

MICHAEL P. SHAHANDEH

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Position

February 2020-present

Postdoctoral research fellow, Benton Lab

Center for Integrative Genomics, University of Lausanne

Education

December 2019

PhD Student, Department of Ecology, Evolution, and Marine Biology, University of California Santa Barbara. Advisor: Dr. Thomas Turner

November 2019

Certificate in College and University Teaching (CCUT). University of California Santa Barbara.

December 2016

M.A. Ecology, Evolution and Marine Biology, University of California Santa Barbara. Advisor: Dr. Thomas Turner

July 2011

B.Sc. Biological Sciences, concentration in Ecology, Evolution, and Marine Biology, University of California Santa Barbara

Fellowships and Awards - \$65,083.13

**education award*

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| <i>2013-2014</i> | University of California, Santa Barbara Department of Ecology, Evolution, and Marine Biology Block fellowship (\$25,850) |
| <i>2016</i> | University of California, Santa Barbara Department of Ecology, Evolution, and Marine Biology Block grant continuing fellowship. 1 quarter stipend (\$6000). |
| <i>2016</i> | GSA Conference travel award (\$250) |
| <i>2017*</i> | Instructional Improvement Grant, Department of Instructional Development and Consultation, University of California, Santa Barbara. Awarded to design and implement a multi-week laboratory exercise in the UCSB Intro Biology Core laboratory class (\$8,111.37). |
| <i>2017</i> | University of California, Santa Barbara Department of Ecology, |

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| | Evolution, and Marine Biology Block grant continuing fellowship. 1 quarter full support (\$11,321.76). |
| 2017* | UC Leads Scholars Program Graduate Student Mentor (\$800) |
| 2018 | GSA Conference travel award (\$200) |
| 2018 | Broida-Hirschfelder Fellowship, Shoreliners UCSB (\$8000) |
| 2018 | Academic Senate Travel Award (\$1,350) |
| 2018 | Ellen Schamberg Burley Graduate Award (\$500) |
| 2018 | Charles A. Storke Graduate Fellowship (\$2,500) |
| 2019 | GSA Conference travel award (\$200) |

Publications

*co-first author ^undergraduate co-author

1. **Shahandeh, M.P.**, Brock, C. ^, and Turner, T.L. (2020) Light dependent courtship behavior in *Drosophila simulans* and *D. melanogaster*. *PeerJ*, 8: e9499.
2. **Shahandeh, M.P.** and Turner, T.L. (2020) Complex genetic architecture of male mate choice evolution between *Drosophila* species. *Heredity*, 124(6): 737-750.
3. **Shahandeh, M. P.**, Pischedda, A., Rodriguez^, J. M., & Turner, T. L. (2020) The Genetics of Male Pheromone Preference Difference Between *Drosophila melanogaster* and *Drosophila simulans*. *G3: Genes, Genomes, Genetics*, 10(1): 401-415.
4. A. Pischedda*, **Shahandeh, M.P.***, Turner, T.L. (2019) The loci of behavioral evolution: evidence that *Fas2* and *tilB* underlie differences in pupation site choice behavior between *Drosophila melanogaster* and *D. simulans*. *Molecular Biology and Evolution*, 37(3): 864-880.
5. **Shahandeh, M.P.**, Pischedda, A. and Turner, T.L. (2018) Male mate choice via cuticular hydrocarbon pheromones drives reproductive isolation between *Drosophila* species. *Evolution*, 72(1): 123-135.
6. Pischedda, A., **Shahandeh, M.P.**, Cochrane, W.G.^, Cochrane, V.A., and Turner, T.L. (2014) Natural Variation in the Strength and Direction of Male Mating Preferences for Female Pheromones in *Drosophila melanogaster*. *PLoS ONE* 9(1): e87509.

Manuscripts in preparation:

Auer, T.O.*, **Shahandeh, M.P.***, and Benton, R. *Drosophila sechellia*: a genetic model for behavioral evolution and neuro-ecology. Invited review: *Ann. Rev. Genetics*.

Conference Presentations

Invited talks:

- 2018 **The genetic evolution of reproductively isolating male pheromone preference in *Drosophila simulans* and *sechellia***, Michael P. Shahandeh and Thomas L. Turner, 15-minute talk presented to the Joint Congress on Evolutionary biology, and international conference in Montpellier France
- 2018 **The genetic evolution of reproductively isolating male pheromone preference in *Drosophila simulans* and *sechellia***, Michael P. Shahandeh and Thomas L. Turner, 15-minute talk presented to the Society of Integrative and Comparative Biology
- 2016 **From genes to neurons to behavior: connecting genotype and pheromone preference phenotype in *Drosophila***, Michael P. Shahandeh and Thomas L. Turner, 25-minute talk presented Janaelia research campus

Poster presentations:

- 2016 **The genetic basis of reproductive isolation in *Drosophila*: divergent male pheromone preferences isolate sympatric species**, Michael P. Shahandeh and Thomas L. Turner, *Evolution*.
- 2014 **Mapping male preference for a species-specific female pheromone in *Drosophila***, Michael P. Shahandeh, Alison Pischedda and Thomas L. Turner, 55th Annual *Drosophila* Research Conference
- 2013 **Genes of Attraction: Mapping male preference for a species-specific female pheromone in *Drosophila***, Michael P. Shahandeh, Alison Pischedda and Thomas L. Turner, *Southern California Evolutionary Genetics and Genomics*.

Professional Memberships

- The Society for the Study of Evolution (SSE)
- The Genetics Society of America (GSA)
- Society for Integrative and Comparative Biology (SICB)

Reviewer

- *Behavioral Ecology*
- *BMC Evolution*
- *PeerJ*
- *PLoS ONE*

Departmental Service

- 2018 - present* **Co-founder and organizer, OUTreach UCSB.** A bi-monthly seminar series at UCSB that highlights the research of LGBTQ+ graduate students, post-docs, and faculty with the goal of increasing representation for LGBTQ+ biology undergrads. Website: www.outreachucsb.weebly.com
- 2018* **Panelist, OSTEM grad panel.** Undergraduate career Q&A with queer graduate students in STEM fields.
- 2018* **Presenter, UCSB EEMB Graduate Student Symposium.** 15-minute research presentation at a departmental recruitment weekend event.
- 2018
2019* **Invited guest, Apple pie with Alpha Chi, UCSB.** Student-faculty mixer as a guest and panelist.
- 2017* **Graduate student panel member, Biology career panel, Society of Undergraduate Biologists, University of California Santa Barbara.** Discussed the daily life and activities of a graduate student, the application process, and future job prospects to aspiring undergraduate biologists.
- 2014-2015* **Graduate Student representative, Job search committee for Behavioral Ecology, University of California Santa Barbara.** Responsible participating in the applicant review process, attending job talks, coordinating candidate visits with graduate students and providing feedback about the finalists to the search committee
- 2013* **Ambassador, Life Sciences Ambassador Program,** Outreach program targeted toward graduating high school students in low-income areas.
- 2013* **Docent, It's A Small World.** Outreach program targeted toward secondary school students to augment interest in the sciences.

Instruction Experience

- Fall 2020* **Project mentor, TP :Experimental design.** Proposed a topic for student led experimental design project, "Do species of *Drosophila* differ in habitat illumination preference?" Provide

guidance on project proposal, experimental design, execution and analysis, written and oral presentation of results.

Summer 2019

Teaching Associate (*Instructor of record*), INT 93LS: Human population genetics, University of California, Santa Barbara. Responsible for the conception, creation, and execution of course learning objectives for high school students attending their first college course. Composed and delivered 18 lectures, designed 4 laboratory exercises, supervised a final research paper with oral presentation, and held weekly office hours. 28 students; lower division.

Spring 2019

Teaching associate (*Instructor of record*), EEMB131: Principles of Evolution, University of California, Santa Barbara. Responsible for the execution of course learning objectives. Delivered 20 lectures, weekly homework assignments, a midterm and final exam, held weekly office hours, and managed 2 graduate student teaching assistants. 140 students; upper division.

*Winter 2018,
Winter 2019*

Teaching Associate (*Instructor of record*), EEMB7: Evolution and physiology for brain science majors, University of California, Santa Barbara. Responsible for the conception, creation, and execution of course learning objectives. Composed and delivered 30 lectures, designed weekly assignments, a midterm and final exam, and held weekly office hours. 210 students, lower division.

*Summer 2013
Summer 2014*

Assistant Instructor, MCDB161L: Research Immersion in Molecular Biosciences, University of California, Santa Barbara. Responsible for the design, scheduling, and fly husbandry for an original research project for a two-week module of an intensive research class, giving a one-hour guest lecture, as well as supervising student experiment execution in the instructor's absence. Instructor: Dr. Alison Pischedda.

Laboratory curriculum development:

*June 2016-
March 2019*

Using the common laboratory model *Drosophila* to demonstrate the driving principles of evolution. Responsible for the design and implementation of a multi-week laboratory exercise that experimentally evolves populations of *Drosophila* to demonstrate the principles of genetic drift and natural selection. Constructed laboratory

manuals, staff training materials, education materials, teaching assistant training materials, and exam/evaluation materials. Fully funded by a UCSB instructional development grant. Implemented in introductory biology labs. 1000+ students; lower division.

TA-ships:

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| 2014 | EEMB101: Molecular Evolution, UCSB |
| 2015 | EEMB3L: Origins of Diversity Lab, UCSB |
| 2016 | MCDB1BL/EEMB2L: Introduction to Biology, UCSB |
| 2016 - 19 | EEMB131: Principles of Evolution, UCSB |
| 2016 - 19 | EEMB130: Population Genetics, UCSB |
| 2018 | EEMB127: Plant Biodiversity, UCSB |

Mentorship Experience

UCSB Undergraduate Mentorship:

| <u>Student</u> | <u>Years</u> | <u>Current position</u> |
|-----------------|----------------|--|
| Jason Rodriguez | 2018 – present | 4 th year Biology major, UCSB |
| Devon Cooper | 2018 – present | 4 th year Biology major, UCSB |
| Jordan Caldwell | 2017-2018 | B.Sc. Zoology, UCSB |
| Kathryn Feerst | 2017 | UCSB Leads scholar, Biology |
| Jeremy McIntyre | 2016-2017 | Lab Technician, Cornell University |
| Cameryn Brock | 2015-2016 | UCSB Bren M.E.S.M. program |
| Katie Goodspeed | 2014 – 2015 | UCSB MS Pharmacology |
| Susanne Tilk | 2012 - 2014 | PhD Student, Stanford University |

Advanced pedagogy

March 2018- June 2018 **ED256: Teaching with technology.** Offered through the Givertz school of graduate education at UCSB.

Instrumentation Experience

- Gel electrophoresis
- Cold enzyme extraction

- *Drosophila* husbandry
- *Drosophila* dissection
- *Drosophila* activity monitors (DAM)
- R: rQTL, stats, graphing (base and ggplot), shiny, Rethomics
- Illumina library preparation
- CRISPR Cas9 genome editing design
- Immunofluorescence
- Confocal microscopy
- PCR, iPCR, qPCR
- Excel data entry and analysis
- DNA preparation
- Python and Unix
- JMP

Relevant Coursework

- Ecology
- Population Genetics
- Vertebrate Evolution and Morphology
- Molecular Evolution
- Macroevolution
- Neurobiology
- Reproduction
- Principles of Evolution
- Reproductive Ecology and Evolution
- Advanced Biostatistics
- Communities and Ecosystems

References available upon request