BIO 166. Principles of Biology: Cells and Genes

Instructor: Insert name here
Office Hours: Insert hours here.
Office Location: Insert office number here.
Contact: Insert office telephone number and email address here.

BIO 166. Principles of Biology. 6 hours (3 hours lecture, 3 hours lab), 4 credits.
Introduction to the principles of biology governing the unity and diversity of living organisms, with special emphasis on molecular, subcellular, and cellular levels of organization in plants and animals including their genetics and evolution. Laboratory exercises consist of experimental procedures illustrating basic concepts of biology.

No course prerequisites.

This course is a degree program requirement for the Major and the Minor in Biology.

Academic Objectives:
Through lectures, text readings, primary literature reviews, instructor-lead discussions, presentations, laboratory exercises and laboratory reports, students will achieve the following:

- a holistic grasp of the scientific paradigm covering the unity and diversity of living organisms at the molecular, subcellular, and cellular level with an emphasis on plants and animals, their genetics and their evolution.
- the ability to apply fundamental scientific principles to reasoning.
- an ability to understand, formulate and test a falsifiable hypothesis.
- the development of oral and written communication skills showcasing the acquisition, understanding and development of scientific literacy.
- the ability to gather and analyze data, produce graphs and tables to convey results, and to reach sensible conclusions reflecting experimental outcomes.
- the skills necessary to conduct literature research from library and internet sources and how to distinguish valid online sources from those which are not valid.
- the knowledge of protocol requisite for writing up laboratory reports and papers including correct layout, content, citations and a reference page.
- the ability to synthesize, apply and condense course materials in preparation for quizzes and examinations.

Required Readings*:

*For additional reading(s), see course instructor.
Grading Policy:
The semester grade will be assessed as follows*:
75% of semester grade will be based on lecture quizzes, two semester examinations and a final exam**.
25% of semester grade will be based on laboratory performance and weekly reports.
*See course instructor for individual point breakdown for quizzes, exams, and lab components.
**A compulsory final exam is administered during finals week at the end of the semester.

Grading Scale:
A (100-93), A- (92-90), B+ (89-87), B (86-83), B- (82-80), C+ (79-77), C (76-73), C- (72-70), D+ (69-67), D (66-60), F (59 and below).
See course instructor for, classroom policy and academic integrity statement.
Attendance is required

Lecture Schedule*:
Week 1 date Introduction to biology; Basic chemistry Chapters 1-2
Week 2 date Chemistry con’t; Molecules Chapters 2-3
Week 3 date Cells and organelles Chapter 4
Week 4 date Cell functions; Review Chapter 5
Week 5 date First Exam Chapters 1-5
Week 6 date Respiration; Photosynthesis Chapters 6-7
Week 7 date Photosynthesis con’t; Mitosis and meiosis Chapters 7-8
Week 8 date Genetic Inheritance Chapter 9
Week 9 date Molecular genetics; Review Chapter 10
Week 10 date Second Exam Chapters 6-10
Week 11 date Gene expression Chapter 11
Week 12 date Molecular technology Chapter 12
Week 13 date Evolution Chapter 13
Week 14 date Speciation Chapter 14
Week 15 date Earth history Chapter 15
Week 16 T.B.A. Final Exam
*n.b. Dates subject to change at instructor’s discretion.