Maintenance of Phenotypic Polymorphism and a Scientist Spotlight Featuring Dr. Swanne Gordon – Instructor Guide

**Author**

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**Course Information**

*Department/Program:* Biosciences (general lower division biology courses for many departments/majors)

*Level*: introductory undergraduate

*Course type:* lecture

*Delivery mode:* live or online

*Students:* lower division biology majors

*Number of students:* 1200

**Expected date or dates of implementation**

Fall 2021

**Purpose/Background**

This lesson takes place as students are learning about types of natural selection. Here they to interpret graphical evidence of frequency-dependent selection in the wood tiger moth, and make long-term predictions about the evolutionary trajectory of moth populations. Then they read more about researcher Dr. Swanne Gordon and her personal background.

# Objectives

**Quantitative learning objective**

1. Interpret bar plots representing data on evolutionary fitness in multiple experimental populations
2. Reconcile data on single-generation fitness with long-term predictions about a population’s evolution

**Content learning objective**

1. Use data to identify the type(s) of selection that might be occurring in a natural system.
2. Contrast different types of data that can be gathered in an experimental evolution study

**Social justice learning objectives**

1. Increase students’ potential vision of future self as a scientist
2. Increase students’ relatability to scientists

# Assessments

|  |  |
| --- | --- |
| Objective(s) | Briefly describe assessment. Is it formative, summative? |
| Q1, Q2, C1, C2 | Homework worksheet (summative) |
| SJ1, SJ2 | Interview reading and reflection essay (formative) |

# Activities and resources

|  |  |
| --- | --- |
| Objective(s) | Activity/Resource |
| Q1, Q2, C1, C2 | This competency is practiced during this module in every lecture session with clicker questions, then with the homework worksheet in which they review the figure and respond to the content prompts |
| SJ1, SJ2 | Students complete a reflective essay about the spotlighted scientists. Students will complete 3+ spotlights throughout the quarter |

# Prerequisite skills or knowledge

Students will have learned about the basic principles of natural selection, and will have looked at data figures related to types of natural selection, sexual selection, and evolutionary fitness.

# Lesson sequence

1. This is a single homework assignment that takes place during the week in which sexual selection is introduced.