Cornell Prison Education Program

*Essentials of Biology - BioG 1130*

*Co-instructors: Erin Larson and Michelle Wong*

*TA: Nathan Barr*

*Fall 2016*

*3 Credit Hours*

# COURSE DESCRIPTION AND PHILOSOPHY

## The BioG 1130 course is designed to widely survey topics in the field of biology and to train students in the scientific method. Weekly meetings will be structured as an open forum for discussion, development of scientific skills, and clarification of biological concepts.

**COURSE OBJECTIVES**

By the end of this course students will…

1. *Understand the science of biology and remember key concepts and relationships.*
2. *Have an appreciation of science as a process of inquiry, devoted to approaching problems presented by the natural world in an objective manner.*
3. *Possess scientific investigative skills through laboratory activities, exercises and experiments.*
4. *Retain factual knowledge, useful in building a common pool of scientific background for additional courses in science or biology.*
5. *Be interested in other scientific phenomena and know how to interpret the biological significance of new information and ideas acquired in the future in both their academic and personal life.*

**METHODS:**

*Lecture discussion format with interactive activities. Lecture time will be less than 30% of class time, with small group and one-on-one activities constituting the remaining class time, including discussions about readings, pre-lecture assignments and problem sets, and opportunities to seek assistance from the instructors and teaching assistant. Supplemental tutorial media in the form of handouts and videos will be incorporated into the course.*

**COURSE TEXTS**

*Essential Biology, Campbell (10th edition) and additional readings on current topics in biology from popular science magazines, newspapers and other forms of media in the course reader. Texts will be provided at no charge by the Cornell Prison Education Program.*

**COURSE COMMUNICATION**

Two instructors and one undergraduate teaching assistant will be available during the entire class time. Students are also encouraged to attend weekly tutorial sessions led by a teaching assistant to get help with unclear concepts. Finally, at the beginning and end of each weekly 3 hour class period, there will be a 15 minute window for getting help and clarification from the instructors and teaching assistant.

**COURSE OUTLINE (each course section constitutes a weekly 3 hour lecture/discussion, with the course lasting 15 weeks):**

1. *Introduction – What is life?*
2. *Organization of Life - Cells*
3. *Organization of Life - Nucleus*
4. *Cellular Reproduction*
5. *Energy Dynamics Part I*
6. *Energy Dynamics Part II (Midterm 1 hr.)*
7. *Plant Form and Function*
8. *Animal Form and Function*
9. *Plant and Animal Reproduction, Development, and Signaling*
10. *Genetics Part I (Midterm 1 hr.)*
11. *Genetics Part II*
12. *Evolution*
13. *Ecology – organisms and interactions*
14. *Ecology – climate and nutrient cycling*
15. *Final Exam*

**EVALUATION & ASSIGNMENTS**

*Lecture quizzes at beginning and end of each lecture, plus two midterms and a final exam and homework assignments. One individual presentation on a scientific paper in biology on topic of interest chosen by student with help from instructors, including description of its hypotheses, methods, major results and broad context of research.*

***Grade Breakdown***

Weekly lecture quizzes (20%)

Two midterms (15% each)

Final exam (10%)

Homework assignments (20%)  
In class participation (10%)

Pre-lecture questions (10%)

**EXPECTATIONS FOR CLASS PARTICIPATION**

The foundation of a learning community is a culture of respect – therefore, evaluation of class participation will emphasize collegial interactions in the classroom environment. There are many ways to participate in a class, including talking in small group discussions, in front of the entire group, and being an active participant in one-on-one activities. Students will not be penalized if they do not speak in front of the entire class, but are expected to interact with students respectfully and actively during small group and one-on-one activities.

**ACADEMIC INTEGRITY**

With the exception of explicitly defined group projects, it is expected that the work you submit for this course is your work, and your work alone. Plagiarism, cheating and other forms of academic dishonesty will not be tolerated and are grounds for receiving a failing grade in the course. If you are struggling with concepts, please reach out during class to an instructor or teaching assistant for guidance on strategies for studying, clarification of course material, or any other assistance you may need. Additionally, if you are unsure about what constitutes plagiarism and cheating, please check with an instructor or teaching assistant.