



## Gerald E. Hough

Associate Professor  
Psychology/Biological Sciences

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### Education:

BS (Biology), Purdue University  
PhD (Neuroscience), The Ohio State University  
Postdoctoral (Psychology), Bowling Green State University

### Research Expertise:

Neuroscience | Electrophysiology | Bioacoustics

My research interests are in two major areas: effects of aging on behavior and hippocampal anatomy, and language dialect analysis in songbirds. The increased lifespan of humans causes a concomitant increase in age-related disorders. Therefore, developing animal models for age-related declines in neuroanatomy and learning are key to developing new diagnostic tests and treatments for these progressive disorders. I am using homing pigeons, a model species that is similar to humans in the way it learns about the environment (using 3D visual cues) and in hippocampal neuroanatomy. I am investigating the neural bases of spatial working memory declines seen in older birds as a model for developing new tools to diagnose at risk populations of humans. I also am interested in how the seaside sparrow, an Atlantic saltmarsh songbird, develops song dialects. This species is very sensitive to environmental disruption, which makes them a good indicator species for wetland degradation.

### Honors and Awards:

Elected Fellow, American Ornithologists Union (2015)  
Local Hero Award, American Federation of Teachers New Jersey (2015).

### Member of:

Society for Neuroscience ([www.sfn.org](http://www.sfn.org)); Animal Behavior Society ([www.animalbehaviorsociety.org](http://www.animalbehaviorsociety.org)); American Ornithologists Union ([www.americanornithology.org](http://www.americanornithology.org)); National Association of Biology Teachers ([www.nabt.org](http://www.nabt.org)); Wilson Ornithological Society ([www.wilsonsofn.org](http://www.wilsonsofn.org))

### Recent Academic Projects:

Homing pigeons fail to use spatial memory as they age (project with four undergraduate students resulting in two national conference presentations)

Discovery of geographic variation in song in seaside sparrows (project with three undergraduates resulting in two national conference presentations)

### Recent Publications:

Garrett B, Hough GE (2017) Brain and Behavior: An Introduction to Behavioral Neuroscience. Thousand Oaks CA: Sage Publications.

Coppola VJ, Hough GE, Bingman VP (2014) Age-related spatial working memory deficits in homing pigeons (*Columba livia*). Behav Neurosci. 128:666-675.