

# COURSE SYLLABUS

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**YEAR COURSE OFFERED:**

**SEMESTER COURSE OFFERED:**

**DEPARTMENT:** BIOLOGY

**COURSE NUMBER:** 1109

**NAME OF COURSE:** Biology for Non-Science Majors II Laboratory

**NAME OF INSTRUCTOR:** TBD

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**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.**

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## **Learning Objectives**

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

1. Identify parts of a DNA molecule, and describe replication, transcription, and translation.
2. Describe basic animal physiology and homeostasis as maintained by organ systems.
3. Interpret results from cell physiology experiments involving movement across membranes, enzymes, photosynthesis, and cellular respiration.
4. Apply genetic principles to predict the outcome of genetic crosses and statistically analyze results.
5. Describe karyotyping, pedigrees, and biotechnology and provide an example of the uses of each.

## **Core Objectives (CO)**

General Biology I 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.

## **Major Assignments/Exams**

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

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- **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

## Required Reading

Laboratory manual TBD (e.g., Perry JW, Morton D and Perry JB. 2013. *Laboratory manual for non-majors biology*. Cengage)

<b>Learning Outcomes</b>	<b>CO</b>	<b>Assessment Methods</b>	<b>Criteria/Targets</b>
1. Identify parts of a DNA molecule, and describe replication, transcription, and translation.	CT COM	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. Interpret results from cell physiology experiments involving movement across membranes, enzymes, photosynthesis, and cellular respiration.	CT COM	Peer assessment of laboratory exercises and analyses	≥75% of students will complete and present lab reports on specified experiments.
3. Apply genetic principles to predict the outcome of genetic crosses and statistically analyze results.	CT EQS	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. Interpret results from cell physiology experiments involving movement across membranes, enzymes, photosynthesis, and cellular respiration.	COM 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.

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5. Describe karyotyping, pedigrees, and biotechnology and provide an example of the uses of each.	COM CT	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.
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## Recommended Reading

N/A

## List of discussion/lecture topics

- DNA as genetic material
- Central dogma and genetic expression
- Basic plant and animal physiology
- Structure and function of organ systems
- Comparative physiology of metabolism, respiration, and photosynthesis
- Genetic crosses and extensions of Mendelian genetics
- Statistical genetics
- Methods of biotechnology