****

College of Natural & Applied Sciences

**DIVISION OF NATURAL SCIENCES**

**BI310-01 Evolution**

**SYLLABUS**

**Fanomnakan, 2023**

**CLASS MEETING TIMES:** MW: 8-9:20 AM in Sc. 100

**INSTRUCTOR**

Katharine Lofdahl

Office: Science Building, Rm. 107

Phone: 735-2786 (office) or 482-7329 (cell)

E-mail: klofdahl@triton.uog.edu

Office Hours: MW 11-12:30 PM, TuTh 9:30-11 AM

**CATALOG DESCRIPTION**

This course is an introduction to the modern theory of evolution. The focus of the course is on the mechanisms that cause the evolution of adaptations and new species. The pattern of evolution in the fossil record is analyzed to understand the causes of speciation. and extinction patterns. The ability of evolutionary theory to inform studies in other areas of biology (such as genetics, morphology, and ecology) is stressed. The course consists of three hours of lecture weekly. Prerequisites: BI157/157L, BI158/L, and BI315/L.

**Required Textbook**:

**Evolution (4th ed., 2017 or 5th ed., 2022) by D. Futuyma and M. Kirkpatrick, Sinauer Associates (Note: Sinauer Associates is now part of Oxford University Press)**

**BI 310**

**Student Learning Outcomes (SLOs)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Course SLOs** | **Program SLOs (PLOs)** | **University SLOs (ILOs)** | **Assessment Method** |
| **1. Define the differences between the theory of evolution by natural selection and alternative explanations.** | **PLO 1 (a, b, c, & d)**  **PLO 3**  **PLO 5**  **PLO 7** | **ILO 1**  **ILO 2**  **ILO 3**  **ILO 5** | **Exams, problem-solving** |
| **2. Calculate the divergence times of species using a molecular clock.** | **PLO 1ª**  **PLO 1b**  **PLO 2**  **PLO 3**  **PLO 5**  **PLO 6** | **ILO 1**  **ILO 2** | **Exams, problem-solving** |
| **3. Differentiate between the concepts of environmental modification, adaptation, and pre-adaptation.** | **PLO 1** | **ILO 1**  **ILO 3** | **Exams, problem-solving** |
| **4. Construct a phylogeny using the methods of phylogenetic systematics.** | **PLO 1ª**  **PLO 1b**  **PLO 3**  **PLO 5**  **PLO 6** | **ILO 1**  **ILO 2** | **Exams, problem-solving** |
| **5. Calculate the relative influences of individual genetic differences and environmental influences on the phenotypes in a population sample.** | **PLO 1ª**  **PLO 1b**  **PLO 1d** | **ILO 1**  **ILO 3** | **Exams, problem-solving** |
| **6. Write a critique of a brief scientific paper, e.g., from *Nature* e.g., Are the methods appropriate for the hypothesis or research question? Do the data support the hypothesis? What are the key and hidden assumptions, conflicting viewpoints?** | **PLO 1**  **PLO 3**  **PLO 5**  **PLO 6**  **PLO 7** | **ILO 1**  **ILO 2**  **ILO 3**  **ILO 5** | **Exams, paper** |

**FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT (FERPA):**

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. These rights for students, parents and school officials can be viewed at: [**http://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html**](http://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html)

**SPECIAL ACCOMMODATIONS (ADA):**

**If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact the Disability Support Services office to discuss your specific accommodation needs confidentially. You will need to provide me with a Faculty Notification letter from the DSS counselor. If you are not registered, you should do so immediately at the Student Center, Rotunda office #6, ph/TTY: 671-735-2460, or** [**uogdss@triton.uog.edu**](mailto:uogdss@triton.uog.edu) **to coordinate your accommodation request.**

**To schedule an appointment on BOOK IT;** [**https://sssablan.youcanbook.me**](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fsssablan.youcanbook.me%2F&data=04%7C01%7Cklofdahl%40triton.uog.edu%7C781632f24b9c43ef822408d9d7e5f7db%7C2a652fdf10c34e4f9e94369090abfd04%7C0%7C0%7C637778204972082852%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=lU9lhZzPvG5aTMqf4usqkw7wWrTTo7%2Bgo5xSHY9y7Dc%3D&reserved=0)

**Office: Student Center Rotunda Office #6**

**Office Hours: Monday/Wednesday 9:00–noon and 1:00–3:30; Friday by appointment only**

**Office Phone Number/TTY: 671-735-2460**

**Email address: sssablan@triton.uog.edu**

**ACADEMIC DISHONESTY**

Professional and ethical conduct is expected at all times. Unethical conduct includes any form of cheating, including plagiarism. The term “**cheating**” includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests, or examinations, e.g., looking at other students’ answers, using crib notes (including electronic), getting information from another person via any kind of communication; (2) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; or (3) the acquisition, without permission, of tests or other academic material belonging to a member of the University faculty or staff. If you need to use an electronic translator, you must discuss this with me in advance. All assignments and tests must be your own work. Answers you write on the tests must come only from in your head or the information supplied in the test papers; anything else is cheating. Any evidence of cheating will result in a “0” for that assignments and/or exam or possibly an “F” for the entire course – final decision to be determined by me, the course instructor.

**TOBACCO-FREE/VAPING-FREE CAMPUS**

UOG is a tobacco-free campus. Thank you for not using tobacco products on campus, and for helping make UOG a healthy learning and living environment. For more information visit: <http://www.uog.edu/smoke-free-uog>

**Recording Class Sessions:**

**Only the instructor may record class sessions. Unauthorized recording of online class meetings is not allowed, to include screen shots that include identifiable information of any person in the session. Not only is the delivery of course content the intellectual property of the instructor, but students enrolled in the course have privacy rights.**

**GRADING SYSTEM/EVALUATION METHODOLOGIES**

**Grades will be determined by 5 exams, each weighted equally in calculating your grade.**

**Grading Scale: 98-100 = A+**

**93-97 = A**

**90-92 = A-**

**87-89 = B+**

**83-86 = B**

**80-82 = B-**

**77-79 = C+**

**70-76 = C**

**60-69 = D**

**< 60 = F**

**Attendance Policy: Attendance for lectures is not required, but I highly recommend it! Remember this is very complex material. Attendance is required for all exams.**

**COURSE TOPIC/EXAM SCHEDULE**

**Date/Week # Topic (Chapter)**

**Week 1 (Jan. 18) Chapter 1: Evolutionary Biology**

**Week 2 (Jan. 22-25) Chapter 2: The Tree of Life**

**Week 3 (Jan. 30-Feb. 1) Chapter 3: Natural Selection and Adaptation**

**Week 4 (Feb. 6-8) Chapter 4: Mutation and Variation & Exam 1**

**Week 5 (Feb. 13-15) Chapter 5: The Genetical Theory of Natural Selection**

**Week 6 (Feb. 20-22) Chapter 6: Phenotypic Evolution**

**Week 7 (Feb. 27-Mar. 1) Chapter 7: Genetic Drift & Exam 2**

**Week 8 (Mar. 6) Holiday (no classes)**

**Week 8 (Mar 8) Chapter 8: Evolution in Space**

**Week 9 (Mar. 13-15) Chapter 9: Species and Speciation**

**Week 10 (Mar. 20-25) Spring Break (no classes)**

**Week 11 (Mar. 27-29) Exam Review & Exam 3**

**Week 12 (Apr. 3-5) Chapter 16: Phylogeny**

**Week 13 (Apr. 10-12) Chapter 17: The History of LIfe**

**Week 14 (Apr. 17-19) Exam Review & Exam 4**

**Week 15 (April 24-26) Chapter 20: Macroevolution**

**Week 16 (May 1-3) Chapter 21: The Evolutionary Story of Homo sapiens**

**Week 17 (May 8-10) Chapter 21 (cont.) & Exam 5 Review**

**Finals Week (May 15-17) Exam 5**

**Each exam will cover approximately 2-3 chapters.**