

# COURSE SYLLABUS

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**YEAR COURSE OFFERED:**                   **2014**

**SEMESTER COURSE OFFERED:**           **FALL**

**DEPARTMENT:**                           **BIOLOGY**

**COURSE NUMBER:**                       **1106**

**NAME OF COURSE:**                       **BIOLOGY I 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. Demonstrate mastery of the fundamental chemistry of biologically important molecules
2. Relate cell structures to biological function and describe their role in metabolism
3. Recognize the commonalities between organ systems of diverse animal species
4. Work with peers to apply content knowledge in problem solving
5. Effectively communicate solutions and reasoning to classmates and course instructor

## **Core Objectives (CO)**

General Biology I 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.

## **Major Assignments/Exams**

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

# COURSE SYLLABUS

- **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. 2009. *Laboratory manual for majors general biology*. Brooks/Cole)

<b>Learning Outcomes</b>	<b>CO</b>	<b>Assessment Methods</b>	<b>Criteria/Targets</b>
1. Demonstrate mastery of the fundamental chemistry of biologically important molecules.	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; <sup>3</sup> 70% of students will correctly analyze and interpret results of lab experiments.
2. Relate cell structures to biological function and describe their role in metabolism.	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. Recognize the commonalities between organ systems of diverse animal species.	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. Work with peers to apply content knowledge in problem solving.	EQS, TW	Laboratory experiments are performed in assigned groups with each group member responsible	≥75% of students will participate and provide key components to each lab exercise of the

# COURSE SYLLABUS

		for a key role	group.
5. 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.

## **Recommended Reading**

N/A

## **List of discussion/lecture topics**

- Lab orientation, scientific method, experimental design
- Basic chemistry, pH, buffers
- Organic molecules; osmosis and diffusion
- The microscope
- Cell structure
- Respiration and fermentation; spectrophotometry
- Photosynthesis
- Animal tissues; photoreception
- Sensations, reflexes and reactions
- Muscle contraction
- Physiology of circulation
- Urinary and reproductive systems