A

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
3. Explain the relationship between the principles of biological chemistry metabolism.	Lectures Class Discussions Comprehension of Current Articles, Reviews or Primary Literature in Biology Laboratory Activities	Quizzes Exams Homework
4. Explain or analyze how the basic structure of cells, membranes and organelles impact the ability for them to function individually as well as in an integrated fashion.	Lectures Class Discussions Comprehension of Current Articles, Reviews or Primary Literature in Biology Laboratory Activities	Quizzes Exams Homework
5. Explain or analyze the processes of cellular reproduction as it applies to the production of both vegetative and reproductive cells.	Lectures Class Discussions Comprehension of Current Articles, Reviews or Primary Literature in Biology Laboratory Activities	Quizzes Exams Homework
6. Apply the principles of cell metabolism to enzymatic activity, energy, photosynthesis and cellular respiration	Lectures Class Discussions Comprehension of Current Articles, Reviews or Primary Literature in Biology Laboratory Activities	Quizzes Exams Homework
7. Explain the relationship between classical hereditary mechanisms and the structure and function of organisms.	Lectures Class Discussions Comprehension of Current Articles, Reviews or Primary Literature in Biology Laboratory Activities	Quizzes Exams Homework
8. Apply knowledge of the basic process involved in the central dogma of biology to the mechanisms in prokaryotes and eukaryotes.	Lectures Class Discussions Comprehension of Current Articles, Reviews or Primary Literature in Biology Laboratory Activities	Quizzes Exams Homework

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
9. Apply all of the above		

SEQUENCE OF TOPICS[1]:

I. Introduction to Biology
   - A. Characteristics of life
   - B. Introduction to taxonomy / phylogeny
   - C. Scientific method
   - D. Evolution and adaptation
   - E. Biological organization
   - F. Interrelationships of organisms: introduction to energy & trophic levels

II. Introductory Chemistry
   - A. Composition of matter
   - B. Atomic structure
   - C. Molecules and compounds
   - D. Chemical Bonding
     1. Polar and nonpolar covalent bonding
     2. Ionic bonding
     3. Hydrogen bonding
   - E. Oxidation and Reduction
   - F. Acids and Bases; including relative strengths and the pH scale
   - G. Inorganic and organic compounds
   - H. Water: characteristics and importance

III. Organic Chemistry
   - A. Importance of characteristics of carbon
   - B. Complexity of Structure
   - C. Condensation / dehydration synthesis and hydrolysis / digestion reactions
     1. Examples
     2. Role of enzymes
     3. Relationship to genetic control
   - D. Functional gro/P /MCID 0>BDC q0.0000.00000911 0 0 1ETQq0.00000912 2 Tf1 0 0 1 34

Functional 0.00000912 0 612 792 reW*nBT/F1 12 Tf1 0 0 1 268.85 460.39 T2949 Tm0 g0 G[Ee)6(d)-3(u)-3(cti)10(o

Textbook:
Campbell Biology, 10th Edition, 2011, Reece, et.al. Benjamin Cummings Publishing.

Lab Manual:

Individual Laboratory Outlines will be distributed electronically or in class