

Biology 111 – Principles of Biology I

Lecture Exam 1 Review Sheet

Your exam will cover Chapters 1-6 from our Campbell Biology textbook.

Module 1: Introduction to Biology

Define biology and apply its principles

- List the defining characteristics of biological life
- Identify the different kinds of cells that make up different kinds of organisms
- Describe classification and organizational tools biologists use, including modern taxonomy
- Describe biology as a science and identify the key components of scientific inquiry

Module 2: Chemistry of Life

Identify the principles of chemistry that are integral to biology

- Identify the building blocks of matter
- Classify different types of atomic bonds
- Categorize molecules according to their functional group
- Demonstrate familiarity with the pH scale
- Understand basic chemical reactions
- Demonstrate familiarity with the first and second laws of thermodynamics

Module 3: Important Biological Macromolecules

Identify and describe the main features of the four main classes of important biological macromolecules

- Describe the structure and function of proteins
- Illustrate different types of lipids and relate their structure to their role in biological systems
- Summarize the roles carbohydrates play in biological systems
- Discuss nucleic acids and the role they play in DNA and RNA
- Discuss macromolecules and the differences between the four classes

Module 4: Cellular Structure

Identify and explain a variety of cellular components

- Understand why and how the light microscope and electron microscope are used in biology
- Identify membrane-bound organelles found in eukaryotic cells
- Demonstrate familiarity with various components of the cytoskeleton, including monomeric units
- Demonstrate familiarity with various cell surface specializations