BIOL-182 – Introductory Human Anatomy and Physiology 2

University Arts and Science

Effective Term & Year: Winter 2026
Course Outline Review Date: 2031-09-01

Program Area: Math and Sciences

Description:

A continuation of BIOL 181, this course is designed to allow the student to explore the anatomical and physiological details of the nervous, endocrine, digestive, excretory, immune, and reproductive systems. Attention is given to the integrated homeostatic balance of the body. BIOL 182 is designed to provide the student with a solid foundation in anatomy and physiology on which to build.

Program Information:

This course is required for the first year of the Bachelor of Science in Nursing Program and is an elective in other disciplines.

Delivery Methods: On-campus (Face-to-Face)

Credit Type: College of the Rockies Credits

Credits: 3

Course type/s: Lab Sciences, Sciences

Instructional Activity and Hours:

Activity	Hours
Classroom, Directed Studies or Online Instruction	45
Seminar/Tutorials	

Laboratory/Studio	45
Practicum/Field Experience	
Co-op/Work Experience	
Other	
Total	90

Course Requisites:

- Completed the following:
  - BIOL181 – Introductory Human Anatomy and Physiology 1 (3)

Prior Learning and Recognition: Yes

Students are able to request formal recognition of their prior learning or experience outside the classroom. Challenge examination, portfolio-assisted assessment, work-based assessment or a combination of assessments that is appropriate to identify, assess, and recognize prior skills, competencies, and knowledge to achieve course credit. Tuition fees apply, refer to Policy 2.5.5 Prior Learning Assessment and Recognition (PLAR) or contact an education advisor for more information.

Course Transfer Credit:

For information about receiving transfer credit for courses taken at either British Columbia or Alberta institutions, please see https://www.bctransferguide.ca/ or https://transferalberta.alberta.ca . For more transfer credit information, please visit https://www.cotr.bc.ca/Transfer

All requests for course transfer credit from institutions in British Columba or elsewhere should go to the College of the Rockies Enrolment Services office.

Textbook Resources:

Textbook selection varies by instructor and may change from year to year. At the Course Outline Effective Date the following textbooks were in use:

OpenStax College, Anatomy & Physiology. OpenStax College. 25 April 2013. http://cnx.org/content/col11496/latest/.

BIOLOGY 182 Lab Manual Available in the College Bookstore

Please see the instructor's syllabus or check COTR's online text calculator https://textbook.cotr.bc.ca/ *for a complete list of the currently required textbooks.*

Learning Outcomes:

Upon the successful completion of this course, students will be able to:

- use laboratory techniques to relate form to function through observations of prepared slides, dissections of preserved specimens, and measurements of body functions;
- describe the relationship between normal structure and function of body systems and the maintenance of homeostasis through neuroendocrine control;
- describe the structure and function of general tissue receptors and special senses;
- describe the structure and function of the digestive system, and identify how peoples from diverse cultural traditions historically and currently maintain human health by selecting and consuming foods to prevent and/or treat deficiencies or excesses of dietary nutrients;
- describe the structure and function of the cardiovascular system, including the control of heart rate and blood pressure, and the composition of blood and blood disorders;
- describe the structure and function of the respiratory system, including breathing and the process of gas exchange; and
- describe the relationship between abnormal structure and function of body systems, and identify demographics whose historical experiences, genetics, environmental exposures, and/or diet and lifestyle factors predispose them to the development of chronic diseases.

Course Topics:

1. ENDOCRINE SYSTEM

- Introduction to Endocrine System Function: In-Body Communication
- Biochemical Nature of Hormones
- Hormone Actions at the Molecular Level
- Hormonal Feedback Mechanisms
- The Pituitary Gland
  – Posterior Pituitary Hormones (ADH and Oxytocin): Targets and Actions
  – Anterior Pituitary Hormones (HGH, PRL, TSH, ACTH, FSH, LH, MSH): Targets and Actions
- The Endocrine System and Stress: General Adaptation Syndrome
- Pancreatic Hormones and Diabetes Mellitus
- Introduction to Additional Endocrine System Pathology

2. NERVOUS SYSTEM

- Introduction to Nervous System Function: In-body Communication
- Histology

- Molecular Basis of Nerve Impulse Transmission
- Neuron Classification: Structural and Functional
- Reflexes and Saltatory Transmission: Physical Performance
- Central Nervous System (CNS)
- Peripheral Nervous System (PNS)
- – Spinal and Cranial Nerves
- – Autonomic Nervous System
- Tissue (General) Sensory Receptors
- The Eye
- The Ear
- Introduction to Nervous System Pathology

3. DIGESTIVE SYSTEM

- Overview of the Digestive Process
- Functional Anatomy Review
- Physiology of Digestion and Absorption: Oral Cavity, Esophagus, Stomach and Small Intestine
- Swallowing and Vomiting Reflexes
- Hormonal Control of Digestion
- Large Intestine Function
- The Digestive System’s Response to Physical Activity
- Introduction to Digestive System Pathology
- Nutrition: Macronutrients and Micronutrients
- The Liver, Gallbladder, and Pancreas

4. CARDIOVASCULAR SYSTEM

A. Heart

- Size, Location, and Orientation
- Coverings, Heart Wall, Chambers, and Associated Vessels
- Pathway of Blood and Coronary Circulation
- Heart Valves and Heart Sounds
- Properties of Cardiac Muscle and Microscopic Anatomy
- Regulation and Events of the Cardiac Cycle
- Electrocardiography
- Cardiac Physiology incl. Cardiac Output, Stroke Volume, Preload, and Afterload
- Regulation of Heart Rate
- Introduction to Cardiac Disorders

B. Blood Vessels

- Blood Vessel Structure and Function
- Physiology of Circulation
- Introduction to Blood Flow, Blood Pressure, and Resistance
- Systemic Blood Pressure and Factors Influencing Blood Pressure

- Regulation of Blood Pressure
- Blood Vessels of the Body
- Fetal Circulation Adaptation
- Introduction to Blood Vessel Disorders
- Review of Lymphatic System Structure and Function

C. Blood

- Composition and Functions of Blood: RBCs, WBCs, Platelets, and Plasma
- Blood Cell Synthesis, and RBC Regulation and Fate
- Hemostasis
- Introduction to Blood Disorders

5. RESPIRATORY SYSTEM

- Functional Anatomy of the Respiratory System
- Mechanics of Breathing
- Respiratory Muscles
- Respiratory Reflex
- Control of Respiration
- Respirometry: Respiratory Volumes, Capacities, and Pulmonary Function Tests

Gas Exchange in the Body

- Basic Properties of Gases
- Composition of Alveolar Air
- Gas Exchange Between the Air, Blood, and Tissues
- Transport of Respiratory Gases

LAB PROGRAM

Lab 1: Review of Histology

Lab 2: Endocrine System

Lab 3: Central Nervous System (CNS)

Lab 4: Peripheral Nervous System (PNS)

Lab 5: Eye and Ear

Lab 6: Digestive System

Lab 7: Cardiovascular System

Lab 8: Hematology

Lab 9: Respiratory System

See instructor's syllabus for the detailed outline of weekly readings, activities and assignments

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Evaluation and Assessments

Assessment Type: On-Campus (face-to-face)

Assessment Type	% of Total Grade
Midterm 1	15%
Midterm 2	15%
Lab Exam 1	15%
Lab Exam 2 (cumulative)	25%
Final Exam (cumulative)	30%
Total	100%

Grade Scheme

A+	A	A-	B+	B	B-	C+	C	C-	D	F
>=90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	<50

Evaluation Notes: A grade of "D" grants credit, but may not be sufficient as a prerequisite for sequential courses.

Evaluation Notes Comments:

Nursing students must achieve a grade of C or better in BIOL 182 in order to be eligible for, or continue in, the BSN program.

Exam Attendance:

Students must attend all scheduled exams at the appointed time and place. Instructors may approve an alternate exam to accommodate an illness or personal crisis. Department heads will consider other written requests. Any student who misses a scheduled exam without prior approval will receive a "0" on the exam.

Academic Policies:

College of the Rockies policies related to courses can be found at https://cotr.bc.ca/about-us/college-policies/ and include the following:

- Policy 2.1.4 Course Audit
- Policy 2.4.1 Credential Framework
- Policy 2.4.3 Students with Documented Disabilities
- Policy 2.4.4 Student Rights, Responsibilities and Conduct

- Policy 2.4.8 Academic Performance
- Policy 2.4.9 Student Feedback and Concerns
- Policy 2.4.11 Storage of Academic Works
- Policy 2.5.3 Student Appeal
- Policy 2.5.5 Prior Learning Assessment and Recognition (PLAR)

Course Changes:

The College of the Rockies updates course outlines regularly to meet changing educational, employment and marketing needs. The instructor will notify students in writing of any updates to this outline during the semester. The instructor reserves the right to revise, add or delete material while meeting the learning outcomes of this course outline.