BIOLOGY 301 (N=300)

SCIENCE (SENIOR)

BIG IDEA

The diversity of life is the result of ongoing evolutionary change.

PROGRAM LEVEL OUTCOME/GOAL

Use evolution principles to rationalize why and how certain traits and characteristics exist in diverse plant and animal species.

COMPONENTS

- Readings
- Lecture
- Discussion
- Labs
- Assignments (data analysis, lab report, discussion papers)
- Short answer questions (250 words)

LEARNING OUTCOMES FOR THE COURSE

- Predict and interpret the results of simple simulations that manipulate population size and starting allele frequencies.
- Evaluate when each species concept is most appropriate.

ASSESSMENT

Assignment

- Find an article which explains the population size of a species using a controlled experiment. (Species can be students' choice). Describe why you feel the conclusions drawn are valid or invalid.

Assignment

- Analyze a dataset to identify patterns in phenotypic trait variation. Propose an explanation for why additive genetic variation is a key component of patterns seen in the data.

Assignment

- Write a lab report describing the results of a simple simulation that was run during a lab (with a TA) manipulating the population size of a species of choice.

Exam questions

- Short answer questions asking students to support or critique examples of species concepts.

LEARNING ACTIVITIES

- Pre-readings
  - 2 to 3 journal articles a week
- Tutorial
  - Each week students (in groups of about 24) have a one hour tutorial where they either 'work with data' or discuss a published paper that is relevant to population trends
- Lecture
- In-class activity
  - Use analysis results to make an argument for why certain traits exist