

BIOL 1121 Prospectus

This introductory lecture course emphasizes mechanistic approaches in modern biology. The material focuses on how molecular methods and principles contribute to our understanding of biochemistry, cell biology and genetics, in the context of evolutionary, developmental and physiological processes. The course provides insight into how biological systems work and covers classic experiments underlying our current understanding. Topics include: protein structure; enzymes; lipids and membranes; membrane proteins and transport; central metabolism; ion channels; receptors and signal transduction; protein and vesicular traffic; the cytoskeleton; cell cycle and cell division; DNA replication and repair; transcription, translation and mutations; model organisms and genomics; gene regulation; transposable elements; and Mendelian and population genetics.

BIOL 121 is a challenging course. We assume that students are familiar with basic biology and chemistry from high school (or are prepared to catch up if necessary). There are no specific pre-requisites, but students may find it useful to look at the recommended textbooks, which are a fair representation of the level of the course, to ensure adequate preparation.

Class Structure

Instruction

- Lectures and recitations will be held in person at the scheduled times (MW 10:15-11:45AM and F 10:15-11:15AM) and will be recorded and posted on the Canvas course website. Students will have the opportunity (and are encouraged) to ask questions during lecture.
- The faculty and TA's will hold weekly office hours.
- In addition, students can post questions on the Canvas discussion board, where they may be answered by other students and/or by the faculty

Assignments & Assessments

- There will be four midterm exams and a final exam. The midterms will each cover approximately one quarter of the course and will be scheduled evenly throughout the semester. To minimize time pressure, each exam will be designed to take roughly half the amount of allocated time (e.g., students will have 90 min to complete a midterm exam designed for 45 min).
- Weekly problem sets will be administered through Canvas. Students are required to complete these problem sets before the recitation sessions, and will be given a fraction of a point for each problem set that they complete.
- This course is not graded on a curve. A final course score is calculated from the midterm scores and problem sets, and then converted to a letter grade using fixed

grade assignment rules. These grading rules, along with the formulas for calculating final course scores, are provided to students in the course documents.

Reading

We do not have required reading assignments for this course. However, the course schedule lists recommended reading intended to help students understand the material. The reading is drawn from *Becker's World of the Cell*, 10th edition, by Hardin and Lodolce, or from *Introduction to Genetic Analysis*, 12th edition, by Griffiths, Doebley, Peichel, and Wassarman. Note that the previous editions of these textbooks (9th and 11th respectively) can also be used. For some lectures, additional recommended reading will be posted on the BIOL 121 Canvas site. Supplemental readings, which also are not required but may be of interest to many students, are posted on the Canvas site. In addition, all of the old exams for this course for the last decade are available on Canvas.