

# Rachel Hirschmann Fisher

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## EDUCATION

- Ph.D., Science Education**, University of Arizona, Tucson, AZ May 2016  
Department of Teaching, Learning, and Sociocultural Studies (TLS)  
Dissertation: *Case Studies in Teaching Evolution: The Intersection of Dilemmas in Practice*  
Committee: Sara Tolbert (Chair), Walter Doyle, Karen Seat, David Jackson (University of Georgia)
- Field Study Course on Biodiversity in Costa Rica and Panama** Summer 2010  
Professional Development - Penn State University Sponsored Program for Science Educators
- Teaching Licensure Program**, Marymount University, Arlington, VA May 2008  
Professional Teaching License from the Commonwealth of Virginia  
Certified in Secondary (Grades 6-12) Biology
- Professional Teaching License from Georgia July 2009  
Certified in Secondary (Grades 6-12) Biology
- M.S., Biology**, University of Central Florida (UCF), Orlando, FL May 2003  
Thesis: *An Investigation of Vertical Transmission in the Spread of Disease-associated Herpesviruses in Marine Turtles*  
Chairs: Dr. Llewellyn M. Ehrhart and Dr. Christopher L. Parkinson
- B.S., Natural Resources and Environment**, University of Michigan, Ann Arbor, MI April 1998

## RESEARCH EXPERIENCE

### Science Education Research

- Graduate Research Associate**, University of Arizona, Tucson AZ Fall 2013-Spring 2014  
College of Education, Secondary Science Teaching with English Language and Literacy  
Acquisition (NSF-funded)
- Graduate Research Associate**, University of Arizona, Tucson, AZ Spring 2013  
College of Education, Community Engagement /Youth Leadership through Science Education
- Principal Investigator**, University of Arizona, Tucson, AZ Summer 2013  
Qualitative Research Study – Teacher Experiences in a Professional Development Program on  
Evolution; University of California Museum of Paleontology
- Graduate Research Associate**, University of Arizona, Tucson, AZ Fall 2011-2012  
College of Education, Learning Progressions for Understanding Water Systems (NSF-funded)

### Biological Sciences Research

- Laboratory Technician**, Georgia State University, Atlanta, GA Summer 2009  
Neuroscience Institute; Genetic Factors Leading to Sex Differences in Brain Development

**Research Associate**, University of California San Diego, San Diego, CA 2004-2005  
 Department of Ecology, Behavior, and Evolution; Mammalian Population Genetics

**Laboratory Assistant**, San Diego Zoo, San Diego, CA 2003  
 Virology and Immunology Division

**Graduate Research Assistant**, UCF, Orlando, FL 2002-2003  
 Department of Biology; Marine Turtle Disease Transmission Research

**Graduate Research Assistant**, UCF, Orlando, FL 2000-2002  
 Department of Biology; Marine Turtle Ecology Field Research Program

**Religious Studies Research**

**Graduate Research Associate**, University of Arizona, Tucson, AZ 2013-2016  
 Religious Studies Program, Research on Conservative Evangelicals in American Politics, for publishing project by Professor Karen Seat

**TEACHING AND CURRICULUM DEVELOPMENT**

**iSTEM Guide**, iSTEM Project, University of Arizona, Tucson, AZ 2015-2016  
 Inquiry-based Science Exploration with Underrepresented Youth in Grades 3-8 (NSF-funded)

**Outreach Presenter**, Environmental Education Exchange, Tucson, AZ 2015-2016  
 Water Conservation and Recycling Program Presentations in Elementary Schools

**Instructor**, University of Arizona, Tucson, AZ Fall 2014; 2012  
 College of Education, Science Methods Course for Pre-service Elementary Teachers

**Graduate Teaching Assistant**, University of Arizona, Tucson, AZ Fall 2014  
 Religious Studies Department, Love in World Religions Course

**Graduate Teaching Assistant**, University of Arizona, Tucson, AZ Fall 2013  
 College of Education, Curriculum Issues and Practices in Science Course for Pre-service Secondary Science Teachers

**Graduate Teaching Assistant**, University of Arizona, Tucson, AZ Fall 2013; Fall 2015  
 Religious Studies Department, Women and Christianity Course

**Graduate Teaching Assistant**, University of Arizona, Tucson, AZ Fall 2011  
 College of Education, Science Methods Course for Pre-service Elementary Teachers

**Freelance Writer**, National Geographic, Washington, DC 2010-2011  
 Writer and Editor-Environmental Literacy Guidebook for Teachers

**Teacher**, Shiloh High School, Snellville, GA 2010  
 Biology Teacher

<b>Teacher</b> , Marietta High School (IB World School), Marietta, GA Biology and Environmental Science Teacher	2009-2010
<b>Teacher</b> , Luther Jackson Middle School, Fairfax County, VA Seventh Grade Biology Teacher	2007-2008
<b>Tutor</b> , Northern Virginia Tutoring Service, Inc., Falls Church, VA Tutor for High School and College Students in Science and Study Skills	2006-2008
<b>Curriculum Specialist</b> , Educational Options, Inc., Arlington, VA Science Curriculum Development for Online GED and Homeschool Courses	2006-2007
<b>Nature/Science Specialist</b> , Jewish Community Center Summer Camp, Annandale, VA Kindergarten-Third Grade Nature Classes	Summer 2006
<b>Adjunct Instructor</b> , Northern Virginia Community College, Annandale/ Alexandria, VA Department of Biology and Natural Sciences; Introductory Biology Courses	2005
<b>Graduate Teaching Assistant</b> , University of Central Florida (UCF), Orlando, FL Department of Biology; General Biology Laboratory Courses	2000-2002
<b>Marine Biology Educator</b> , Sarasota Bay Explorers, Sarasota, FL Marine Biology Education Boat Excursions	1999-2000

## PUBLICATIONS

- Fisher, R.** (in preparation). Case studies in teaching evolution: The intersection of dilemmas in practice. *Science Education*. Expected submission date: August 1, 2016.
- Fisher, R.** (2010). Health concerns for people and wildlife. In L. Mohan (Ed.), *One ocean: A guide to teaching the ocean in grades 3 to 8* (pp. 88-103). Washington, DC: National Geographic Society.
- Hirsch, E., **Fisher, R.**, & Marrero, M. (2010). Reduction in ocean biodiversity. In L. Mohan (Ed.), *One ocean: A guide to teaching the ocean in grades 3 to 8* (pp. 64-87). Washington, DC: National Geographic Society.
- Hoekstra, H., **Hirschmann, R.**, Bunday, R., Insel, P. & Crossland, J. (2006). A single amino acid mutation contributes to adaptive color pattern in beach mice. *Science*, 313, 101-104.
- Mullen, L., **Hirschmann, R.**, Prince, K., Glenn, T., Dewey, M. & Hoekstra, H. (2005). Sixty polymorphic microsatellite markers for the old field mouse developed in *Peromyscus polionotus* and *P. maniculatus*. *Molecular Ecology Notes*, 6, 36-40.

## SCHOLARLY PRESENTATIONS

- Fisher, R.** (2016). Case studies in teaching evolution: The intersection of dilemmas in practice. Paper presented at the 29<sup>th</sup> Annual TLS Graduate Student Colloquy, Tucson, AZ.

**Fisher, R.** (2015). Case studies in teaching evolution: The intersection of dilemmas in practice. Paper presented at the 2015 Annual Meeting of the National Association of Biology Teachers (NABT), Biology Education Research Symposium, Providence, RI.

Stoddart, T., Tolbert, S., & **Fisher, R.** (2015). Linguistically diverse learners and STEM practices. Paper presented at the 2015 Annual Conference of the National Association for Research in Science Teaching (NARST), Chicago, IL.

**Fisher, R.** (2013). Teacher experiences in a professional development program on evolution. Paper presented at the TLS Graduate Student Colloquy, Tucson, AZ.

**Hirschmann, R.**, Klein, P., Herbst, L., Ehrhart, L., & Parkinson, C. (2002). An investigation of vertical transmission in the role of the fibropapillomatosis-associated herpesvirus in marine turtles. Poster presented at the Florida Keys Sea Turtle Symposium, Marathon, FL.

Maharaj, A., **Hirschmann, R.**, & Ehrhart, L. (2001). Nesting frequency and hatching success of the Leatherback Turtle in Central and South Brevard County, Florida. Poster presented at the 21st Annual Symposium on Sea Turtle Conservation and Biology, Philadelphia, PA.

### INVITED TALKS

2015 – Invited Presenter – *The Importance of Evolution in K-8 Classrooms*. Teaching Science in Elementary School Course, University of Arizona, Tucson, AZ

2014 – Invited Presenter – *Case Studies in Teaching Evolution: The Intersection of Dilemmas in Practice*. Love in World Religions Course, University of Arizona, Tucson, AZ

2014 – Invited Presenter - *Mechanisms of Evolution*. Evo 101 – A Workshop for Educators, The National Evolutionary Synthesis Center (NESCent), Raleigh, NC

2014 – Invited Presenter – *The Challenges of Teaching Evolution*. Evo 101 – A Workshop for Educators, The National Evolutionary Synthesis Center (NESCent), Raleigh, NC

2014 – Invited Discussion Leader – *The Next Generation Science Standards and Evolution*. Evo 101 – A Workshop for Educators, The National Evolutionary Synthesis Center (NESCent), Raleigh, NC

2014 – Invited Discussion Leader for *No Dinosaurs in Heaven* film showing – Secular Student Alliance Meeting, University of Arizona, Tucson, AZ

2013 – Invited Presenter - *The Ongoing Struggle for Evolution in Schools: Past, Present, and Future*. Secular Student Alliance Meeting, University of Arizona, Tucson, AZ

### GRANTS AND FELLOWSHIPS

**2016** – P.E.O. Special Projects Award - \$250

**2015** – National Association of Biology Teachers (NABT) Student Travel Award - \$200

**2015**- Teaching, Learning and Sociocultural Studies Department Travel Grant - \$200

**2015** – College of Education Graduate Student Travel Award, University of Arizona - \$450

**2015** – College of Education Graduate Tuition Scholarship, University of Arizona - \$2,298

**2014-2015** – Graduate and Professional Student Council Research Grant, University of Arizona - \$1,631

**2014** – College of Education Graduate Student Travel Award, University of Arizona - \$260  
**2014** – Teaching, Learning and Sociocultural Studies Department Travel Grant - \$500  
**2013** - Graduate and Professional Student Council Travel Grant, University of Arizona - \$500  
**2012** - Erasmus Circle Scholar, University of Arizona, College of Education - \$1,000  
**2011-2014** - Dean’s Fellowship - University of Arizona, College of Education - \$30,000  
**2007** - Delta Epsilon Sigma National Scholastic Honor Society  
**2005** - Howard Hughes Medical Institute Fellowship at George Washington University  
**2002** - Florida Fish and Wildlife Conservation Commission Marine Turtle Grant, with Dr. Christopher Parkinson - “The transmissibility and diversity of marine turtle viruses: Searching for evidence of vertical transmission and novel herpesviruses” - \$31,000  
**2001** - Graduate Teaching Assistantship Enhancement, University of Central Florida - \$1,000  
**2000** - Bernice Barbour Foundation Grant, with Dr. Llewellyn Ehrhart - “Fibropapillomatosis disease: An important aspect of marine turtle biology on Florida’s Indian River Coast” - \$9,500  
**2000** - Graduate Research Enhancement Grant, University of Central Florida - “Investigation of vertical transmission in the spread of disease-associated herpesviruses in marine turtles at the Archie Carr National Wildlife Refuge, Florida” - \$1,000

### **MEMBERSHIP IN PROFESSIONAL SOCIETIES**

- Society for the Study of Evolution (SSE)
- National Association of Biology Teachers (NABT)
- National Association for Research in Science Teaching (NARST)
- American Association for the Advancement of Science (AAAS)

### **SERVICE**

Member/Volunteer – Teacher Institute for Evolutionary Science (TIES)	June 2015-Present
Volunteer – Science of Pi Tent, Science City – Tucson Festival of Books	March 2015
Board Member – Tucson Women in STEM (TWiSTEM)	2014-2015
Volunteer – Graduate Orientation, Graduate and Professional Student Council	August 2014
TLS Department Representative – College of Education Student Government	2014-2016
Volunteer – Humanities, Medicine and Wellness Conference – University of Arizona	February 2014
Presenter – Darwin Day/Careers in Science Event – Baboquivari Middle School	February 2014
Judge – Graduate Student Research Showcase, University of Arizona	2013/2014
NARST - Conference Proposal Reviewer	2013/2014
Travel Grants Judge – Graduate and Professional Student Council	Spring 2013
Science Fair Judge – Tucson High School	February 2013/2014
Reviewer – <i>The American Biology Teacher</i>	2012-Present
Publicity Committee Member– 2013 Graduate Student Colloquy, College of Education	2012-2013
5K Running Buddy – <i>Girls on the Run</i> Tucson	2012-2015
Volunteer Dog Walker – The Humane Society of Southern Arizona	2011-Present