

WTCS Repository

10-806-105 Principles of Animal Biology

Course Outcome Summary

Course Information

Description Introductory course focusing on general biological principles, cell structure and function, genetics, comparative anatomy and physiology, evolution, and ecosystems. Includes dissection of various fresh and preserved materials. This course is appropriate for OTA, AODA and other allied health students.

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. Explain animal body system knowledge of body organization in both lay and professional terms.

Assessment Strategies

- 1.1. lecture examination.
- 1.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 1.1. you explain the body planes within the animal kingdom.
- 1.2. you distinguish between the various tissue types that comprise animal systems.
- 1.3. you summarize the difference between the classes of vertebrates.
- 1.4. you identify the principle characteristics of each class of vertebrates.
- 1.5. you summarize representative members of each class of vertebrates.
- 1.6. you explain homeostasis and diagrams mechanisms in which homeostasis is achieved.

2. Explain animal body system knowledge of the musculoskeletal system in both lay and professional terms.

Assessment Strategies

- 2.1. lecture examination.
- 2.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 2.1. you identify bones of the cat, dog, horse, bovine, and/or human skeletons.
- 2.2. you contrast the differences between axial and appendicular skeletons.
- 2.3. you compare and contrast the skeletons of different species (reptile, avian, and/or mammalian).
- 2.4. you explain physiology of bone homeostasis.

- 2.5. you explain the significance of species variation (reptile, avian, and/or mammalian) on musculoskeletal function.
- 2.6. you identify major muscle types.
- 2.7. you determine muscle function based on its name (flexor, extensor, etc.).
- 2.8. you explain functional differences between muscle groups.
- 2.9. you explain muscle physiology.

3. Explain animal body system knowledge of the digestive system in both lay and professional terms.

Assessment Strategies

- 3.1. lecture examination.
- 3.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 3.1. you explain the organs of vertebrate digestion and their function (both accessory organs and specific gastrointestinal organs).
- 3.2. you explain modifications of the digestive systems in some vertebrates.
- 3.3. you contrast the digestive systems of reptiles, birds, and/or mammals.
- 3.4. you explore the process of carbohydrate, protein, and fat digestion in both scientific and lay terms.
- 3.5. you explain the pathology of the gastrointestinal system for some disease states (diarrhea, constipation, gastric bleeding, peritonitis, obstructions, vomiting).

4. Explain animal body system knowledge of the urinary system in both lay and professional terms.

Assessment Strategies

- 4.1. lecture examination.
- 4.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 4.1. you explain the organs of the vertebrate urinary system and their functions.
- 4.2. you trace the path of urine through the urinary system.
- 4.3. you contrast the differences in urinary system anatomy and physiology in reptiles, birds, and/or mammals.
- 4.4. you correlate urinary system physiology to diagnostic findings in an urinalysis.
- 4.5. you explain the pathology of the urinary system for some disease states (anuria, polyuria, diuretic treatment).

5. Explain animal body system knowledge of the cardiovascular system in both lay and professional terms.

Assessment Strategies

- 5.1. lecture examination.
- 5.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 5.1. you rearrange a list of cardiovascular system components to show the path of blood flow through systemic circulation.
- 5.2. you rearrange a list of cardiovascular system components to show the path of blood flow through pulmonary circulation.
- 5.3. you summarize the cardiac conduction system components.
- 5.4. you explain the order of cardiac conduction.
- 5.5. you compare the relationship of cardiac conduction to an EKG strip.
- 5.6. you contrast the differences in cardiac anatomy and physiology in reptiles, birds, and/or mammals.
- 5.7. you recognize the components of blood.
- 5.8. you explore the function of blood components.
- 5.9. you recognize the various types of blood cells.

- 5.10. you discuss the function of the various types of blood cells.
- 5.11. you discuss the pathology of the cardiovascular system for some disease states (cardiomyopathy, valvular disease, diuretic use).

6. Explain animal body system knowledge of the lymphatic/immune system in both lay and professional terms.

Assessment Strategies

- 6.1. lecture examination.
- 6.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 6.1. you identify the major components of the lymphatic/immune system.
- 6.2. you explain the functions of the lymphatic/immune system in protecting the body against disease.

7. Explain animal body system knowledge of the respiratory system in both lay and professional terms.

Assessment Strategies

- 7.1. lecture examination.
- 7.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 7.1. you explain the organs of the respiratory system.
- 7.2. you explain the function of respiratory system organs.
- 7.3. you explain modifications of the respiratory system between reptiles, birds, and/or mammals.
- 7.4. you rearrange a list of respiratory system components to trace the path of an oxygen molecule from inhalation to the exhalation of carbon dioxide.
- 7.5. you explain the difference between internal and external respiration.

8. Explain animal body system knowledge of the nervous system in both lay and professional terms.

Assessment Strategies

- 8.1. lecture examination.
- 8.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 8.1. you explain the components of the nervous system.
- 8.2. you explain the function of nervous system components.
- 8.3. you explain the role of neurotransmitters in the functioning of the nervous system.
- 8.4. you explain the role of action potentials in the functioning of the nervous system.
- 8.5. you explain the pathology of the nervous system for some disease states (seizures, paralysis, toxicity).

9. Explain animal body system knowledge of the sensory systems in both lay and professional terms.

Assessment Strategies

- 9.1. lecture examination.
- 9.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 9.1. you explain the components of the eye and adnexa.
- 9.2. you explain the function of ocular components.
- 9.3. you trace a beam of light from the cornea to the brain.
- 9.4. you explain the components of the ear.

- 9.5. you explain the functions of auditory components.
- 9.6. you explain how sound waves are transmitted through the ear.

10. Explain animal body system knowledge of the endocrine system in both lay and professional terms.

Assessment Strategies

- 10.1. lecture examination.
- 10.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 10.1. you explain the glands of the endocrine system.
- 10.2. you explain the function of endocrine system glands.
- 10.3. you explain the hormones secreted by specific endocrine glands.
- 10.4. you explain the physiology caused by specific hormones of the endocrine system.
- 10.5. you explain the concept of negative feedback loops.
- 10.6. you explain the concept of positive feedback loops.
- 10.7. you explain the pathology associated with malfunctioning of specific hormone function (diabetes mellitus, hyperadrenocorticism, hypoadrenocorticism, hyperthyroidism, hypothyroidism).

11. Explain animal body system knowledge of the reproductive system in both lay and professional terms.

Assessment Strategies

- 11.1. lecture examination.
- 11.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 11.1. you explain the female reproductive organs.
- 11.2. you explain the function of female reproductive organs.
- 11.3. you explain the male reproductive organs.
- 11.4. you explain the function of male reproductive organs.
- 11.5. you trace the path of an egg through the reproductive system.
- 11.6. you trace the path of sperm through the reproductive system.
- 11.7. you contrast the phases of the reproductive cycle to the events in the ovary and uterus.
- 11.8. you explain the variations in the reproductive anatomy and physiology of reptiles, birds, and/or mammals.

12. Correlate the cellular structure to physiologic functions of animals.

Assessment Strategies

- 12.1. lecture examination.
- 12.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 12.1. you explain the function of the cell membrane.
- 12.2. you explain the function of cellular organelles.
- 12.3. you contrast eukaryotic and prokaryotic cells.
- 12.4. you explain the role of the following at the cellular level: enzymes, osmosis, diffusion, membrane permeability, and energy production.

13. Contrast mitosis and meiosis.

Assessment Strategies

- 13.1. lecture examination.
- 13.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 13.1. you compare the stages of mitosis to the stages of meiosis.
- 13.2. you contrast the stages of mitosis to the stages of meiosis.
- 13.3. you contrast the end results of mitosis versus meiosis.
- 13.4. you identify which cells perform mitosis versus meiosis.

14. Apply genetic law to make predictions about inheritance in new contexts.

Assessment Strategies

- 14.1. lecture examination.
- 14.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 14.1. you differentiate between phenotype and genotype.
- 14.2. you differentiate between dominant and recessive.
- 14.3. you differentiate between autosomal and sex-linked.
- 14.4. you differentiate between homozygous and heterozygous.
- 14.5. you solve monohybrid genetics problems.
- 14.6. you solve dihybrid genetics problems.
- 14.7. you solve sex-linked genetics problems.
- 14.8. you explain the roles DNA and RNA play in inheritance.

15. Analyze/predict alterations in animal functions, structures, and/or behaviors based on desired outcomes.

Assessment Strategies

- 15.1. lecture examination.
- 15.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 15.1. you apply knowledge of animal body systems and genetics to analyze genetic inheritance such as coat color in Labrador retrievers or cats.

16. Apply knowledge of ecology to predict an animal's response to new situations.

Assessment Strategies

- 16.1. lecture examination.
- 16.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 16.1. you differentiate between habitat and niche.
- 16.2. you differentiate among community, population, and ecosystem.
- 16.3. you explain phylogenetic classification based on ecological influences.

17. Apply knowledge of evolution to predict an animal's response to new situations.

Assessment Strategies

- 17.1. lecture examination.
- 17.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 17.1. you explain the body planes within the animal kingdom.
- 17.2. you distinguish between the classes of vertebrates.
- 17.3. you identify the principle characteristics of each class of vertebrates.

- 17.4. you summarize representative members of each class of vertebrates.
- 17.5. you explain homeostasis and diagram mechanisms in which homeostasis is achieved.

18. Apply knowledge of behavior to predict an animal's response to new situations.

Assessment Strategies

- 18.1. lecture examination.
- 18.2. laboratory practical examination.

Criteria

Performance will be satisfactory when:

- 18.1. you explain basic evolutionary theories.
- 18.2. you analyze proof associated with evolutionary thought.
- 18.3. you relate evolution to phylogenetic classification.
- 18.4. you relate evolution to anatomic and/or physiologic differences among species.