

DEPARTMENT OF NURSING EDUCATION AND HEALTH STUDIES

COURSE OUTLINE – Winter 2026

NS1160 (A3/B3/C3): Pathophysiology & Pharmacology I

3 (3-0-0) 45 Hours for 15 Weeks

Northwestern Polytechnic acknowledges that our campuses are located on Treaty 8 territory, the ancestral and present-day home to many diverse First Nations, Metis, and Inuit people. We are grateful to work, live and learn on the traditional territory of Duncan's First Nation, Horse Lake First Nation and Sturgeon Lake Cree Nation, who are the original caretakers of this land.

We acknowledge the history of this land and we are thankful for the opportunity to walk together in friendship, where we will encourage and promote positive change for present and future generations.

INSTRUCTOR:	Eleni Hansen MN, RN (Pharmacology)	INSTRUCTOR:	Dr. Sean Irwin PhD (Pathophysiology)
OFFICE:	HEC348	OFFICE:	J224
PHONE:	780-539-2045	PHONE:	780-539-2860
E-MAIL:	ehansen@nwpolytech.ca	E-MAIL:	sirwin@nwpolytech.ca
OFFICE HOURS:	By Appointment		

CALENDAR DESCRIPTION: The focus is the application of human anatomy and physiology to the concepts of pathophysiology and pharmacology. The course focuses on alterations to normal physiology and introduces the concepts of pharmacokinetics and pharmacodynamics in relation to alterations in health. Note: Available only to nursing students in the Collaborative Program.

PREREQUISITE(S) NS1500, NS1205

COREQUISITE: MI1330

REQUIRED TEXT/RESOURCE MATERIALS:

Lilley, L.L., Rainforth-Collins, S., Snyder, Sealock, K., & Seneviratne, C. (2024). *Pharmacology for Canadian health care practice*. (5th Canadian ed.). Toronto, ON: Elsevier.

Power-Kean, K., Zettel, S., El-Hussein, M. T., Huether, S. E., & McCance, K. L. (2022). *Huether and McCance's Understanding pathophysiology*. (Canadian ed., 2nd ed.). Toronto, ON: Elsevier.

Understanding Alberta's Drug Schedules:

<https://pharmacists.ab.ca/nPharmacistResources/ABDrugSchedules.aspx>

Any current drug handbook or drug handbook software for a PDA or the electronic “Compendium of Pharmaceuticals and Specialties: e-CPS (available at through the library).

SafeMedicate Software – 4 year access from

https://www.safemedicate.net/sm_site/store/store_ins_checkout.php

DELIVERY MODE(S): Lecture

LEARNING OUTCOMES:

1. Link knowledge or anatomy and physiology to pathophysiological and pharmacotherapeutic concepts.
2. Demonstrate theoretical understanding of pharmacokinetic and pharmacodynamic principles.
3. Demonstrate theoretical understanding of altered physiology as it relates to changes in health status.
4. Describe the pharmacodynamic classification, nature, properties, and effects of drugs as they relate to altered physiology.
5. Explain the relationship between pathophysiological concepts and pharmacotherapeutic concepts at a novice level.
6. Identify the nursing implications in relation to pharmacotherapeutics and pathophysiology at a novice level.
7. Apply principles of pharmacotherapeutics and pathophysiology to focused non-complex clinical examples at a novice level.
8. Predict common trajectories in pathophysiological processes at a novice level.
9. Prospectively predict common side effects of major drug classes at a novice level.

TRANSFERABILITY:

U of A: NURS116

**** Please note that a grade less than C+ is not accepted for transfer to the U of A for NURS 116. A minimum grade of C+ is required to receive credit in NS1160.**

Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at the Alberta Transfer Guide main page <http://www.transferalberta.ca>.

**** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability**

EVALUATIONS:

Evaluation	Value	Date	Learning Outcomes
Pathophysiology 50%			
Midterm	22.5%	February 24/25/26	1, 3, 6 and 8
Final Exam	22.5%	Scheduled by the Registrar's Office	1, 3, 6 and 8
Quizzes	5%	The week prior to exams	1, 3, 6 and 8
Pharmacology 50%			
Weekly Knowledge Checks	20%	Due weekly during class time	1, 2, 4, 6, 9
Critical Thinking Exercise	30%	March 17/18/19	1, 2, 3, 4, 5, 6, 7, 8, 9
SafeMedicate License & Foundational Numeracy Exam	Complete/Incomplete	April 7/8/9	2, 6

1. Midterm exam: Week 8

Pathophysiology (20%): Assesses concepts in the first five weeks of the course. The exam will be completed in class at HEC.

2. Final exam: (20%) During Final Exam Week - TBA

Final Exam: Assesses concepts from week 8 – week 15 for Pathophysiology only.

3. SafeMedicate (Complete/Incomplete) Due Week 14

You will be completing a medication administration safety screen online prior to each clinical rotation starting this semester to the end of the program. **You will need to purchase a safeMedicate License in January 2026 that is good for 4 years.** After completing the online registration, you will have access to learning modules that you can complete at your own pace but must be completed prior to the end of this semester. There will be Foundational Numeracy exam to complete in April as well as an *optional* practice exam for medication administration (covering modules up to but not including injections).

4. Weekly Knowledge Checks – Pharmacology 2.5% for each quiz

During class time, students will complete a short quiz on myClass or paper/pen format. The quiz will not be opened outside of class time for any reason. Each quiz will include a variety of question types such as multiple choice, true/false, or short answer based on the weekly readings and lecture content. Students will be allotted 10-15 minutes to complete the quiz with additional time for those with accommodations.

Students are expected to bring a personal electronic device (computer/iPad) to class to complete the knowledge checks. The quizzes are closed book.

5. Critical Thinking Exercise (30%)

The purpose of this assignment is for students to demonstrate critical thinking through application of the nursing process through a pharmacology / pathophysiology scenario. This is an open book in class activity. The students will have to assess, diagnose, plan, implement, and evaluate their plan of care on a selected condition. Please see myClass for detailed explanation and assignment template. Time and a half is automatically built into this assignment. In class assignments are to be completed and submitted in class time on the day that they are administered. Absences without prior notice will result in a zero (0). There will be no makeup in class activities available.

- Students will pick a patient scenario with a major illness from the list provided. The student will then identify the pathophysiology of the condition, assessments, and applicable nursing diagnoses. Students will then identify medications to treat the condition, including mechanism of action, rationale linked to the patients' condition, adverse effects, patient teaching, and nursing interventions applicable to the patient and their condition chosen.

GRADING CRITERIA:

Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than C-**.

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	95-100		C+	2.3	67-69
A	4.0	85-94		C	2.0	63-66
A-	3.7	80-84		C-	1.7	60-62
B+	3.3	77-79		D+	1.3	55-59
B	3.0	73-76		D	1.0	50-54
B-	2.7	70-72		F	0.0	00-49

COURSE SCHEDULE/TENTATIVE TIMELINE: *subject to change

Week	Lecture Dates	Pathophysiology	Pharmacology
1 Jan 8	Jan 6/7/8	Cellular regulation Chapter 2 Genes and Genetic Diseases	Chapter 1 Nursing Practice in Canada and Drug Therapy Chapter 3 Legal and Ethical issues in Nursing
2 Jan 15	Jan 13/14/15	Cellular regulation Chapter 4 Altered Cellular and Tissue Biology	Chapter 2 Pharmacological Principles Chapter 4 Patient-Focused Considerations Chapter 7 Patient Education and Drug Therapy
3 Jan 22	Jan 20/21/22	Inflammation Chapter 6 Innate Immunity: Inflammation and Wound Healing	Chapter 49 Anti-inflammatory and Antigout Drugs Chapter 11 Analgesic Drugs Knowledge Check
4 Jan 29	Jan 27/28/29	Hematological Disorders Chapter 21 Alterations of Hematological Function	Chapter 9 Vitamins and Minerals Chapter 55 Anemia Knowledge Check
5 Feb 5	Feb 3/4/5	Hematological Disorders Chapter 22 Developmental Alterations of Hematological Function	Infection Chapter 43 Antibiotics: Part 1 Chapter 44 Antibiotics: Part 2 Knowledge Check
6 Feb 12	Feb 10/11/12	Disorders of Immunity Chapter 8 Infection and Defects in Mechanisms of Defence	Infection Chapter 45 Antiviral Drugs Chapter 47 Antifungal Drugs Knowledge Check
7 Feb 19	Reading Break		
8 Feb 26	Feb 24/25/26	Pathophysiology Midterm	
9 Mar 4	March 3/4/5	Pulmonary Disorders Chapter 27 Alterations of Pulmonary Function	Infection Chapter 46 Antitubercular Drugs Knowledge Check
10 Mar 11	Mar 10/11/12	Pulmonary Disorders Chapter 28 Developmental Alterations of Pulmonary Function	Gas Exchange Chapter 38 Drugs affecting the Respiratory System Chapter 37 Antihistamines, Decongestants and Antitussives (include Fever) Knowledge Check
11 Mar 18	March 17/18/19	Critical Thinking Assignment in class - All class block	
12 Mar 25	March 24/25/26	Ophthalmic & Otic Disorders Chapter 14 Sensory Function	Chapter 57 – Ophthalmic Drugs Chapter 58 – Otic Drugs Knowledge Check
13 Mar 30	Mar 31/1/2	Integumentary Disorders Chapter 41 Structure, Function, and Disorders of the Integument	Tissue Integrity Chapter 56 Dermatological Drugs Chapter 51 Immunizations Knowledge Check
14 April 8	April 6/7/8	Integumentary Disorders Chapter 42 Developmental Alterations of Integument Pain and Temperature Regulation Chapter 14 Pain and Temperature	SafeMedicate Foundational Numeracy Examination
15	Pathophysiology Exam in Final exam period		

STUDENT RESPONSIBILITIES:

Refer to the College Policy on Student Rights and Responsibilities at:

<https://www.nwpolytech.ca/about/administration/policies/fetch.php?ID=69>

For policies related to clinical absences, immunizations, uniforms, and other clinical requirements, please see the NWP Department of Nursing Education & Health Studies Student Handbook on myClass

LATE ASSIGNMENT POLICY:

To obtain credit in the course ALL assignments, examinations, and quizzes weighted 10% or greater must be completed to obtain credit in the course and permitted to write the final examination, if applicable.

Students are expected to make every effort to complete assignments on time. Assignment submissions are expected on the date determined by faculty. If extensions are necessary, they may be requested up to 48 hours prior to the assignment due date and should be submitted in writing to the faculty member involved. Not all extensions will be granted. In exceptional situations, extension requests within the 48-hour period may be considered. Late assignments will have 5% of total marks (or one letter grade) for the assignment deducted for each day/partial day (including weekend days) beyond the due time. For example, a paper marked at B+ would receive an adjusted grade of B if handed in one day late. After 5 days, a grade of 0 will be awarded to the assignment. If the late penalty places the grade below the necessary pass grade, students will be unsuccessful in the course. When submitting assignments electronically, it is the student's responsibility to ensure the assignment has been received. Papers/assignments may not be rewritten for a higher grade. Concerns regarding grading are to be discussed with the faculty member involved.

STATEMENT ON ACADEMIC MISCONDUCT:

Academic Misconduct will not be tolerated. For a more precise definition of academic misconduct and its consequences, refer to the Student Rights and Responsibilities policy available <https://www.nwpolytech.ca/about/polytechnic-leadership/policies-directory>.

****Note:** all Academic and Administrative policies are available on the same page.