

Katherine R. O'Brien

The Ohio State University
Museum of Biological Diversity
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Professional History

- 2019- Present Postdoctoral Researcher
STEAM Factory at The Ohio State University, office of research
Dr. Lisa Hall, director and Dr. Sathya Gopalakrishnan, AISL co-PI
- 2017 - Present Postdoctoral Researcher & Outreach Coordinator
The Ohio State University Museum of Biological Diversity
Dr. Marymegan Daly, museum director
- 2016 - 2019 Instructor Teaching Assistant, Integrated Biology
The Ohio State University
Dr. Steve Chordas, course coordinator
- 2014 - 2016 Postdoctoral Researcher
University of Nebraska at Lincoln
Dr. Kristi L. Montooth, mentor

Education

- 2008 - 2014 University of Pennsylvania
Ph.D. in Biology
Thesis "*The Genetic Basis of Phenotypic Plasticity in Natural Populations of Drosophila*"
Dr. Paul S. Schmidt, advisor
- 2007 - 2008 Clark University
MA in Biology
Dr. John A. Baker and Dr. Susan Foster, advisors
- 2003 - 2007 Clark University
BA with highest honors in Biology
Dr. John A. Baker and Dr. Susan Foster, advisors

Teaching Experience

Spring 2020	Translating Evolution (EEOB 5610, SL*) *Service-learning designation with Center of Science and Industry (COSI) and Grandview Heights Public Library
January 2020	Middlebury College, Interdisciplinary. Public Science Communication (INTD 1225A)
Spring 2019	The Ohio State University, Evolution Ecology and Organismal Biology Organismal Diversity (EEOB 3320)
Spring 2019	Translating Evolution (EEOB 5610, SL*) *Service-learning designation with Center of Science and Industry (COSI)
Fall 2017	Miami University, Dragonfly Program (online) Conservation Research at Living Collection Institutions
Summer 2017	Miami University, Dragonfly Program (online) Foundations of Inquiry Regional Ecology: Rocky Mountain Field Investigations

Teacher Training

Spring 2013-2014	Hands on Activities for Teaching Biology “Drosophila Genetics and Evolution Activity” Professional Development for Philadelphia-area high school teachers Dr. Ingrid Waldron, coordinator
Summer 2011	Training coordinator for the Sciences and Quantitative Social Sciences School of Arts and Sciences TA training Dr. Bruce Lenthall, Director of Center for Teaching and Learning
Summer 2011	Journal club leader: “Genetics of Aging” Penn Summer Biomedical Research Academy (High school students) Dr. Linda Robinson, Program Director
Summer 2010	Teaching Assistant Trainer and workshop leader School of Arts and Sciences TA training Dr. Bruce Lenthall, Director of Center for Teaching and Learning

Teaching Assistant

Spring & Fall 2016 - 2018	The Ohio State University, Center for Life Science Education Integrated Biology (BIO 3401) Dr. Steve Chordas, course coordinator
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- Fall 2010 University of Pennsylvania, Department of Biology
Statistics for Biologists (BIOL 446)
Dr. Joshua Plotkin, instructor
- Spring 2009 - 2014 University of Pennsylvania, Department of Biology
Evolutionary Biology (BIOL 230)
Dr. Paul S. Schmidt, instructor
- Fall 2009 & 2013 University of Pennsylvania, Department of Biology
Introduction to Organismal Biology Lab (BIOL 124)
Dr. Linda Robertson, instructor

Publications

- K.R. O'Brien**, L. Kuchel, and S. Rowland. 2020 "Getting Students to Express an Opinion" in Science + SciComm + Work: Effective Communication in Science Programs. A Practical Guide for Students and Teachers, edited by Susan Rowland and Louise Kuchel *in press*
- Machado, H., A.O. Bergland, R. Taylor, S. Tilk, E. Behrman, K. Dyer, D. Fabian, T. Flatt, J. Gonzalez, T. Karasov, I. Kozeretska, B. P Lazzaro, T. Merritt, J. Pool, **K.R. O'Brien**, S. Rajpurohit, P. Roy, S. Schaeffer, S. Serga, P. Schmidt, and D. Petrov. 2018 Broad geographic sampling reveals predictable and pervasive seasonal adaptation in *Drosophila*. bioRxiv.
- Mushalko, D., J. DiLoretto, **K.R. O'Brien** and R.E. Pyatt. 2017. Geek Sneaks: Incorporating Science Education into the Moviegoing Experience. Science Education and Civic Engagement an International Journal
- Cogni, R, C. Kuczynski, S. Koury, E. Lavington, E. Behrman, **K. R. O'Brien**, P. Schmidt, and W. Eanes. 2017 On the Long-term Stability of Clines in Some Metabolic Genes in *Drosophila melanogaster* Scientific Reports
- Machado, H., A. Bergland, E.L. Behrman, **K.R. O'Brien**, P. Schmidt and D.A. Petrov. 2016. Comparative population genomics of latitudinal variation in *D. simulans* and *D. melanogaster*. Molecular Ecology
- Behrman, E.L., S.S. Watson, **K.R. O'Brien**, M.S. Heschel and P.S. Schmidt. 2015. Seasonal variation in life history traits in two *Drosophila* species. Journal of Evolutionary Biology.
- Cogni, R, C. Kuczynski, S. Koury, E. Lavington, E. Behrman, **K. R. O'Brien**, P. Schmidt, and W. Eanes. 2015. Variation in *Drosophila melanogaster* central metabolic genes appears driven by natural selection both within and between populations. Proc. R. Soc. B

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Bergland, A.O. E.L. Behrman, **K.R. O'Brien**, P.S. Schmidt, D.A. Petrov. 2014. Genomic evidence of rapid and stable adaptive oscillations over seasonal time scales in *Drosophila*. PLoS Genetics.

Cogni, R, C. Kuczynski, S. Koury, E. Lavington, E. Behrman, **K. R. O'Brien**, P. Schmidt, and W. Eanes. 2014. The intensity of selection acting on the *couch potato* gene spatial-temporal variation in a diapause cline. Evolution 68:538-548

Lavington, E., R. Cognai, C. Kuczynski, S. Koury, E. L. Behrman, **K. R. O'Brien**, P.S. Schmidt and W. Eanes. 2014. A small system – high resolution study of metabolic adaptation to temperate climates in *Drosophila melanogaster*. Molecular Biology and Evolution. 31:8 2032-2041

Outreach Programs

- 2018 - Present Saturday with a Scholar Program at the STEAM factory
A Saturday morning program for the whole family. This is an exciting opportunity for parents and kids to come together and learn about the new research going on right here in Ohio! Features hands on activities, demos, crafts and lectures that stimulate the mind and spark creativity.
- 2017 - Present “Natural Wonders” at the Grandview Heights Public Library
A series of exhibitions featuring specimens and educational content the Museum of Biological Diversity at The Ohio State. Display kiosks are on view during business hours in the library’s atrium. Material rotates monthly and highlights Ohio’s science standards with dynamic displays that include a self-guided, hands-on activity.
- 2017 - Present Columbus Science Pub
Monthly program that is part of the “Science Café” movement. Our speakers have covered a diverse range of topics and come from many STEM backgrounds. By connecting the Columbus community with experts who use science in their daily lives, we grow science literacy.
- 2016 - 2017 “Geek Sneak” at the Gateway Film Center
Science demos for people attending the movies. All activities are designed to be hands-on and focused around science content related to themes in the associated film. Science activities related to each film are designed to be of short duration and suitable for small groups of people.
- 2015 “Evolution on the Wing” a Sunday with a Scientist event with The University of Nebraska State Museum
Program for children and families to investigate science and talk to scientists. Our month focused on evolution through exploring all the

functions of wings. Hands-on activities focused on artificial selection, sexual selection and natural selection.

- 2013 - 2014 Professional Development credits for Philadelphia area High School teachers, including teaching Mendelian genetics with fruit flies. Franklin Museum Early Access to Graduate Research (EAGR) workshop. Workshop at Philadelphia Area Girls Enjoying Science (PAGES)
- 2011 - 2012 "Science Day" outreach event for high school students in Philadelphia
Tutor for student for the Penn Biomedical Research Academy
- 2010 Site Supervisor for Boat People SOS: mentored two high school students

Awards & Grants

- 2020 BETHA grant "*The Scientist Next Door: Making STEM Accessible Through Storytelling*" (The Ohio State University and Battelle)
- 2019 Science Communication Bootcamp Travel Award (Biodiversity Collections Network)
- 2019 Library Services and Technology Act (LSTA) Grant: Natural Wonders Program (Ohio State Library)
- 2019 Digital Flagship Training Grant (The Ohio State University)
- 2018 Key Personal on Advancing Informal STEM Learning (AISL) Grant "Convergent Learning from Divergent Perspectives" Dr. Sathya Gopalakrishnan (National Science Foundation)
- 2018 Connect and Collaborate Grant (The Ohio State University)
- 2018 Service-Learning Development Grant (The Ohio State University)
- 2017 STEAM Powered Grant "Speaking Science" (The Ohio State University)
- 2015 Nominated for the Hamilton award (Society for the Study of Evolution)
- 2014 Certificate in College and University teaching (University of Pennsylvania)
- 2011 Binns-Williams Research Fund (University of Pennsylvania)
- 2006 Carlson Summer Fellowship (Clark University)

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2005 & 2006 Eastern Alliance for Science and Technology
Undergraduate Research Fellow (National Science Foundation)

Invited Talks

Seminars:

- 2019 Day long workshop on science communication for the Ohio Department of Agriculture Plant Health Division, Bethel OH
- 2019 “Science Communication: from the classroom to the community” Sao Paulo University: Sao Paulo, Brazil
- 2019 “Nature of Science” Avistar (Brazilian bird festival): Sao Paulo, Brazil
- 2019 “Engaging students with hands-on demos” The Butantan: Sao Paulo, Brazil
- 2018 “Speaking Science!” Postdoctoral Training, Columbus OH

Courses:

- 2019 “Invertebrates: Lophotrochozoa” Organismal Diversity (EEOB 3320)
The Ohio State University, Columbus, OH, Dr. Alison Bennet, instructor
- 2019 “Human Population Genetics” Race and Medicine, The Ohio State University
Wexner Medical Center, Columbus, OH, Dr. Eric Herschthal
- 2018 “Scientific Names” Training in Informal Science Outreach (PSYC 5700)
The Ohio State University, Columbus, OH, Dr. Laura Wagner, instructor
- 2015 “Understanding Statistics for Writing Research Methodologies,” Issues and
Methods in Tutoring (ENG 374), Bristol Community College, Fall River, MA,
Dr. Genie Giaimo, instructor
- 2009 - 2014 “Evolution of Life Histories,” Evolutionary Biology (BIOL 230), University of
Pennsylvania, Philadelphia, PA, Dr. Paul S. Schmidt, instructor

Conferences attended

- 2021 Ohio Biological Survey; via Zoom
Poster “A Naturalist’s Guide to the Fishes of Ohio: brining books to life at the library”
- 2020 Summit (Advancing Research Impact in Society); via Zoom
Presenter “Convergent learning from divergent perspectives: The impact of interdisciplinary collaboration in informal learning environments”

- 2019 Biodiversity Collections Network (BCoN) Washington DC
Attended "Science Communication Boot Camp"
- 2019 National Alliance for Broader Impacts; Tucson, AZ
Poster "Little fish in a big pond: grassroots outreach networks"
- 2019 Science Education Council of Ohio; Columbus, OH
Presenter "Natural Wonders Workshop: a library and museum collaboration"
- 2018 Society for Advancing Biological Education Research; Minneapolis, MI
Poster "Natural Wonders: a library and museum collaboration"
- 2016 Evolution; Austin, TX
Presenter "Plasticity in ethanol tolerance across life stages"
- 2015 UNL SciComm 2015: A Symposium on Effective Science Communication; Lincoln, NE
- 2015 Innovation in Pedagogy and Technology: A Symposia; Lincoln, NE
- 2015 Evolution; San Palo, Brazil
Selected talk, Hamilton symposium "The *couch potato* gene mediates life history plasticity in *Drosophila melanogaster*"
- 2015 Fly Meetings; Chicago, IL
Selected talk "The *couch potato* gene mediates life history plasticity in *Drosophila melanogaster*"
- 2014 Evolution; Raleigh, NC
Presenter "Genetics of life history plasticity in *Drosophila melanogaster*"
Poster "Genetics of life history plasticity in two species of *Drosophila*"
- 2013 Evolution; Snowbird, UT
Presenter "Genetics of life history plasticity in two species of *Drosophila*"
Presenter "Speed talk: "the role of *cpo* in plasticity"
Poster "Measuring the plastic response"
- 2012 Evolution; Ottawa, ON
Poster: "Plasticity in natural populations"
- 2012 English Graduate Student Association Conference; Cambridge, MA

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Theme: Memory Remains

Video presentation: "Transcribing Memory"

- 2012 Biodiversity: from evolutionary origins to ecosystem function; Philadelphia, PA
Academy of Natural Science and Drexel University
Poster "Life history plasticity is mediated by the couch potato gene"
- 2011 Evolution; Norman, OK
Presenter: "Better, stronger, faster: plasticity and development time"
- 2010 Evolution; Portland, OR
Presenter: "You are what you eat: implications of larval diet"
- 2005 & 2006 Annual EAST meeting; Worcester MA
Presenter: Panel for Undergraduate Research Summer Fellowships
Poster: "Egg Size in Female Threespine Stickleback (*Gasterosteus aculeatus*) and Its Effect on the Competitive Ability of Fry"

Organizations and Service

Membership in organizations:

- 2020 Visitor Studies Association (VSA)
2019 Advancing Research Impact in Society (ARIS)
2019 Biodiversity Collections Network (BCoN)
2019 Science Education Council of Ohio (SECO)
2018 Society for the Advancement of Biology Education Research (SABER)
2017 STEAM factory at The Ohio State University
2014 Society for Molecular Biology and Evolution (SMBE)
2014 Genetics Society of America (GSA)
2010 Society for the Study of Evolution (SSE)
2005 Eastern Alliance for Science and Technology (EAST)

University Service:

- 2020 Diversity and inclusion presentation for Graduate student recruitment
2019 Faculty training on Broader Impacts
2019 Diversity Committee for the department of Evolution, Ecology and Organismal Biology
2018 Innovate conference, STEAM factory, proposal reviewer
2015 UNL STEM Expo Biology Demos at National Science Olympiad
2015 UCARE program- UNL, grant reviewer
2011 Ecolunch seminar series organizer

Mentorship:

- 2020 LSAMP project mentor for 1 undergraduate

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2019 - present	3 undergraduates through the STEAM Factory AISL program
2017 - present	3 graduates and 2 undergraduates at The Museum of Biological Diversity
2017 - 2018	1 undergraduate at Columbus College of Art and Design
2014 - 2015	3 graduate students in Montooth and Meiklejohn Labs
2009 - 2014	3 undergraduate and 3 high school students in Schmidt Lab
2005 - 2008	7 undergraduate students in Foster/Baker Lab