma, Norman, Oklahoma.
- Gaffin DD\* (2005) New building around the corner: the Lissa and Cy Wagner Academic Services Center. 2<sup>nd</sup> Annual Meeting of the Teaching Scholars Initiative, January 28, 2005, University of Oklahoma, Norman, Oklahoma.
- Gaffin DD\* (2005) What constitutes good teaching and how do you know it when you see it? Invited panel speaker at 2<sup>nd</sup> Annual Meeting of the Teaching Scholars Initiative, January 28, 2005, University of Oklahoma, Norman, Oklahoma.
- Judice-Campbell N\*, Gaffin D\* (2004) Teaching very large classes. 1<sup>st</sup> Annual Meeting of the Teaching Scholars Initiative, January 16, 2004, University of Oklahoma, Norman, Oklahoma.
- Gaffin DD\*, Hoefnagels MH\* (2003) Terror at Lake Texoma: a capstone course on menacing microbes. Invited talk at Texas Community College Teachers Association, February 21, 2003, Austin, Texas.
- Gaffin DD\* (2002) How has classroom technology has changed? CAS Board of Visitors, September 19, 2002, University of Oklahoma, Norman, Oklahoma.
- Gaffin DD\* (1998) Scorpion sensory biology: looking for love in all the dark places. Department of Entomology Seminar, University of Kansas, Lawrence, Kansas.
- Gaffin DD\* (1998) Chemosensory biology of sand scorpions. Department of Zoology Seminar, Oklahoma State University, Stillwater, Oklahoma.
- Gaffin DD\* (1996) Reproductive biology of desert sand scorpions: finding and seducing a cannibalistic mate. University of Oklahoma Zoological Society, February 21, 1996, Norman, Oklahoma
- Gaffin DD\* (1996) Scorpion pectines: a model system for the study of peripheral processing of chemosensory information. OU Botany and Microbiology Graduate Student Seminar, January 18, 1996, Norman, Oklahoma.
- Gaffin DD\* (1995) Chemosensory behavior and physiology of the desert sand scorpion, *Paruroctonus mesaensis*. April 1995, Dept. of Zoology, University of Oklahoma, Norman, OK.
- Gaffin DD\* (1995) The great spontaneous generation debate. Keynote Address, Oregon State University Biology Graduate Student Symposium, February 1995, Newport OR.
- Gaffin DD\* (1991) Scorpion pectines: a model system for physiological studies of olfaction and taste. Symposium: Scorpions as model biological systems, American Society of Zoologists, Atlanta, GA.
- Gaffin DD\* (1990) Behavioral and electrophysiological studies of the pectinal sensory system of scorpions. Biology Colloquium, Walla Walla College, Washington.

#### Other Invited Talks

- 2019 Keynote speaker for National Merit Scholars Recruitment Dinner; Oklahoma City.
- 2018 Navigation by Déjà Vu: How Scorpions Find Their Way Home. OU Scholars Day 2018, Sept 28, 2018.
- 2017 Rankings & Retention. College of Arts & Sciences; Physics Department, OU. March 23 & 28, 2017.
- 2016 Navigation by Déjà Vu. TEDxOU talk, Jan 29, 2016.
- 2015 Navigation by Déjà Vu: Insect-inspired Navigation Algorithms for Robotic Agents Using Visual and Chemo-tactic Familiarity. Gallogly College of Engineering, School of Computer Science, November 20, 2015.

- 2014 Understanding the US News College Rankings System. Coll of Educ & Bus, OU.  
Retention: Why Does It Matter and What Are We Doing About It? CAS Board of Visitors Presentation, April 4, 2014.  
Championing Student Success. OU Elite Retention Squad, May 6, 2014.  
Power Clicking. Center for Teaching Excellence, August 14, 2014.  
The five most important things I know (and they're not about zoology). Tri-Delta Academic Workshop, November 5, 2014.
- 2013 Understanding the US News College Rankings System. College of Engineering Leadership Retreat, Sarkey's Foundation, January 10, 2013.
- 2012 Leadership and Administration: Tools for Your Toolkit. Plenary Speaker Panel, Association of Deans & Directors of University Colleges, Asheville, NC, March 15, 2012.
- 2011 Panelist, How to Prepare for a Teaching-focused Career; Oklahoma Medical Research Foundation, July 26, 2011.
- 2009 Keynote Speaker, Gamma Beta Phi Honors Society Induction Ceremony, OU
- 2008 Academic rigor in the age of Pick-a-Prof; 9<sup>th</sup> Annual Chairs and Directors Retreat OU College of Arts and Sciences, OU Biological Station, Lake Texoma. May 14, 2008.
- 2002 "Active Art" presentations in association with McGraw-Hill Higher Education Publishers in Austin, Tallahassee, Anaheim.
- 2001 Keynote Speaker, National Society of Collegiate Scholars, OU  
Northeastern Oklahoma State University, Biology Department Seminar.  
"Active Art" presentations in association with McGraw-Hill Higher Education Publishers in Tampa, Orlando, Chicago, San Diego, Dubuque.
- 2000 Leaders Plus Program, OU and Norman: A Winning Partnership.  
Who Wants to be a Sooner? Camp Crimson '00, University of Oklahoma.  
University of Oklahoma, Department of Zoology Seminar.
- 1999 Leaders Plus Program, OU and Norman: A Winning Partnership.  
Sooner Saturday, College of Arts and Sciences, University of Oklahoma.  
Bulk ordered, individually wrapped: personalizing large lecture courses. PACAA Workshop, University of Oklahoma.  
Invited presentation on PowerPoint applications, Faculty Technology Training Workshops, University of Oklahoma.  
Teacher Expectations of Students, Camp Crimson '99, University of Oklahoma.
- 1998 Leaders Plus Program, OU and Norman: A Winning Partnership.
- 1997 University of Oklahoma Zoological Society Meeting.  
University of Oklahoma Zoology Seminar Series.  
Oklahoma Center for the Neurosciences Neurohour.  
University of Oklahoma College of Arts and Sciences, "Sooner Saturday."
- 1996 Presentation Software Applications. OU Provost's Faculty Development Conf.  
Using Power Point in Your Teaching. OU faculty luncheon discussion group on teaching with information technology.  
Reproductive biology of desert sand scorpions: finding and seducing a cannibalistic mate. University of Oklahoma Zoological Society Meeting.  
Scorpion pectines: a model system for the study of peripheral processing of chemosensory information. OU Bot and Microbiology Grad Student Seminar.  
Making the perfect 10. New Sooner Orientation, University of Oklahoma.  
Being a new faculty member. New Faculty Seminar, University of Oklahoma.
- 1995 Dept. of Zoology, University of Oklahoma, Norman, OK.  
Keynote Speaker, O.S.U. Biology Graduate Student Symposium, Newport OR.
- 1994 The use of multimedia technology in the anatomy and physiology classroom laboratory. O.S.U. Alumni Physicians Council, Corvallis, OR.  
The use of A.D.A.M. in the multimedia classroom. Workshop on multimedia technology. Symposium sponsored by O.S.U. Communications & Media Ctr.

- 1993 PhD Defense, Dept. of Zoology, Oregon State University, Corvallis, OR.  
1988 Pheromonal communication in scorpions. Zoology Club Address, O.S.U.  
Invited Speaker, Oregon State University Mother's Club.  
1985 Keynote Speaker, Middletown High School Commencement Ceremonies, Middletown, CA.

Scorpion Presentations [I give many scorpion presentations to classes, civic groups, elementary schools, retirement homes, recruitment events, and other groups. The last several years are shown below.]

- 2021 BIOL 1005 (16,18Nov)  
2019 Martin Nature Park, OKC (26Oct); BIOL 1005 (12,14Nov)  
2018 Honors Student Association (1Feb; 6Sept); BIOL 1005 (10Apr; 13,15Nov); Martin Nature Park, OKC (20Oct)  
2017 OU Crimson Club (8Feb); BIOL 1005 (11,13Apr; 14,16Nov); OU Biology Club (10Oct)  
2016 Headington Hall, OU (29Feb); Pioneer Woman Museum, Ponca City (18June); Martin Nature Park, OKC (22Oct)  
2015 Walker Hall FIR (26 Mar); Pontotoc Ridge Preserve, The Nature Conservancy (13June); Martin Nature Park, OKC (14Aug); OU Biology Club (30Sept); Briarwood Elementary, Moore (29Oct); Martin Nature Park, OKC (31Oct); BIOL 1005 (17,19Nov)  
2014 Martin Nature Park (25Oct); Guthrie Public Library (10May), BIOL 1005 (15,17Apr; 11,13Nov), Walker Hall, OU (30Jan), Adams Hall, OU (6Feb)  
2013 Martin Nature Park (19Oct); Headington Hall, OU (29Oct); BIOL 1005 (12,14Nov)  
2012 Oklahoma Mensa (18Feb); Sooner Housing Center (1Mar); Panhandle Students OU visit (9Mar)  
2011 Sooner Housing Center (29Mar); National Society of Collegiate Scholars (18Apr); BOT/MBIO/ZOO 1005 (19,21Apr); Crooked Oak HS (29Apr); Cate Halloween Special (28Oct); BOT/MBIO/ZOO 1005 (15,17Nov);  
2010 Sooner Housing Center (30Nov); CAS Preview Day (29Oct); Cate FIR (27Oct); Trinity Lutheran Church (6May); National Society of Collegiate Scholars (21Apr); BOT/MBIO/ZOO 1005 (20,22Apr); Sooner Housing Center (1Feb);  
2009 Big Red Retreat, HS Juniors Summer Camp (10Jul)  
2008 Big Red Retreat, HS Juniors Summer Camp (11Jul); BOT/MBIO/ZOO 1005 (8,10Apr); ZOO 1114 evening section (8Apr)  
2007 BOT/MBIO/ZOO 1005 (13,15Nov); CAS Preview Day (9Nov); Sooner Housing (26Sep); HS Juniors Summer Camp (13Jul); BOT/MBIO/ZOO 1005 (17,19Apr); OU Parents Weekend (30Mar); National Society of Collegiate Scholars (30Mar); Putnam City 5<sup>th</sup> Graders (16Mar); Faculty Lecture Series – Sooner Housing (7Feb)  
2006 BOT/MBIO/ZOO 1005 (14,16Nov); CAS Preview Day (10Nov); OU Cate Center (6Nov); ZOO Society (26Sep); Pauls Valley Rotary Club (28Apr); BOT/MBIO/ZOO 1005 (18,20Apr)  
2005 CAS Preview Day (Nov); BOT/MBIO/ZOO 1005 (17,19Apr); Go OU Day (17Apr); National Society of Collegiate Scholars (18Mar); Rivermont Retirement Center

#### PROFESSIONAL / COMMUNITY / UNIVERSITY SERVICE

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- 2021-present Committee A, Department of Biology, OU.  
2014-present Provost Advisory Council for Classroom Renovations (Provost direct), OU  
Selection Committee - President's Award for Outstanding Transfer Students, OU  
Elite Retention Squad (Provost direct) OU  
Provost's Weekly Retention Task Force (Provost direct) OU  
92% Retention Challenge Committee (VP direct) OU  
Provost's Advisory Council for STEM Education (Provost direct) OU  
Campus Bike Committee (VP direct) OU  
2013-14 Biology Department Committee A, OU  
2013-15 Research Council, OU  
2011-13 Faculty Advisor, OU Volleyball Club.  
2013 Biology Departmental Retreat Coordinator, OU

2011-12 Holistic Admissions Committee (VP direct) OU  
2008 President, Association of Deans & Directors of University Colleges  
2007 President-elect, Association of Deans & Directors of University Colleges  
Zoology ad hoc Undergraduate Curriculum Committee, OU  
2006-07 Provost's Advisory Committee on Textbook Pricing Options  
Provost's Advisory Committee on Writing Across Campus  
OU Institutional Representative for Council on Undergraduate Research  
Zoology ad hoc Undergraduate Curriculum Committee, OU  
2005-07 Presidential Professorship Selection Committee (President direct) OU  
2006 University Marketing Committee (VP direct) OU  
2005-06 Search Committee, Introductory Biology Position, Zoology, OU  
2005 Search Committee, Director of Instructional Development, OU  
2004-12 Admissions Advisory Committee (President direct) OU  
Course Management Systems Task Force (Provost Direct) OU  
2004-05 Faculty Advisor, OU Volleyball Club  
2004 University of Oklahoma Advisory Committee on Underage Drinking and Alcohol Abuse (President direct) OU  
2002-present Graduation Rates Task Force (President direct) OU  
Enrollment Management Board (Provost direct) OU  
Naming of Class by Graduation Year Committee (President direct) OU  
Academic Advising Fee Advisory Committee (Provost direct) OU  
Vice President for Student Affairs Faculty Advisory Committee, OU  
OU Teaching Scholars Initiative – Founding Member  
PACE award selection committee, University College, OU  
2002-2006 President's Distinguished Faculty Mentoring Program, OU  
2003-04 Ad hoc Classroom Committee (Provost direct) OU  
2003 Honors Dean Candidate Interviews, OU  
College of Arts & Sciences FOCAS Review Committee  
University College Committee on Retention  
2001-02 Committee A, Department of Zoology, OU.  
2000-01 Search Committee, Dean for Gaylord College of Journalism & Mass Communications  
1995-02 Director of Undergraduate Studies, Zoology  
1999-02 Zoology Adams Scholarship Committee, OU  
Zoology Quade Scholarship Committee, OU  
Undergraduate Assessment Liaison for Dept of Zoology, OU  
College of Arts and Sciences Information Technology Committee, OU  
College of Arts & Sciences FOCAS Lecture Committee, OU  
1999-02 Phillips Scholars mentor, OU  
Faculty Advisor, OU Pre-Vet Club  
Cell Biology Search Committee, Dept. of Zoology, OU  
1999-01 Pre-medical and pre-dental committee interviews, OU Zoology  
1999-00 Search Committee, outside member, Dept. of Psychology, OU  
Athletic Council Special Committee: Student Athletic Fee Study, OU  
1997-00 Faculty-in-Residence, Couch Center, OU  
Faculty Advisor, Phi Sigma Pi National Honor Fraternity.  
Member of the Speakers Service, University of Oklahoma  
1997-99 Instructional Services and Technology (IST) subcommittee of the Information  
Technology Council (ITC), evaluated UTIL grants, OU  
1995-97 Lincoln Elementary School Presentation on Scorpions, Norman, Oklahoma  
Faculty Marshal, College of Arts and Sciences Convocation Ceremonies, University of Oklahoma  
1996-97 Adopted Faculty Program: Zeta Tau Alpha Sorority, OU  
Adopted Faculty Program: Couch 8W Dormitory, OU

1996-97 Teacher Appreciation Functions and/or Receptions (7 total, various organizations)  
Neurophysiologist Search Committee, Dept. of Zoology, OU  
1995-02 Undergraduate Studies Committee, Chair, Dept. of Zoology, OU  
Pre-vet advisor, Dept. of Zoology, OU  
1994-95 Computing Resources Committee, Dept. of Zoology, OSU  
Aquatic Resources Committee, Dept. of Zoology, OSU  
1988-95 Corvallis Elementary School Presentations  
1988-95 Corvallis School District Science Contest Judge  
1993-95 Curriculum Committee, Dept of Zoology, OSU  
1991 Senator, Associated Students of OSU  
1990-91 Dept. of Zoology Representative, Graduate Student Senate, OSU  
1988-90 Advanced Placement Biology Mentor, Corvallis High School  
1988-89 Graduate Student Salary Committee, Dept. of Zoology, OSU

#### Symposia

2004 Organizer and Host of 2004 American Arachnological Meeting, OU, June 23-28.  
1995 Anatomy and Physiology Session Organizer, Northwest Biology Instructors Organization, Mt. Hood  
Community College, Portland, OR.  
1989 Co-chair, O.S.U. Biology Graduate Student Symposium.

#### Society Memberships

International Society for Neuroethology  
American Arachnological Society  
Association of Deans and Directors of University Colleges & Undergraduate Studies

#### Reviewer for

Addison Wesley Longman, biology multimedia materials  
Advances in Insect Physiology: Spider Physiology and Behaviour  
Animal Behaviour  
Behavioural Processes  
Bulletin of the British Arachnological Society  
Canadian Journal of Zoology  
Euscorpius  
Journal of Aerospace Information Systems  
Journal of Arachnology  
Journal of Ethology  
Journal of Insect Behavior  
Journal of Invertebrate Reproduction and Development  
Journal of Photobiology  
McGraw-Hill Publishing, Electronic books  
PLOS ONE  
Raven & Johnson's Biology (5<sup>th</sup> ed), WCB/McGraw-Hill Publishing  
Scorpions 2001, published by British Arachnological Society  
Solomon/Berg/Martin Biology Textbook, Saunders College Publishing  
Two Ravens Editorial Services

#### MISCELLANEOUS

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2008 Participated in Digital Biology Workshop in Dubuque, Iowa, hosted by McGraw-Hill Publishers.  
2002 Participated in 6<sup>th</sup> Annual Introductory Biology Symposium in Key West, Florida, hosted by  
McGraw-Hill Publishers.

- 2001 Participated in 5<sup>th</sup> Annual Introductory Biology Symposium in San Diego, California, hosted by McGraw-Hill Publishers.
- 2000 Participated in 4<sup>th</sup> Annual Introductory Biology Symposium in Key West, Florida, hosted by McGraw-Hill Publishers.
- 1999 Participated in 3<sup>rd</sup> Annual Introductory Biology Symposium in St. Louis, Missouri, hosted by McGraw-Hill Publishers.
- 1998 Participated in 2<sup>nd</sup> Annual Introductory Biology Symposium in Snowmass, Colorado, hosted by McGraw-Hill Publishers.
- 1991 Western Nerve Net Conference, Portland, OR.
- 1990 OSU Graduate Student Symposium, Newport, OR.
- 1989 OSU Neural Networks Seminar, Corvallis, OR.
- OSU Graduate Student Symposium, Newport, OR.
- 1996-2001 Selected Lecture Figures - optional supplemental packet to accompany Z1114

## ADVISING AND STUDENT SUPERVISION

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### Undergraduate

- Kira Wennstrom, Water detection in the desert sand scorpion. Oregon State University, 1993. Directed research.
- Roger Kilbourne, Computer analysis of chemosensory responses in pectinal peg sensilla of scorpions. Oregon State University, 1994. Directed research.
- Mahdieh Parizi, The expression of a circadian rhythm in the spiking frequency of chemosensitive neurons of scorpion pectines. University of Oklahoma, 1998. Honors Thesis.
- Elizabeth Camp, Sensory mediation of homing behavior in sand scorpions. University of Oklahoma, 1998. Directed research.
- Taryn Turner, Synaptic interactions in peg sensilla of *Centruroides vittatus*. University of Oklahoma, 1998. Directed research.
- Mike Falgiani, Electrophysiological investigation of the sensitivity of scorpion basitarsal slit sensilla to vibratory stimuli. University of Oklahoma, 1999. Honors Thesis.
- Vail Stephens, Do scorpions use seismic echolocation to aid in orientation? University of Oklahoma, 2000. Honors Thesis.
- Mujahid Hines, Use of a micro-engineered chemical delivery device to evaluate scorpion peg sensillum response to organic stimulants. University of Oklahoma, 2003. Honors Thesis.
- Steffany Steinmetz, Behavioral evidence of pheromonal interactions in *Centruroides vittatus*. University of Oklahoma, 2003. Honors Thesis.
- Steven Carter, Is the mechanoreceptor involved in the peg sensillar circuitry of scorpion pectines? University of Oklahoma, 2003. Honors Thesis.
- Paul McGowan, Differential response patterns of scorpion peg sensilla. University of Oklahoma, 2004. Directed research.
- Ashley Meador, Home burrow navigation in scorpions. University of Oklahoma, 2004. Directed research.
- Zach Porterfield, Screening for scorpions: a non-invasive approach to tracking the movements of arachnids in sand. University of Oklahoma, 2004. Honors Thesis.
- Ryan McKee, Non-visual orientation of sand scorpions. University of Oklahoma. 2004. Directed research.
- Greg Blass, Light wavelength biases of scorpions. University of Oklahoma. 2005. Directed research.
- Kevin Landsverk, Behavioral assay of chemosensory activity in *Centruroides vittatus*. University of Oklahoma. 2006. Directed research.
- Tessa Crawl, Recording from constellation array on scorpion pedipalps. University of Oklahoma. 2006. Directed research.
- Nataliya Popokina, Scorpion fluorescence and light perception. University of Oklahoma. 2007. Honors research.
- Eman Beck, Do scorpions use self-generated pressure waves in the detection and orientation to objects. University of Oklahoma. 2007. Directed research.
- Andrea Jordan, Can scorpions detect scorpion fluorescence? University of Oklahoma. 2009. Honors research.



- Elizabeth Knowlton; A new approach to examining scorpion peg sensilla: the mineral oil flood technique. University of Oklahoma. 2011. Honors research.
- Caleb Cospser; Tests of the shelter-seeking hypothesis for scorpion UV sensitivity (2013). Honors research.
- Danielle Martin; Whole pecten stimulation of *Paruroctonus utahensis* via electrolytic pool technique. 2012. Honors research.
- Jay Vinnedge; Analysis of cues involved in homing behavior of desert sand scorpions. 2012. Honors research.
- John Little; Comparison of scorpion behavioral responses to UV and green light under varying nighttime irradiances. 2012. Directed research.
- Ashley Davis; Comparison of scorpion behavioral responses to UV and green light under varying nighttime irradiances. 2012. Directed research.
- Samuel Oyeleye; Investigating the electrolyte flood technique: a new method for recording populations of peg sensilla on a single tooth of a scorpion pecten. 2012. Directed research.
- Sarah Million; Passive air detection of scorpion trichobothria. 2014. Directed research.
- Randall Proctor; Investigating water detection mechanisms of desert scorpions. 2015. Honors research.
- Jacob Mitchell; Scorpion light sensitivity and relation to fluorescence. 2015. Honors research.
- Megan Mont; Implementing hypotheses of "navigation by scene familiarity" demonstrated in ants and bees. 2015. Honors research.
- Kendall Hughes; Electrophysiological recording from scorpion pectinal nerves. 2016. Honors research
- Nina Rivera Rolden; A new behavioral assay for testing scorpion responses to pure wavelengths of light. 2016. Directed research.
- Matthew Keyzer; Visualization of scorpion sensorineural architecture using a neurobiotin tracer. 2016. Honors research.
- Max Daniels; Developing a paired-wheel scorpion testing apparatus. 2016. Directed research.
- Conner Howard; Pinpointing your point: assessing data collection methods for tracking a path. 2018. Honors research.
- Jonna Vanderslice; Across the rainbow: assessment of scorpion light responses to different wavelengths of light. 2017. Honors research.
- Sara Kelley; Exploring the role of synaptic inhibition in peg sensilla of scorpion pectines. 2019. Honors research.
- Kristen Speer; Scorpion infrared sensitivity. 2019. Honors research.
- Alby Musaelian; Reverse engineering scorpion pectines. 2020. Honors research.
- Drew Doak; Path integration in the desert grassland scorpion (*Paruroctonus utahensis*). 2020. Honors research.
- Safra Shakir; Analysis of synaptic integration in peg sensilla of scorpion pectines. Honors research.
- Jacob Sims; Testing scorpion behavior under natural UV conditions. Directed research.
- Maria Munoz; Coaxing sand scorpions to home in the lab without a mound. Directed research.
- Hannah Peeples; Electrophysiological analysis of mechanoreceptors in peg sensilla. Honors research.
- Alexis Merchant; Exploring path integration behavior in scorpions. Honors research.

### Graduate

Karen Bost, Behavioral and physiological analysis of sensory cues involved in sand scorpion navigation to their home burrows. University of Oklahoma. 2003-2005

#### Thesis Committees:

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