Austin P. Dreyer

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Research Interests

Evolution, circadian rhythms, neurobiology, nutrient sensing, development and growth control, allometry, sexual selection, behavior, mathematical modeling

Academic Career

Postdoctoral Researcher
Department of Biology, Loyola University Chicago — October 2015 - Present

Instructor
Department of Zoology, Michigan State University (MSU) — January 2015 - July 2015

Ph.D. Zoology, Ecology, Evolutionary Biology & Behavior (EEBB)
Michigan State University, East Lansing, Michigan — September 2008 - December 2014

B.S. Biology
Hope College, Holland, Michigan — August 2004 - May 2008

Publications

King AN, Barber AF, Smith AE, **Dreyer AP**, Cavanaugh DJ, Sehgal A. 2017. A peptidergic circuit links the circadian clock to locomotor activity. Current Biology, 27(13): 1915-1927.

Dreyer AP, Ziabari OS, Swanson EM, Chawla A, Frankino WA, Shingleton AW. 2016. Cryptic individual scaling relationships and the evolution of morphological scaling. Evolution, 20(8): 1703-1716.

Dreyer AP, Shingleton AW. 2011. The effect of genetic and environmental variation on genital size in male *Drosophila*: Canalized but developmentally unstable. PLoS One, 6(12): e28278.

Bultman TL, Leuchtmann A, Sullivan TJ, **Dreyer AP**. 2011. Do *Botanophila* flies provide reproductive isolation between two species of *Epichloë* fungi? A field test. New Phytologist 190(1): 206-212.

Sullivan TJ, **Dreyer AP**, Peterson JW. 2009. Genetic variation in a subterranean arthropod (*Folsomia canida*) as a method to identify low-permeability barriers in an aquifer. Pedobiologia 53: 99-105.

Research Experience

Loyola University Chicago – Chicago, IL — 2015 - Present
Regulation of circadian behaviors, Cavanaugh Lab, Department of Biology

Michigan State University – East Lansing, MI — 2008 - 2015
Selection and evolution of scaling relationships, Shingleton Lab, Department of Zoology

Swiss Federal Institute of Technology - Zürich, Switzerland — 2008
Fungal/plant interactions in tall fescue grasses. Mentors: Dr. Thomas Bultman and Dr. TJ Sullivan

Mohonk Nature Preserve – New York — 2007 - 2008
Genotyping collembolan populations to predict subterranean water flow patterns. Mentors: Dr. TJ Sullivan and Dr. Jonathan Peterson

Hope College – Holland, MI — 2006 - 2007
Population genetic study of a subterranean arthropod's migration habits. Mentors: Dr. TJ Sullivan and Dr. Jonathan Peterson

Education Experience

Instructor

Department of Biology, Loyola University Chicago

Biology 111: General Biology Lab I, Fall 2017
Biology 101: General Biology I, Fall 2016
Biology 112: General Biology Lab II, Spring 2016, 2017

Department of Zoology, Michigan State University

Zoology 445: Evolution (Online), Summer 2015
Zoology 328: Comparative Anatomy and Biology of the Vertebrates, Spring 2015

Editor/Reviewer

McGraw Hill-Publishing – Textbook and Online Materials

Biology 11th Edition – Raven, Johnson, Mason, Losos, Singer
Biology 4th Edition – Brooker, Widmaier, Graham, Stiling
Principles of Biology 2nd Edition – Brooker, Widmaier, Graham, Stiling

Teaching Assistant

Department of Biological Sciences, Michigan State University

Biological Science 172: Organismal and Population Biology Lab, Fall 2008, 2013, 2014
Biological Science 162: Organismal and Population Biology Lecture, Fall 2013, 2014

Department of Zoology, Michigan State University

Zoology 445e: Evolution On-line Digital Lab, Summer 2014
Zoology 328: Comparative Vertebrate Anatomy Lab, Spring 2009, 2010, 2011, 2012 (Lab Coordinator)
Zoology 353: Marine Biology, Discussion, Fall 2011
Undergraduate Studies 101: Program for Undergraduate Research in the Life Sciences, Program Administrator, 2009, 2010, 2011

Department of Biology, Hope College

General Education Math & Science 155: History of Biology and Lab TA, Fall 2007
Biology 260: Organismal Biology Lab TA, Spring 2007
Biology Ecology and Evolutionary Biology Lab TA, Fall 2006

Fellowships, Grants, Honors and Awards

2014 College of Natural Science Dissertation Completion Fellowship, MSU
2013 EEBB Summer Fellowship, MSU
2013 John R. Shaver Fellowship, MSU
2012-2013 BEACON Center for the Study of Evolution in Action Fellow, MSU
2012 College of Natural Science Travel Fellowship, MSU
2012 EEBB Travel Fellowship, MSU
2011 EEBB Summer Fellowship, MSU
2010 Graduate Office Travel Fellowship, MSU
2010 EEBB Travel Fellowship, MSU
2009 Graduate School Summer Fellowship, MSU
2009 John R. Shaver Fellowship, MSU

Professional Society Activity/Membership (*denotes undergraduate students)

2016 Frontiers in Science Symposium, Chicago, IL
"An investigation into the behavioral and physiological effects of chronic circadian misalignment in *Drosophila melanogaster*"
Boomgarden A, Patel P*, Sagewalker G, **Dreyer AP**, Cavanaugh D (Poster Presentation)

2016 Annual Midwest *Drosophila* Conference, Champagne, IL
1) "Circadian analysis of *Drosophila* feeding behavior"
Dreyer AP, Smith AE*, Cavanaugh D (Oral Presentation)

2) "Investigating the contribution of anatomically distinct clock neuron populations to circadian rest:activity rhythms"
Spontak K*, Kleeman B*, **Dreyer AP**, Cavanaugh D (Poster Presentation)

2014 Annual Meeting of the Society for Integrative and Comparative Biology, Austin, TX
"Does size really matter? The effect of genital size on reproductive success"
Dreyer AP, Shingleton AW (Oral Presentation)

2012 Annual Meeting of the Society for the Study of Evolution, Ottawa, Ontario, Canada
"Modeling the selective pressures that alter allometry"
Dreyer AP, Swanson EM, Shingleton AW (Oral Presentation)

2012 Annual Meeting of Drosophila Research Conference, Chicago, IL
"Modeling allometry using lessons from *Drosophila*"
Dreyer AP, Swanson EM, Shingleton AW (Poster Presentation)

2010 Annual Meeting of Society for the Study of Evolution, Portland, OR
"Male Genitalia of *Drosophila melanogaster*: Canalized but developmentally instable"
Dreyer AP and Shingleton AW (Oral Presentation)

2008 Annual Meeting of the Ecological Society of America, San Jose, CA
"Using Genetic Characterization of a Groundwater Arthropod as a Potential Method to Identify Cross-Gradient Migration Pathways in Aquifers"
Dreyer AP, Sullivan TJ, Peterson J (Poster Presentation)

2007 PEW Undergraduate Research Symposium, Chicago, IL
"Using Genetic Characterization of a Groundwater Arthropod as a Potential Method to Identify Cross-Gradient Migration Pathways in Aquifers"
Dreyer AP, Sullivan TJ, Peterson J (Poster Presentation)

Member American Society of Naturalists
Member Society for Integrative and Comparative Biology
Member Society for the Study of Evolution
Member Genetics Society of America

Academic Service/Outreach

2017 Benedictine University, Invited Seminar
"Time flies when using *Drosophila* to study circadian rhythms"

2016 Loyola University Chicago, Biology Seminar Series
"What's size got to do with it? The evolution of allometries"

2011 - 2015 MSU, Campus Edge Student Organization, Student/Faculty Leadership Team

2013 Michigan State University, Zoology 101: Preview of Zoology Guest Lecture
"Where are you headed?"

2011 - 2013 Michigan State University, College of Natural Science Dean's Student Advisory Council, Co-Chair

2011 - 2012 Michigan State University, College of Natural Science Graduate Director Committee

2012 Michigan State University, Ecology, Evolutionary Biology, and Behavior Student Colloquium Series
"The evolution of allometries"

2011 Hope College, Invited Seminar
"Where will you be this summer? Tips for finding summer science jobs and getting into graduate school"

2010 - 2011 Michigan State University, Department of Zoology Graduate Affairs Committee

2010 Michigan State University, Genetics Forum Seminar
“ Keeping things in proportion: The developmental regulation and evolution of relative organ size”

Popular Press

“Santorum’s stance on global warming ignores “real science” ” Grand Rapids Press, Grand Rapids, MI 28 Feb. 2012. Holland Sentinel, Holland, MI, 29 Feb. 2012. Dreyer J, **Dreyer AP**, Gonthier D, Rodstrom R

Updated 19 September, 2017