

## DEPARTMENT OF SCIENCE

### COURSE OUTLINE – Fall 2024

#### PS2100 (A2): Human Physiology 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:** Dr. Jessie Zgurski, PhD   **PHONE:** 780-539-2863  
**OFFICE:** J221   **E-MAIL:** JZgurski@nwpolytech.ca  
**OFFICE HOURS:** Tuesday and Thursday, 1:00 – 5:00 PM, walk-in, or by appointment.

**CALENDAR DESCRIPTION:** Introductory course in human physiology, part I. Students will study the function and regulation of the human body and the complexities and interactions of cells, tissues, major organs and systems. Part I covers: the physiology of the cell; muscle and sensory physiology; peripheral and central nervous systems; blood and body defense mechanisms; and the cardiovascular system.

**PREREQUISITE(S)/COREQUISITE:**

BI1070 and 6 credits in university-level Chemistry

This course may not be taken for credit if credit has been obtained in ZO2410 and/or 2420.

**REQUIRED TEXT/RESOURCE MATERIALS:** Eric P. Widmaier, Hershel Raff, and Kevin T. Strang. 2023. Vander's Human Physiology: The Mechanisms of Body Function, Sixteenth Edition. McGraw Hill, New York, NY.

**DELIVERY MODE(S):** Lectures, Wednesday and Friday, 1:00 – 2:20 PM.

**LEARNING OUTCOMES: By the end of the course students should be able to...**

1. Explain the functions of organelles and cell membranes and describe cellular transport processes and common signal transduction mechanisms.
2. Describe the components of blood and their functions.

## LEARNING OUTCOMES CONT'D:

3. Explain how information is produced, transmitted, and processed along nervous system pathways.
4. Describe the structure and function of the autonomic and central nervous systems.
5. Explain how neural pathways transmit information to the central nervous system, with a focus on special senses, such as vision and hearing.
6. Describe the structures of the cardiovascular system and explain the electrical events that occur during a single heartbeat.
7. Think critically about human physiology and apply their knowledge to solve novel problems.

**NOTE:** Additional detailed learning outcomes will be provided for each topic and assignment in the course.

## TRANSFERABILITY:

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>.

**\*\* Grades 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.**

|                     |                      |     |
|---------------------|----------------------|-----|
| <b>EVALUATIONS:</b> | Assignments          | 30% |
|                     | Quizzes              | 10% |
|                     | Midterm (October 25) | 30% |
|                     | Final Exam           | 30% |

Instructions and due dates for the assignments and quizzes will be announced in class. The final exam will take place during the scheduled exam period. Failure to write a quiz or exam will result in a grade of zero unless the exam was missed for a compelling reason (such as an illness). In such a case, the exam will be deferred.

The quizzes will be online “open notes” quizzes, and the assignments will comprise three shorter problem sets/essays and one longer essay.

**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:

| Topic                                    | Textbook Chapter | Approximate Dates           |
|--|------------------|-----------------------------|
| 1. An Introduction to Physiology         | Chapter 1        | September 4, 6              |
| 2. Cells, Enzymes, and Energy Metabolism | Chapter 3        | September 6, 11, 13         |
| 3. Membrane Transport                    | Chapter 4        | September 13, 18            |
| 4. Cell Signaling                        | Chapter 5        | September 18, 20            |
| 5. Neurons                               | Chapter 6        | September 25, 27, October 2 |
| 6. Structure of the Nervous System       | Chapter 6        | October 4, 9                |
| 7. Sensory Physiology                    | Chapter 7        | October 11, 16, 18          |
| 8. States of Consciousness               | Chapter 8        | October 23, 30              |
| 9. Muscles and Movement                  | Chapters 9, 10   | November 1, 6, 8, 20        |
| 10. Cardiovascular System                | Chapter 12       | November 20, 22, 27, 29     |
| 11. The Immune System                    | Chapter 18       | November 29, December 4, 6  |

**STUDENT RESPONSIBILITIES:** Students are expected to attend classes and complete all assignments. Refer to the College Policy on Student Rights and Responsibilities at [https://www.nwpolytech.ca/about/administration/policies/#academic\\_policies](https://www.nwpolytech.ca/about/administration/policies/#academic_policies)

Typically, late assignments and quizzes will be docked 5% per day late. However, if you have a compelling reason for requiring an extension (such as an illness), please contact the instructor and the late penalty may be waived. Assignments not handed in receive a 0%.

### STATEMENT ON PLAGIARISM AND CHEATING:

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the College Calendar at <https://www.nwpolytech.ca/programs/calendar/or> the College Policy on Student Misconduct: Plagiarism and Cheating at <https://www.nwpolytech.ca/about/administration/policies/>

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

**ADDITIONAL INFORMATION:** Students are expected to frequently check the course website and their college E-mail accounts for announcements regarding the class. Other learning resources will be added to the page during the semester.