



## BIOL-182 – Introductory Human Anatomy and Physiology 2

University Arts and Science

**Effective Term & Year:** Fall 2022

**Course Outline Review Date:** 2024-04-01

---

**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

In some cases students may be able to apply for recognition of prior learning outside the classroom. This flexible assessment process provides equivalent course credit. It is a rigorous process that may include external evaluation, worksite assessment, demonstration, standardized test, self-assessment, interview, products/portfolio, and challenge exam, or other measures as appropriate. Tuition fees apply. 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 a compound microscope to identify organs, glands, tissues, and cell types from dissections of preserved specimens and observations of prepared slides;
- describe the structure, function, and control of the endocrine system, including glands, hormones, feedback mechanisms, and cooperation with the nervous system in regulating body functions;
- describe the structure and function of the nervous system, including neurons, nerve impulse generation and transmission, central nervous system, peripheral nervous system, reflexes, and general sensory receptors;
- describe the structure and function of the eyes and ears as representative special senses;
- describe the structure, function, and control of the digestive system, including digestion, absorption, and nutrition;
- describe the structure, function, and control of the urinary system, including the processes of blood filtration and urine formation;
- describe the structure, function, and control of the male and female reproductive systems;
- describe the structure, function, and relationship between the lymphatic and immune systems, including humoral and cell-mediated immunity;
- describe the relationship between the normal structure and function of specific body systems and the maintenance of homeostasis; and
- describe the relationship between abnormal structure and function of specific body systems and the development of disease.

## Course Topics:

### I Endocrine System

1. Introduction to Endocrine System Function: In-Body Communication
2. Biochemical Nature of Hormones
3. Actions of Hormones at a Molecular Level
4. Hormonal Feedback Mechanisms
5. The Pituitary Gland
  - Neurohypophyseal Hormones (ADH and Oxytocin): Targets and Actions
  - Adenohypophyseal Hormones (GH, prolactin, TSH, ACTH, FSH, LH, MSH): Targets, Actions and Extended effects
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 the Nerve Impulse Transmission
4. Neuron Classification
5. Reflexes and Saltatory Transmission: Physical Performance
6. C.N.S.
7. P.N.S.: Spinal and Cranial Nerves
8. P.N.S.: Autonomic Nervous System
9. Tissue 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. Vomit Reflex
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: Major Nutrients, Vitamins and Minerals
10. The Liver

### **IV Urinary System**

1. Introduction to Kidney Function: Endocrine, Metabolic, Excretory and Regulatory
2. Functional Anatomy Review
3. Review of Cell Physiology: Behaviour of 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
9. Introduction to Urinary System Pathology

### **V Reproductive System**

1. Functional Anatomy Review
2. Spermatogenesis: Mechanism and Hormonal Control
3. Oogenesis: Mechanisms and Hormonal Control: The Menstrual Cycle
4. The Female Reproductive System and Physical Activity
5. Molecular Mechanism of Fertilization

6. Introduction to Reproductive System Pathology (Including Breast Cancer)

**IV Lymphatic System and Immune System**

1. Review of Structure and Function of the Lymphatic Circulatory System
2. Other Lymphatic Tissues
3. The Immune System: Humoral Immunity
4. The Immune System: Cellular Immunity
5. Introduction to Immune System Pathology: (Including AIDS, Autoimmunity)

*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 181 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 2.4.3 Students with Documented Disabilities
- Policy 2.4.4 Student Conduct (plagiarism, other cheating, behavioral misconduct)
- Policy 2.5.8 Academic Performance
- Policy 2.5.3 Grade Appeal
- Policy 2.4.9 Student Concerns Re Faculty

---

## 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.