151H: Honors Introductory Biology II

April Wright

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Office Hours: M 9:15-11:15am, W 9:15-11:15am, Th 1-4pm and by appointment Class Hours: M/W 8-9:15pm
Office: Biology Building 403

Course Description

This course will introduce you to the fundamental evolutionary and ecological principles that underly life on Earth, as well as to the major groups of organisms we see. This course will be taught in a code-to-learn framework, with data skills and quantitative thinking emphasized throughout.

Required Materials

- Course notes available on Moodle.

Course Objectives

Successful students:

1. Explain how variation among organisms leads to evolution
2. Understand core concepts in how favorable traits are passed from generation to generation
3. Use ecological theory to understand where we find organisms and why
4. Know features of the major groups of animal, plant, bacterial, and archean life

Course Structure

Assessments

There will be three exams, each worth 100 points. The final will be worth 100 points.

Lecture

Each lecture day will have a small activity to be turned in, worth 2 points.

Homework

Each week, there will be a homework due at 5 pm Friday worth 10 points. Each homework will be worth ten points. Because these are posted a week in advance, and cover the prior week's material, these cannot be made up without speaking to me first.

Grading Policy

The typical Southeastern biology grading scale will be used. I reserve the right to curve the scale dependent on overall class scores at the end of the semester. Any curve will only ever make it easier to obtain a certain letter grade.

Schedule and weekly learning goals

The schedule is tentative and subject to change. The learning goals below should be viewed as the key concepts you should grasp after each week

Week 01, 01/20 - 01/24: Set-Up

- Course Policies
- Starting R

Week 02, 01/27 - 01/31: Variation

- How do individuals differ from one another?
- What causes differentiation?
- Punnett Squares and heritability

Week 03, 02/03 - 02/07: Natural Selection

- How does natural selection act on variation?
- How can we predict which alleles will be favorable at variation?

Week 04, 02/10 - 02/14: Other types of evolution

- How does sexual selection reduce variation?
- What is a bottleneck?

Week 05, 02/17 - 02/21: Exam 1

- Exam One Monday the 17th

Week 06, 02/24 - 02/28: Mardi Gras

Week 07, 03/02 - 03/06: Principles of Ecology

- Where do nutrients come from?
- How does geology interact with the environment?

Week 08, 03/09 - 03/13: Principles of Organisms

- What is a food web, and who ends up on top?
- What factors predict food web stability?

Week 09, 03/16 - 03/20: Humans and the Environment

- How are humans changing the atmosphere?
- How are humans changing the land and oceans?

Week 10, 03/23 - 03/27: Exam 2

- Exam 2 Monday

Week 11, 03/30 - 04/03: Phylogeny

- How do you read a phylogeny?
- What does a phylogeny tell you?

Week 12, 04/06 - 04/10: Animal Diversity

- Invertebrates

Week 13, 04/13 - 04/17: Break

Week 14, 04/20 - 04/24: Animal Diversity

- Vertebrates

Week 15, 04/27 - 05/01: Bacteria & Archaea

Week 16, 05/04 - 05/08: Exam 3 Monday 4

May 14, 8 am, 05/11 - 05/15: Final Exam