

Course Title: BIO 181 Unity Of Life I: Life Of The Cell

Term: Fall 2022

Instructor: TBA

Course Credit: 3

Mode of Instruction: Online

Course Description:

This course is an introductory course required for all biological sciences majors, but it is also useful for gaining basic biological literacy and for those pursuing careers in human and veterinary medicine, psychiatry, agriculture, forestry, microbiology, conservation, ecology, paleontology, environmental science, law, political science, and even cooking, cheese making, and brewing of alcohol. In this class, we will learn the major groups of animals, fungi, plants, protists, algae, and bacteria; their basic characteristics; and how biologists study these organisms to understand their rich evolutionary history, ecological interactions, amazing adaptations, and relevance to humans and other species. In particular, you will practice learning how to view the world and to think like an organismal biologist. .

Course Prerequisites:

N/ A

Learning Outcomes:

By the end of the course, the student should be able to:

- A. Explain principles of organismal biology and apply knowledge of mathematics to biological principles.
- B. Design and conduct biological experiments, and analyze and interpret biological data.
- C. Make connections and identify patterns in biological problems.
- D. Communicate effectively using appropriate scientific language in class settings.

Course Material:

Freeman, S. 2011. *Biological Science*. 4th Edition. Pearson Benjamin Cummings, San Francisco.

Evaluation:

- Laboratories [40%]
- Mid-term Exam [25%]
- Final Exam [35%]

Description of the Evaluation tasks:

Laboratories: During the term, students will be required to finish several evaluation tasks within due date. All the tasks are linked with specific course topics/outcomes and will adequately assess students' competence and learning outcomes. Students are encouraged to meet with instructor about these tasks at any point.

Mid-term/ Final Exams: There may be periodic quizzes given at the beginning of lecture sessions; the feedback from these quizzes will monitor the progress of the learners and help to set learning priorities. There will be mid-term exam/ final exam for the course. They are the basic criteria for the evaluation of students' learning outcomes and final grade.

Grading Policy:

Students are supposed to finish each online lecture. Prior to each class, students should finish the required readings. During the class time, students are encouraged to make use of all relevant online course resources and communicate with the instructor. Students' grades are accumulated based on the cumulative evaluations.

Students' letter grade will be assigned according to the following scale:

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|------------|---------|----------|
| A+ 90- 100 | A 85-89 | A- 80-84 |
| B+ 77-79 | B 73-76 | B- 70-72 |
| C+ 67-69 | C 63-66 | C- 60-62 |
| D+ 57-59 | D 53-56 | D- 50-52 |
| F < 50 | | |

Academic Integrity:

Students must strictly adhere to the university's academic integrity rule; and all essays, exams and any other form of academic assignments must adhere to these rules. Any form of plagiarism, cheating, or misappropriation of materials will be considered a violation of academic integrity and will be punishable by the university.

Withdrawal from the Course(s) :

Students will be able to apply for a transfer or withdrawal within 3 days of the starting date of the course. If a withdrawal is applied for within 3 working days, the tuition fee will be fully refunded. After 3 days, the tuition fee will not be refunded. If a withdrawal is applied for in the first two weeks, it will be recorded as W (Withdraw) on the course transcript. After this initial two- week period, the class will be recorded as F (Fail) .

Tentative Schedule:

| Week 1 | |
|---------------|---------------------------------------|
| 1 | Course Overview |
| 2 | Phylogenetic Trees |
| 3 | Beginnings of Life on Earth |
| 4 | Plant and Fungal Colonization of Land |
| 5 | Animal Evolution Lab 1 |

Week 2

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| 6 | Mass Extinctions & Climate Variability |
| 7 | Modern Tree of Life: Bacteria & Archaea |
| 8 | Modern Tree of Life: Eukaryotes Lab 2 |
| 9 | Intro to Reproduction and Development |
| 10 | Plant Reproduction |

Week 3

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| 11 | Plant Development |
| 12 | Animal & Human Reproduction |
| 13 | Animal Development |
| 14 | Mid- term Exam |
| 15 | Intro to Chemical Signaling and Signal Transduction |

Week 4

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| 16 | Plant Hormones |
| 17 | Neurons and Nervous Systems |
| 18 | Sensory Systems Lab 3 |
| 19 | Effectors & Movement |
| 20 | Nutritional Adaptations & Needs |

Week 5

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|----|-----------------------------------|
| 21 | Plant Transport Processes |
| 22 | Animal Gas Exchange and Transport |
| 23 | Animal Hormones Lab 4 |
| 24 | Final Exam Reviews |
| 25 | Final Exam |