

WTCS Repository

10-806-114 General Biology

Course Outcome Summary

Course Information

Description	Introduces general biological concepts and principles. Emphasis is on cell structure and function, genetics, evolution, and taxonomical relationships. Consideration is also given to diversity among the various kingdoms.
Total Credits	4.00

Pre/Corequisites

Prerequisite Each Wisconsin Technical College determines the General Education course prerequisites used by their academic institution. If prerequisites for a course are determined to be appropriate, the final Course Outcome Summary must identify the prerequisites approved for use by the individual Technical College.

Course Competencies

1. Investigate the characteristics of living things

Assessment Strategies

- 1.1. in the laboratory
- 1.2. through class discussion
- 1.3. through written assignment
- 1.4. through quizzes and examination

Criteria

Performance will be successful when:

- 1.1. you list properties of living things
- 1.2. you distinguish between growth, development, and reproduction
- 1.3. you define homeostasis and identify examples
- 1.4. you distinguish the levels of organization in living things
- 1.5. you discuss how living things respond to stimuli

2. Apply the scientific method to biological sciences

Assessment Strategies

- 2.1. in the laboratory
- 2.2. using examples provided by your instructor
- 2.3. through class discussion
- 2.4. through written assignment
- 2.5. through quizzes and examination

Criteria

Performance will be successful when:

- 2.1. you list the steps used in the scientific process
- 2.2. you develop an example utilizing the scientific method

- 2.3. you utilize inductive and deductive logic in the scientific method
- 2.4. you differentiate among the terms hypothesis, observation, theory, and law

3. Apply basic biochemistry concepts as they relate to macromolecules

Assessment Strategies

- 3.1. in the laboratory following your instructor's lab directions
- 3.2. through class discussion
- 3.3. through written assignment
- 3.4. through quizzes and examination

Criteria

Performance will be successful when:

- 3.1. you define matter, energy, and force
- 3.2. you identify bond types: covalent, ionic, and hydrogen (proton) bonds
- 3.3. you define the characteristics of water
- 3.4. you discuss acid-base balance
- 3.5. you discover the nature of buffers
- 3.6. you describe the nature of synthetic and hydrolytic reactions
- 3.7. you describe the biological macromolecules, function, and building blocks

4. Explore the basic taxonomic relationships of living things

Assessment Strategies

- 4.1. in the laboratory
- 4.2. through class discussion
- 4.3. through written assignment
- 4.4. through quizzes and examination

Criteria

Performance will be successful when:

- 4.1. you utilize the Linnaean taxonomic system
- 4.2. you distinguish among the kingdoms
- 4.3. you differentiate between scientific and common names
- 4.4. you differentiate among the three domains
- 4.5. you classify an organism into the proper hierarchy

5. Examine the components of cell structure, function, tissue, and transport mechanisms

Assessment Strategies

- 5.1. in the laboratory
- 5.2. through class discussion
- 5.3. through written assignment
- 5.4. through quizzes and examination

Criteria

Performance will be successful when:

- 5.1. you identify major cell structures
- 5.2. you link the cell structures with the function of the organelles
- 5.3. you identify the components of the cell membrane
- 5.4. you describe the processes that move the materials across cell membrane
- 5.5. you summarize the specialization of cells and tissues

6. Compare the prokaryotes and eukaryotes

Assessment Strategies

- 6.1. in the laboratory
- 6.2. through class discussion
- 6.3. through written assignment
- 6.4. through quizzes and examination

Criteria

Performance will be successful when:

- 6.1. you define the terms prokaryotes and eukaryotes
- 6.2. you identify the unique structural differences between prokaryotes and eukaryotes
- 6.3. you differentiate among prokaryotes, eukaryotes, viruses, and prions

7. Examine the concepts of evolution

Assessment Strategies

- 7.1. in the laboratory
- 7.2. through class discussion
- 7.3. through written assignment
- 7.4. through quizzes and examination

Criteria

Performance will be successful when:

- 7.1. you examine the historical basis of evolutionary thought
- 7.2. you research the history of evolutionary theories
- 7.3. you relate current topics in molecular genetics to current evolutionary thought

8. Analyze the concepts of cellular metabolism

Assessment Strategies

- 8.1. in the laboratory
- 8.2. through class discussion
- 8.3. through written assignment
- 8.4. through quizzes and examination

Criteria

Performance will be successful when:

- 8.1. you describe anabolic and catabolic processes in the cell
- 8.2. you discuss the process of enzymatic reactions and their role in metabolic pathways
- 8.3. you identify the factors that affect enzyme activity
- 8.4. you identify the basic steps in aerobic, anaerobic, and photosynthesis reactions

9. Examine the cell cycle including mitosis and meiosis

Assessment Strategies

- 9.1. in the laboratory
- 9.2. through class discussion
- 9.3. through written assignment
- 9.4. through quizzes and examination

Criteria

Performance will be successful when:

- 9.1. you relate the cell cycle to growth, metabolism, and formation of gametes
- 9.2. you examine the replication processes of mitosis and meiosis
- 9.3. you relate the process of independent assortment to meiosis

10. Investigate genetics and protein synthesis

Assessment Strategies

- 10.1. in the laboratory
- 10.2. through class discussion
- 10.3. through written assignment
- 10.4. through quizzes and examination

Criteria

Performance will be successful when:

- 10.1. you describe the central dogma of biology and organize into a historical perspective
- 10.2. you contrast DNA and RNA
- 10.3. you describe the processes of replication, transcription, and translation
- 10.4. you describe Mendelian genetics
- 10.5. you describe the role of mutation in biologic diversity

11. Explain the function, development, and evolution of selected organisms

Assessment Strategies

- 11.1. in the laboratory
- 11.2. through class discussion
- 11.3. through written assignment
- 11.4. through quizzes and examination

Criteria

Performance will be successful when:

- 11.1. you describe the organizational differences among the five kingdoms
- 11.2. you describe the relationship between body plans and evolutionary trends
- 11.3. you relate the natural habitat of various phyla to organ system function