

Animal Behavior: Evolution and Genetics

Description: Whether you're a naked mole rat or a snapping shrimp (or a human), your behavior is ultimately shaped by evolution and encoded in your genes. Topics in this class include evolutionary theories of behavior, behavioral genetics, social behavior, game theory, and communication. In addition, you will learn to critically read papers in animal behavior and genetics.



Zebra Finches (from Max Planck Gesellschaft)

Course Meetings: Room 56-154, 2:30-3:30 pm

Instructor: Alexandra (Lexi) Ding, graduated from Harvard College in May 2017 with a degree in Neurobiology and minor in Statistics. Former HSSP student (2007-2013). Will be working in D.C. in the Fall as a data scientist.

Contact Information: alexawding@gmail.com *Please feel free to contact with any questions!*

Lectures [6 weeks]

1. Introduction – The Study of Behavior

History of the study of behavior, Nature vs. Nurture, evaluating behavioral experiments

2. Innate Behaviors and Sensory Systems

Imprinting, Fixed Action Patterns, Sensation

3. Learning and Conditioning

Operant and Classical Conditioning, Introductory Neuroscience

4. Sibling Rivalry and Parent-Offspring Conflict + Game Theory

Hamilton's Rule, Game Theory, examples from human genetics

5. Eusociality, Sexual Selection and Mating Conflict

More game theory, examples from birds and mammals

6. Genetics of Neurological Disease + Modern Genetic Methods

High-throughput sequencing, Intermediate Genetics