



BIOL-182 – Introductory Human Anatomy and Physiology 2

University Arts and Science

Effective Term & Year: Fall 2024
Course Outline Review Date: 2029-04-01

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)

Flexible Assessment: Yes

Students are able to request formal recognition of their prior learning or experience outside the classroom. Challenge examination, portfolio-assisted assessment, or work-based assessment are used 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 Columbia 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, function, and control of the urogenital, lymphatic, and immune systems; 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.
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Course Topics:

I Endocrine System

1. Introduction to Endocrine System Function: In-Body Communication
2. Biochemical Nature of Hormones
3. Hormone Actions at the Molecular Level
4. Hormonal Feedback Mechanisms
5. 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
6. The Endocrine System and Physical Activity: Performance Enhancing Drugs
7. Pancreatic Hormones
8. Diabetes Mellitus
9. Introduction to Additional Endocrine System Pathology

II Nervous System

1. Introduction to Nervous System Function: In-body Communication
2. Histology
3. Molecular Basis of Nerve Impulse Transmission

4. Neuron Classification: Structural and Functional
5. Reflexes and Saltatory Transmission: Physical Performance
6. Central Nervous System (CNS)
7. Peripheral Nervous System (PNS): Spinal and Cranial Nerves
8. Peripheral Nervous System (PNS): Autonomic Nervous System
9. Tissue (General) Sensory Receptors
10. The Eye
11. The Ear
12. Introduction to Nervous System Pathology

III Digestive System

1. Overview of the Digestive Process
2. Functional Anatomy Review
3. Physiology of Mechanical/Chemical Digestion and Absorption: Oral Cavity, Esophagus, Stomach and Small Intestine
4. Swallowing and Vomiting Reflexes
5. Hormonal Control of Digestion
6. Large Intestine Function
7. The Digestive System's Response to Physical Activity
8. Introduction to Digestive System Pathology
9. Nutrition: Macronutrients and Micronutrients
10. The Liver, Gallbladder, and Pancreas

IV Urinary System

1. Introduction to Kidney Function: Endocrine, Metabolic, Excretory and Regulatory
2. Functional Anatomy Review
3. Cell Physiology Review: Solutions, Suspensions, Colloids, and Membrane Transport Mechanisms
4. Urine Formation: Filtration, Tubular Reabsorption and Tubular Secretion
5. Regulation of Urine Formation
6. The Micturition Reflex
7. The Urinary System's Response to Physical Activity
8. Introduction to Fluid and Electrolyte Balance, and Acid-Base Balance
9. Introduction to Urinary System Pathology

V Reproductive System

1. Functional Anatomy Review: Female and Male
2. Spermatogenesis: Mechanism and Hormonal Control
3. Oogenesis: Mechanisms and Hormonal Control: The Ovarian and Menstrual Cycles
4. Molecular Mechanism of Fertilization
5. Introduction to Reproductive System Pathology

IV Lymphatic System and Immune System

1. Review of Structure and Function of the Lymphatic System

2. Other Lymphatic Tissues
3. The Immune System: Humoral (Innate) Immunity
4. The Immune System: Cellular (Acquired) Immunity
5. Introduction to Immune System Pathology

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

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 |

Pass requirements: None

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.