Emergency Services Department
COURSE OUTLINE – Fall 2024
EM2100 (xx): 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: Chris Read
OFFICE: Remote
OFFICE HOURS: Monday 0800 – 1600
Tue – 1620 - 1800

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CALENDAR DESCRIPTION: This course provides a study of the overall function of the human body. Major topics include fundamental chemistry, homeostasis, cytology and cell physiology, cell signaling and communication, and muscle, nervous, respiratory, cardiovascular, lymphatic, digestive, endocrine, urinary and reproductive physiology, as well as fundamental genetics as it applies to human physiology. This course is designed to prepare students in medical fields of study for advanced courses in their respective fields, as well as other university transfer students.

PREREQUISITE(S):
COREQUISITE(S): EM1000, EM1020, EM2300, EM2400, WR1100

REQUIRED TEXT/RESOURCE MATERIALS:
The resources listed in this section are required.
Tortora, G.J., & Derrickson, B. (2020). Principles of Anatomy & Physiology, (16th C ed.). Wiley.

Students are responsible for all fees associated with ProctorU, a live proctoring service for online exams. Fees are paid when you schedule your exams through ProctorU.

Pricing per exam is as follows:
60 minutes or less - $16 USD
61-120 minutes - $25 USD
121 - 180 minutes - $31 USD

SUPPLEMENTAL LEARNING RESOURCES
The resources listed in this section are optional but provide additional information to support learner success.
Openstax: Anatomy and Physiology: https://openstax.org/details/anatomy-and-physiology?Instructor%20resources

DELIVERY MODE(S):

1. Online delivery of content
2. Pre-class and assigned readings.
3. Class discussions
4. Group exercises/Laboratories
5. Online activities
6. Classroom case studies

LEARNING OUTCOMES:

1. Apply fundamental general and organic chemistry concepts and principles to human physiology.
2. Explain cellular kinetics and the mechanics of skeletal muscle.
3. Explain how the heart, the lungs, and the blood work together to support vital functions.
4. Show how the cardiac conduction system contributes to vascular physiology.
5. Demonstrate basic knowledge of nervous system (central and peripheral) physiology.
6. Illustrate the mechanics and regulation of ventilation and gas exchange.
7. Describe how the lymphatic system functions in maintaining homeostasis.
8. Explain how the digestive system works to support metabolism and supply available energy to the body systems.
9. Describe the urinary system's functions in maintaining fluid, electrolyte and acid-base balance.
10. Use reproductive physiology to explain genetic inheritance.
11. Correlate current research topics to human development processes.
12. Explain the link between structure and function.

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.alberta.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:
To receive credit for this course, students must complete all course requirements as listed.

Type of Assessment	Description of Assessment	Value
Forum posts	Based on amount and quality of participation	10%
Exams	Midterms	25%
Assignments	May include papers, collaborative work in groups, online quizzes	30%
Final Exam	Cumulative	35%
TOTAL		**100%**

Midterm 1 Exam -25%

May include multiple choice, matching and true/false questions. Date: Oct 17, 2024; Time PM (TBD)

On-line forum posts -10%

This portion of the mark is based on the instructor's perception of the student's active participation in class/online discussions and online activities associated with various unit activities.

Final Exam -35%

All chapters discussed in the course will be covered. It May include multiple choice, matching and true/false questions; Date: Dec 16, 2024; Time PM (TBD)

Assignment: 30% (three assignments each worth 10%)

Assignment 1 Due Sept 25, Assignment 2 Due Oct 22, Assignment 3 Due Nov 26. by 2359

GRADING CRITERIA:

Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than C-**. A minimum of a C- must be obtained to successfully pass EM2100.

Grading Chart for courses with Alpha Grading:

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:
Onsite week attendance - as per onsite week schedule

Week	Topic/Activity Read Chapters Prior to Classes
1	Course Introduction Chemistry
2	Cells Tissues and Membranes
3	Integumentary System
4	Skeletal System
5	Joints Muscular System
6	Nervous Tissue Ion Channels The Spinal Cord and Spinal Nerves Brain and Cranial Nerves
7	The Autonomic Nervous System Sensory, Motor, and Integrative Systems The Special Senses
8	Endocrine System
9	Cardiovascular System Blood Heart Blood Vessels and Hemodynamics
10	Lymphatic System
11	Fall Break
12	Respiratory Systems
13	Digestive System Metabolism Urinary System
14	Fluids, Electrolytes and Acid-Base Homeostasis Reproductive Systems Development and Inheritance and Heredity
15	Final Exams

*Instructor reserves the right to change due dates and weeks of lesson plans, assignments, and exams as necessary to comply with yearly calendar changes. Each year, the instructor will inform the students with any schedule changes.

GENERAL COURSE EXPECTATIONS:
Participation is essential for success in this class, and if a student misses a class/lab it is the student's responsibility to obtain ANYTHING missed during class/lab. The student will be assigned a mark of zero for those assignments, exams, quizzes, labs, etc. missed. IF the student contacts the instructor PRIOR to missing any of the above forementioned, and IF the student has an acceptable excuse (the validity of the excuse is at the discretion of the instructor and will require documentation i.e., doctor's note), the student may be excused without being deducted any marks. Missed onsite lab days may come at an additional expense to students regardless of the circumstances associated with not attending.

STUDENT RESPONSIBILITIES:
Enrolment at NWP assumes that the student will become a responsible citizen of the Institute. As such, each student will display a positive work ethic, take pride in, and assist in the maintenance and preservation of Institute property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting instructor expectations concerning attendance, assignments, deadlines, and appointments.

NWP Policies:
It is your responsibility to be familiar with the information contained in this Course Outline and the Paramedic student handbook and to clarify any areas of concern to the instructor. It is also your responsibility to be familiar with NWP Policies.

Student attendance:
Class attendance is useful for two reasons. First, class attendance maximizes a students' learning experience. Second, attending class is a good way to keep informed of matters relating to the administration of the course (e.g., the timing of assignments and exams). Ultimately, you are responsible for your own learning and performance in this course.

Pre-reading
Ensure that you do the pre-reading early, so that you have time to think about what you have read before the exam and before the class if you wish.

Preparing questions
Make a note of anything you are not clear about and prepare a question to ask early in the class to clarify your understanding. This will demonstrate your interest in the topic and indicate to the instructor that you have done the required reading.

Preparing responses
When you read, try to engage with the ideas critically and actively. Make a note of any ideas about which you have strong opinions, positive or negative. Think about how you would refer to these ideas during the class or express your views about them. What language would you use?

Note-taking during discussions and Class time.
Classes can be a very useful source of ideas on a topic, not only from the instructor, but also from other participants. Make a note of any ideas which may be useful to you in writing assignments or broadening your reading.
In most small classes there is an expectation that you will contribute actively to the discussion, and not simply be a 'silent participant'. In some courses marks are given for active participation in class.
Learn people's names.
Make a conscious effort to learn -and use -the names of all the other people in the class. This includes the students at the alternate site while using video conferencing.

Using visualization
Every class you attend is also a preparation for the next class. At the end of a class, play it back in your mind, not just for the content and ideas, but remembering responses, and the sort of language used. Then, before the next class, think about the questions and comments you have thought of, and visualize in your mind how the discussion will go. Most importantly, imagine yourself taking part: using people's names, getting their attention, asking questions, and commenting on what you've read and on what other people are saying. The more positively you do this, the more it will help you in class.

Exams, Quizzes and Assignments
The instructor of the course will provide the date of all exams, quizzes, and assignments for the course during the first week of instruction. This course may require students to write remotely proctored examination(s), either online or within an approved location with a proctor present. Review the Paramedic Student's Handbook for specific information regarding proctored assessment(s).

Onsite Weeks
Course content delivery, quizzes, exams, and assignments may occur during onsite weeks. It is the student's responsibility to attend the onsite week and meet academic timelines/requirements.

STATEMENT ON ACADEMIC and NON-ACADEMIC MISCONDUCT:
Misconduct will not be tolerated. For a more precise definition of academic and non-academic misconduct and its consequences, refer to the Student Rights and Responsibilities policy available at https://www.nwpolytech.ca/about/administration/policies/index.html.

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

Additional Information:
Northwestern Polytechnic provides various academic support services to support your journey to success. Please be aware that personal counseling, peer tutoring, learning library services, Elders and mentors, and disability services are provided at your campus. Please inquire about contact details or locations at the Information desk.

USING PROCTORU:

This course uses ProctorU Live for online exams. To utilize this service, you are required to complete the following steps:

- Create a ProctorU account by clicking the ProctorU link in the course.
- Download and install the Guardian Web Browser, Google Chrome, and the ProctorU extension.
- Schedule each exam at least 3 days (72 hours) in advance. If you miss this deadline, you cannot take the exam.
- Pay for the proctoring service. The fees are exclusively your responsibility and in no event shall be the responsibility of Northwestern Polytechnic.

For more detailed instructions click here, and for video instructions click here.

Before each exam, you must complete a room scan with your web camera, during which you will show your surroundings to a live proctor.
The invigilator will ask to view (but not collect or store) your student identification to verify your identity and will remotely access your computer to unlock the exam. When monitoring your actions via video streaming, the invigilator may possibly record your actions if they suspect academic integrity behavioural issues. You will be verbally notified if/when recording begins.
The collection of and access to the personal information listed above is permitted under subsection 33(c) of the *Freedom of Information and Protection of Privacy Act*, RSA 2000, c F-25, which states, "No personal information may be collected by or for a public body unless that information relates directly to and is necessary for an operating program or activity of the public body." In addition, subsection 39(4) states, "A public body may use personal information only to the extent necessary to enable the public body to carry out its purpose in a reasonable manner."
Records Retention: Any video records of you created by ProctorU will be kept by ProctorU for a maximum of 7 days in order to make a decision about any possible academic integrity infraction, after

which time it shall be permanently deleted. All other personal information collected and stored by ProctorU within your profile account will be permanently deleted if the account has not been used after one year.

Consent to Store Personal Information Outside Canada

ProctorU is an American company. An agreement is in place between ProctorU and Northwestern Polytechnic by which ProctorU will take reasonable steps to protect your personal information from unauthorized access and disclosure. Information about how ProctorU protects your privacy can be found in their Privacy Policy.

By using the ProctorU service via Northwestern Polytechnic, you consent to the storage of and access to your personal information outside of Canada.

This consent is in effect from the day you register with ProctorU and expires one year after completion of your exam.

Additional privacy and liability information regarding the use of ProctorU is available on the NWP website.

Course Topics:

1. Basic Chemistry
2. Integumentary System
3. Bone Tissue
4. Joints
5. Muscular Tissue
6. Nervous Tissue
7. Autonomic Nervous System
8. Sensory, Motor, and Integrative Systems
9. Special Senses
10. Endocrine System
11. Blood
12. Blood vessels and Heart
13. Lymphatic System
14. Respiratory System
15. Digestive System
16. Cell Metabolism
17. Urinary System
18. Fluid, Electrolyte, and Acid-Base Homeostasis
19. Reproductive System
20. Development and Inheritance