



BIOL-218 – Pathophysiology 1

University Arts and Science

Effective Term & Year: Fall 2022
Course Outline Review Date: 2026-04-01

Program Area: Math and Sciences

Description:

An introductory background to pathophysiology, pharmacology, microbiology and immunology. The emphasis is on concepts and how alterations in physiological, biochemical, microbial or immunological factors can have an impact on homeostasis. Prototype diseases and prototype drugs are examined, with an emphasis on integrating scientific processes with nursing practice.

Program Information:

Delivery: The pathophysiology component is delivered face-to-face. The pharmacology component is delivered hybrid.

This is a required course in the second year of the Bachelor of Science in Nursing Program.

Delivery Methods: Hybrid – On-campus (Face-to-Face) and Online

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	
Practicum/Field Experience	
Co-op/Work Experience	
Other	
Total	45

Course Requisites:

- Completed the following:
 - **BIOL181** – Introductory Human Anatomy and Physiology 1 (3)
 - **BIOL182** – Introductory Human Anatomy and Physiology 2 (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:

Lilly, L.L., Rainforth, C. S., Snyder, J. S., & Swart, B. (2017). *Pharmacology for Canadian health care practice* (3rd ed.). Toronto, ON: Mosby Elsevier.

Hodgson, B. and Kizor, R. (2013). *Saunders Nursing Drug Handbook*. Elsevier and Logan.

Hannon, R.A., and Porth, C. (2017). *Porth Pathophysiology*. (2nd Cdn ed.). Wolters Kluwer.

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:

Pathophysiology

- apply the principles of medical terminology to accurately interpret unfamiliar terms;
- recognize the interrelations among structure and function at the tissue, organ system and somatic levels of organization;
- utilize the concept of homeostatic disturbance in the interpretation of a broad range of clinical conditions;
- predict the possible outcomes of disease conditions based on a knowledge of relevant pathophysiology; and
- relate clinical data to observations of patient status.

Microbiology and Immunology

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

- summarize the basic concepts of nosocomial infections and their prevention;
- summarize the need for the practice of proper specimen collection and handling;
- describe the basic characteristics of the major microbial classes (e.g., bacteria, viruses, protozoa and pathogenic fungi);
- discuss the concept of communicability of microorganisms on the basis of the transmission modes;
- apply basic microbiological principles to effective infection control;
- develop an awareness of infectious diseases of emerging significance;
- describe the physiological mechanisms of nonspecific immunity and its importance in the healing process; and
- describe the physiological mechanisms of specific humoral and cell mediated immunity and how this relates to disease prevention programs.

Pharmacology

- understand medication safety considerations;
- relate issues of drug interactions, polypharmacy and food/drug effects to medication administration;
- understand the key concepts of pharmacokinetics, pharmacodynamics and

- pharmacotherapeutics as they apply across the lifespan;
- use standard pharmacological definitions and terminology;
- develop an understanding of nursing considerations regarding drug therapies; and
- recognize, retrieve and use appropriate resources to access drug information; and develop teaching strategies to enhance patient education regarding drug therapy.

This course should help students:

- use written and oral communication skills effectively, employing methods appropriate to message and context;
- think clearly and critically, fusing experience, knowledge and reasoning into considered judgment;
- identify, interpret, and solve problems, effectively implementing and evaluating proposed strategies;
- gain the ability to quickly assess what is occurring in the patient and monitor for changes in the patient's status; and
- gain the ability to interpret physician presentation to the patient in terms that the patient and family are able to fully understand.

Course Topics:

Pathophysiology, Immunology, Microbiology

- Cardiovascular System: Heart A&P Review, Ischemic Heart Disease, CHF, Hypertension, Blood Disorders
- Respiratory System
- Urinary System: Acute Kidney Injury, Chronic Kidney Disease, Fluid and Electrolyte Balance, Acid-Base Balance
- Diabetes
- Introduction to Microbiology/Nosocomial Infections
- Microbial Pathogens of Medical Significance
- Nonspecific and Specific Immunity/Healing

Pharmacology

- Principles of Pharmacology
- Anticoagulants and Ischemia Drugs
- Antihypertensives
- Bronchodilators
- Antidiabetic Drugs
- Diuretics
- Electrolytes
- Antibiotics Part #1
- Antibiotics Part #2
- Pharmacology Across the Lifespan

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
Pharm	
First Midterm	10%
Second Midterm	10%
Final Exam	13.3%
Patho	
First Midterm	20%
Second Midterm	20%
Final Exam	26.7%
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: A passing average (60% or higher) in both the pharmacology and pathophysiology components.

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

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
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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.