

## WTCS Repository

10-806-105 Principles of Animal Biology

# Course Outcome Summary

### Course Information

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|  | Description | Introductory course focused on general biological principles, cell structure and function, genetics, organ system anatomy and physiology, behavior, evolution, and ecology. May include dissection of fresh and/or preserved materials. |
|  | Total Credits | 4 |

### Course History

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|  | Last Revision Date | 4/4/2023 |

Pre/Corequisites

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| 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

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| 1. | Compare body organization among various classes of animals  |
|  | Assessment Strategies |
|  | 1.1. | Oral, Written, Graphic and/or Skill Assessment |
|  | Criteria |
|  | 1.1. | describe characteristics of various tissue types found in animal bodies |
|  | 1.2. | identify principal characteristics of various animal classes |
|  | 1.3. | investigate the concepts of homeostasis |
|  | 1.4. | relate anatomic similarities and differences among animal classes to evolutionary processes |
| 2. | Describe musculoskeletal systems of vertebrates |
|  | Assessment Strategies |
|  | 2.1. | Oral, Written, Graphic and/or Skill Assessment |
|  | Criteria |
|  | 2.1. | identify bones of vertebrate skeletons |
|  | 2.2. | identify muscles of vertebrates |
|  | 2.3. | analyze musculoskeletal function of vertebrates |
|  | 2.4. | describe the characteristics of the three histological types of muscle tissue |
|  | 2.5. | explain bone physiology |
|  | 2.6. | explain muscle physiology |
| 3. | Describe digestive systems of vertebrates  |
|  | Assessment Strategies |
|  | 3.1. | Oral, Written, Graphic and/or Skill Assessment |
|  | Criteria |
|  | 3.1. | identify digestive organs of vertebrates |
|  | 3.2. | analyze digestive organ function of vertebrates |
|  | 3.3. | analyze digestive system function of vertebrates |
|  | 3.4. | explain the process of macronutrient digestion in vertebrates |
| 4. | Describe urinary systems of vertebrates |
|  | Assessment Strategies |
|  | 4.1. | Oral, Written, Graphic and/or Skill Assessment |
|  | Criteria |
|  | 4.1. | identify urinary system organs of vertebrates |
|  | 4.2. | analyze urinary organ function of vertebrates |
|  | 4.3. | trace the path of urine through the urinary system |
|  | 4.4. | describe the role of the kidneys in homeostasis |
| 5. | Describe cardiovascular systems of vertebrates |
|  | Assessment Strategies |
|  | 5.1. | Oral, Written, Graphic and/or Skill Assessment |
|  | Criteria |
|  | 5.1. | trace the path of blood through systemic circulation |
|  | 5.2. | trace the path of blood through pulmonary circulation |
|  | 5.3. | explain cardiac conduction |
|  | 5.4. | relate cardiac conduction to an EKG |
|  | 5.5. | characterize blood components |
|  | 5.6. | describe the functions of blood components |
|  | 5.7. | explain the anatomy of the heart |
|  | 5.8. | characterize the three types of blood vessels |
|  | 5.9. | compare circulatory systems among vertebrates |
| 6. | Describe lymphatic/immune systems of vertebrates |
|  | Assessment Strategies |
|  | 6.1. | Oral, Written, Graphic and/or Skill Assessment |
|  | Criteria |
|  | 6.1. | identify lymphatic organs of vertebrates |
|  | 6.2. | identify components of vertebrate immune systems |
|  | 6.3. | analyze lymphatic organ function in vertebrates |
|  | 6.4. | explain innate immunity |
|  | 6.5. | explain acquired immunity |
|  | 6.6. | explain cell-mediated immunity |
|  | 6.7. | explain humoral immunity |
| 7. | Describe respiratory systems of vertebrates  |
|  | Assessment Strategies |
|  | 7.1. | Oral, Written, Graphic and/or Skill Assessment |
|  | Criteria |
|  | 7.1. | identify vertebrate respiratory system organs |
|  | 7.2. | analyze vertebrate respiratory system functions |
|  | 7.3. | characterize internal respiration |
|  | 7.4. | characterize external respiration |
| 8. | Describe nervous systems of vertebrates  |
|  | Assessment Strategies |
|  | 8.1. | Oral, Written, Graphic and/or Skill Assessment |
|  | Criteria |
|  | 8.1. | analyze components of the nervous system |
|  | 8.2. | describe general senses |
|  | 8.3. | describe special senses |
|  | 8.4. | explain functions of nervous system components |
|  | 8.5. | analyze structure of sensory organs |
| 9. | Describe endocrine systems of vertebrates |
|  | Assessment Strategies |
|  | 9.1. | Oral, Written, Graphic and/or Skill Assessment |
|  | Criteria |
|  | 9.1. | identify glands of the endocrine system |
|  | 9.2. | associate endocrine glands with hormone secretion |
|  | 9.3. | analyze hormone functions |
|  | 9.4. | explain negative feedback loops |
|  | 9.5. | explain positive feedback loops |
| 10. | Describe reproductive systems of vertebrates |
|  | Assessment Strategies |
|  | 10.1. | Oral, Written, Graphic and/or Skill Assessment |
|  | Criteria |
|  | 10.1. | identify female reproductive organs |
|  | 10.2. | analyze functions of female reproductive organs |
|  | 10.3. | identify male reproductive organs |
|  | 10.4. | analyze functions of male reproductive organs |
|  | 10.5. | analyze female reproductive cycles |
| 11. | Describe eukaryotic cells |
|  | Assessment Strategies |
|  | 11.1. | Oral, Written, Graphic and/or Skill Assessment |
|  | Criteria |
|  | 11.1. | describe structures of the cell |
|  | 11.2. | analyze functions of cellular organelles |
|  | 11.3. | describe the four types of macromolecules |
|  | 11.4. | compare osmosis and diffusion |
|  | 11.5. | analyze enzyme function |
|  | 11.6. | analyze chemical reactions within cells |
|  | 11.7. | describe the cell cycle |
|  | 11.8. | describe meiosis |
|  | 11.9. | analyze the functions of the four types of macromolecules |
| 12. | Describe genetic principles in animals |
|  | Assessment Strategies |
|  | 12.1. | Oral, Written, Graphic and/or Skill Assessment |
|  | Criteria |
|  | 12.1. | describe phenotype |
|  | 12.2. | describe genotype |
|  | 12.3. | differentiate between dominant and recessive |
|  | 12.4. | differentiate between autosomal and X-linked |
|  | 12.5. | analyze genetic interactions among loci |
|  | 12.6. | predict outcomes of genetic crosses |
| 13. | Describe ecological principles |
|  | Assessment Strategies |
|  | 13.1. | Oral, Written, Graphic and/or Skill Assessment |
|  | Criteria |
|  | 13.1. | differentiate between habitat and niche |
|  | 13.2. | differentiate among community, population, and ecosystem |
|  | 13.3. | connect ecological interactions to evolutionary processes |
|  | 13.4. | connect behavior to evolutionary processes |
| 14. | Describe anatomical principles of vertebrate bodies  |
|  | Assessment Strategies |
|  | 14.1. | Oral, Written, Graphic and/or Skill Assessment |
|  | Criteria |
|  | 14.1. | describe the body planes of vertebrate animals |
|  | 14.2. | apply directional terminology to vertebrate animals |
|  | 14.3. | describe the body cavities of vertebrate animals |
|  | 14.4. | describe the body regions of vertebrate animals |