

COURSE SYLLABUS

YEAR COURSE OFFERED: **2015**

SEMESTER COURSE OFFERED: **SPRING**

DEPARTMENT: **BIOLOGY**

COURSE NUMBER: **1107**

NAME OF COURSE: **BIOLOGY II Laboratory**

NAME OF INSTRUCTOR: **TBD**

The information contained in this class syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.

Learning Objectives

Upon successful completion of this course, students will be able to

1. Demonstrate mastery of the fundamental concepts of evolutionary biology: theory, mechanisms, speciation and classification
2. Explain the molecular activity involved with DNA structure and function and its role in inheritance patterns
3. Understand and define the role of mitosis and meiosis in genetics
4. Relate ecological principles of populations, communities and ecosystems to the conservation of biodiversity
5. Work with peers to apply content knowledge in problem solving
6. Effectively communicate solutions and reasoning to classmates and course instructor

Core Objectives (CO)

General Biology II Laboratory addresses the following core objectives to ensure students develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, and in their lives.

- Critical Thinking Skills - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- Communication Skills - to include effective development, interpretation and expression of ideas through written, oral and visual communication
- Empirical and Quantitative Skills - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- Team Work - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

COURSE SYLLABUS

Major Assignments/Exams

The course components below are designed to meet the course objectives.

- **Quizzes:** pre-laboratory quizzes will be given prior to each experiment during the semester; questions will be multiple choice, short answer or essay and will cover material important to understanding the laboratory exercises
- **Laboratory reports:** written summaries of each laboratory exercise, including the objectives, hypotheses, experimental design, methods, data collected, analysis of results, and discussion/conclusion

Learning Outcomes	CO	Assessment Methods	Criteria/Targets
1. Demonstrate mastery of the fundamental concepts of evolutionary biology: theory, mechanisms, speciation and classification.	CT, EQS, COM, TW	Pre-lab quizzes and post-lab analysis and reports	≥70% of students will correctly answer >70% of the questions on the pre-lab quizzes; ≥70% of students will correctly analyze and interpret results of lab experiments.
2. Explain the molecular activity involved with DNA structure and function and its role in inheritance patterns.	CT, EQS, COM, TW	Pre-lab quizzes and post-lab analysis and reports	≥70% of students will correctly answer >70% of the questions on the pre-lab quizzes; ≥70% of students will correctly analyze and interpret results of lab experiments.
3. Understand and define the role of mitosis and meiosis in genetics.	CT, EQS, COM, TW	Pre-lab quizzes and post-lab analysis and reports	≥70% of students will correctly answer >70% of the questions on the pre-lab quizzes; ≥70% of students will correctly analyze and interpret results of lab experiments.
4. Relate ecological principles of populations, communities and ecosystems to the conservation of biodiversity.	CT, EQS, COM, TW	Pre-lab quizzes and post-lab analysis and reports	≥70% of students will correctly answer >70% of the questions on the pre-lab quizzes; ≥70% of students will correctly analyze and interpret

COURSE SYLLABUS

			results of lab experiments.
5. Work with peers to apply content knowledge in problem solving.	EQS, TW	Laboratory experiments are performed in assigned groups with each group member responsible for a key role	≥75% of students will participate and provide key components to each lab exercise of the group.
6. Effectively communicate solutions and reasoning to classmates and course instructor.	COM	Peer assessment of laboratory exercises and analyses	≥75% of students will complete and present lab reports on each experiment.

Required Reading

Laboratory manual TBD (e.g., Perry JW, Morton D and Perry JB. 2009. *Laboratory manual for majors general biology*. Brooks/Cole)

Recommended Reading

N/A

List of discussion/lecture topics

- Lab orientation and the microscope
- Cell division: mitosis and meiosis
- Genetics concepts; human genetics
- Transformation of bacteria and genetic engineering
- Microevolution
- Diversity of life: microorganisms
- Diversity of life: phylum Chordata
- Vertebrate internal anatomy and adaptations
- Ecology
- Ecosystems and communities