COLLEGE OF THE ROCKIES

Introductory Human Anatomy and Physiology 2 – BIOL 182

University Studies Program

Course Outline

COURSE IMPLEMENTATION DATE: **April 2007**
OUTLINE EFFECTIVE DATE: **January 2020**
COURSE OUTLINE REVIEW DATE: **September 2025**

GENERAL COURSE 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: This course is delivered face to face.

COTR Credits: 3

Hours for this course: 90 hours

Typical Structure of Instructional Hours:

Instructional Activity	Duration
Lecture Hours/Primarily Physiology	45
Seminars / Tutorials	
Laboratory Hours/Primarily Anatomy & Application	45
Practicum / Field Experience Hours	
Other Contact Hours	
Total	90

Practicum Hours (if applicable):

Type of Practicum	Duration
On-the-job Experience	N/A
Formal Work Experience	N/A
Other	N/A
Total	

Course Outline Author or Contact:
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Signature

APPROVAL SIGNATURES:

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EDCO

Valid from: January 2020 – September 2025

Education Council Approval Date

COURSE PREREQUISITES AND TRANSFER CREDIT:

Prerequisites: BIOL 181

Corequisites: None

Flexible Assessment (FA):

Credit can be awarded for this course through FA ☑ Yes ☐ No

Learners may request formal recognition for flexible assessment at the College of the Rockies through one or more of the following processes: External Evaluation, Worksite Assessment, Demonstration, Standardized Test, Self-assessment, Interview, Products/Portfolio, Challenge Exam. Contact an Education Advisor for more information.

Transfer Credit: For transfer information within British Columbia, Alberta and other institutions, please visit http://www.cotr.bc.ca/Transfer.

Students should also contact an academic advisor at the institution where they want transfer credit.

Prior Course Number: N/A

Textbooks and Required 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 http://go.cotr.bc.ca/tuition/tCalc.asp *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

a. Introduction to Endocrine System Function: In-Body Communication
b. Biochemical Nature of Hormones
c. Actions of Hormones at a Molecular Level
d. Hormonal Feedback Mechanisms

e. The Pituitary Gland
   - Neurohypophyseal Hormones (ADH and Oxytocin): Targets and Actions
   - Adenohypophyseal Hormones (HGH, prolactin, TSH, ACTH, FSH, LH, MSH): Targets, Actions and Extended effects
f. The Endocrine System and Physical Activity: Performance Enhancing Drugs
g. Pancreatic Hormones
h. Diabetes Mellitus
i. Introduction to Additional Endocrine System Pathology

II Nervous System

a. Introduction to Nervous System Function: In-body Communication
b. Histology
c. Molecular Basis of the Nerve Impulse Transmission
d. Neuron Classification
e. Reflexes and Saltatory Transmission: Physical Performance
f. C.N.S.
g. P.N.S.: Spinal and Cranial Nerves
h. P.N.S.: Autonomic Nervous System
i. Tissue Sensory Receptors
j. The Eye
k. The Ear
l. Introduction to Nervous System Pathology

III Digestive System

a. Overview of the Digestive Process
b. Functional Anatomy Review
c. Physiology of Mechanical/Chemical Digestion and Absorption: Oral Cavity, Esophagus, Stomach and Small Intestine
d. Vomit Reflex
e. Hormonal Control of Digestion
f. Large Intestine Function
g. The Digestive System's Response to Physical Activity
h. Introduction to Digestive System Pathology
i. Nutrition: Major Nutrients, Vitamins and Minerals
j. The Liver

IV Urinary System

a. Introduction to Kidney Function: Endocrine, Metabolic, Excretory and Regulatory
b. Functional Anatomy Review
c. Review of Cell Physiology: Behaviour of Solutions, Suspensions, Colloids and Membrane Transport Mechanisms
d. Urine Formation: Filtration, Tubular Reabsorption and Tubular Secretion
e. Regulation of Urine Formation
f. The Micturition Reflex
g. The Urinary System's Response to Physical Activity
h. Introduction to Fluid and Electrolyte Balance
i. Introduction to Urinary System Pathology

V Reproductive System

a. Functional Anatomy Review
b. Spermatogenesis: Mechanism and Hormonal Control
c. Oogenesis: Mechanisms and Hormonal Control: The Menstrual Cycle
d. The Female Reproductive System and Physical Activity
e. Molecular Mechanism of Fertilization
f. Introduction to Reproductive System Pathology (Including Breast Cancer)

IV Lymphatic System and Immune System

a. Review of Structure and Function of the Lymphatic Circulatory System
b. Other Lymphatic Tissues
c. The Immune System: Humoral Immunity
d. The Immune System: Cellular Immunity
e. Introduction to Immune System Pathology: (Including AIDS, Autoimmunity)

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

EVALUATION AND ASSESSMENT:

Assignments	% Of Total Grade
Midterm 1	15%
Midterm 2	15%
Lab Exam 1	15%
Lab Exam 2 (cumulative)	25%
Final Exam (cumulative)	30%
Total	100%

Please see the instructor's syllabus for specific classroom policies related to this course, such as details of evaluation, penalties for late assignments and use of electronic aids.

EXAM POLICY:

Students must attend all required scheduled exams that make up a final grade at the appointed time and place.

Individual instructors may accommodate for illness or personal crisis. Additional accommodation will not be made unless a written request is sent to and approved by the appropriate Department Head prior to the scheduled exam.

Any student who misses a scheduled exam without approval will be given a grade of "0" for the exam.

COURSE GRADE:

Course grades are assigned as follows:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Mark (Percent)	≥ 90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	< 50

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

ACADEMIC POLICIES:

See www.cotr.bc.ca/policies for general college policies related to course activities, including grade appeals, cheating and plagiarism.

COURSE CHANGES:

Information contained in course outlines is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational, employment, and marketing needs. The instructor will endeavour to provide notice of changes to students as soon as possible. The instructor reserves the right to add or delete material from courses.