NORTHWESTERN POLYTECHNIC

DEPARTMENT OF ANIMAL SCIENCE

VETERINARY TECHNOLOGY

COURSE OUTLINE – Winter 2026

AH240 ADVANCED ANATOMY AND PHYSIOLOGY – 2.5 (3.5-0-1) 72 Hours for 16 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:	Kristy Honing	**PHONE:**	780-835-6779
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OFFICE HOURS:	Make an appointment		

CALENDAR DESCRIPTION:

Students will develop proper anatomical and physiology terminology. Instruction of cellular biology and physiology will progress into an understanding of organization of cells into tissues, organs and body systems. A working knowledge of body systems will include basic components and functions. The inflammatory process and tissue response to disease or injury will be covered briefly. Students will receive hands-on instruction on necropsy procedures for small and large animal species. Proper collection, handling, and submission of samples and transportation of dangerous goods is discussed or demonstrated.

PREREQUISITE(S)/COREQUISITE:

Must be registered in the NWP Veterinary Technology Diploma Program.

- AH141 and AH174

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REQUIRED TEXT/RESOURCE MATERIALS:

- Aspinall & Capello, ***Introduction to Animal and Veterinary Anatomy & Physiology***, Cabi, 4th ed.
- Bowden, ***Introduction to Veterinary Anatomy & Physiology Workbook,*** Elsevier, 2nd ed.
- Singh, ***Saunders Veterinary Anatomy Coloring Book,*** Elsevier, 2nd ed.

DELIVERY MODE(S): This course is delivered in-person. Quizzes, Midterm and final exams will occur in-person. Students must have a computer with a webcam and reliable internet connection. Technological support is available through helpdesk@nwpolytech.ca.

LEARNING OUTCOMES:
Anatomy & Physiology Component

A. Respiratory System

Upon successful completion of this unit, the student will be able to identify the components of the respiratory system and discuss their functions.

B. Nervous System

Upon successful completion of this unit, the student will be able to identify the components of the nervous system and discuss their functions**.**

C. Special Senses

Upon successful completion of this unit, the student will be able to identify the main anatomical features of the ear, eye, and nasal cavity, and discuss the functions of each of the special senses.

D. Urinary System

Upon successful completion of this unit, the students will be able to identify the components of the urinary system and discuss their functions.

E. Endocrine & Immune Systems

Upon successful completion of this unit, the student will be able to identify the components of the immune and endocrine systems, and discuss their functions.

F. Reproductive System

Upon successful completion of this unit, the student will be able to identify the components of the reproductive systems of the male and female, and discuss their functions.

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Lab portion: Advanced Anatomy & Physiology Lab (one large animal lab)- Students will identify and palpate common anatomical landmarks prior to moving forward into more comprehensive labs next year.

Pathology Component

A. Information Section

Upon successful completion of this Learning Outcome Guide, you will be able to use proper pathological terminology.

1. Define disease.
2. List and explain the causes of disease.
3. Define the following terms: pathology, pathologist, syndrome, symptoms, clinical signs, lesions, and prognosis.
4. Use terms provided in the pathology glossary.
5. List the categories used to describe lesions.
6. Define the terms used to describe lesions.

B. Inflammation

Upon successful completion of this Learning Outcome Guide, you will be able to explain the inflammatory process.

1. Define inflammation.
2. List the signs of inflammation.
3. Discuss the purpose and causes of inflammation.
4. Describe the components of the inflammatory response.
5. Define Chemotaxis, Phagocytosis, Suppuration, Empyema, and Cellulitis.
6. Discuss the role of the components of the granulocytic and monocytic series.
7. Explain and classify exudates and list an example for each type of exudate.

C. Response to Disease (Injury)

Upon successful completion of this Learning Outcome Guide, you will be able to explain tissue response to disease and injury.

1. Define the following terms: contusion, laceration, wound, concussion, abrasion, erosion, ulcer, slough, necrosis, apoptosis, anthracosis, melanosis, amelanotic, autolysis, rigor mortis, algor mortis, livor mortis.
2. Describe degenerative lesions.

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3. Describe pathological pigmentation.
4. List and describe circulatory disturbances.
5. List five factors which affect the rate of autolysis.
6. Compare and contrast a) dystrophic and metastatic calcification. b) wet and dry gangrene. c) petechial and ecchymotic hemorrhages. d) purpura and disseminated intravascular coagulation.
7. List and describe the 4 types of hypersensitivity reactions.

D. Neoplasia

Upon successful completion of this Learning Outcome Guide, you will be able to explain common types of neoplasia

1. Define the following: neoplasia, anaplasia, metaplasia, oncology, oncogenic, blastoma, cachexia, metastasis, infiltration, "sarcoma", "carcinoma", "oma".
2. List 6 characteristics of neoplasia.
3. Describe 3 methods of metastasis of neoplasia.
4. Compare and contrast benign and malignant tumors.
5. List the most common tumor of horses, cattle and cats.
6. List the 3 types of testicular tumors of dogs and discuss the clinical signs of each type.

E. Post-Mortem Techniques

Upon successful completion of this Learning Outcome Guide, you will be able to explain post-mortem techniques.

1. Describe the position and procedures for post-mortem examination of: a) non-ruminants b) large ruminants c) small laboratory animals, small fur bearing animals and avian species.
2. Define the following terms: "pluck", "in-situ", Psittacine birds, ante-mortem, autopsy, necropsy.
3. Compare the advantages and disadvantages of common fixatives used for preservation of pathological specimens.
4. Describe and demonstrate correct packaging of pathological samples to conform with safety, legal and preservation requirements.
5. Outline special procedures performed in a) the necropsy of a fetus and b) avian necropsy.

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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.

** 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 Part A:

OVERALL GRADE POINT AVERAGE HAS TO BE 2.0 OR HIGHER TO BE SUCCESSFUL IN THE VT PROGRAM.

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

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EXAMINATIONS

	Mark Distribution	
A. Anatomy/Physiology Component**		**55%**
	Quizzes and assignments 15%	
	Comprehensive Final Exam 28%	
	Comprehensive Lab Exam 12%	
B. Pathology Component		**45%**
	Quizzes and Assignments 22%	
	Lab 5%	
	Final Exam 18%	
		100%

***PLEASE NOTE**

*A minimum of 60% must be obtained in order to successfully pass AH240.

**** Comprehensive Exams for Anatomy/Physiology include material from Anatomy/Physiology I**

***** Students must pass each component of the course (Anatomy/Physiology AND Pathology separately or individually, in order to pass the entire course)**

EVALUATIONS Part B:

This course is a continuation of AH141 Anatomy & Physiology I and will continue with the animal body systems where the first course left off. **Material from AH141 will be tested in the final written and practical exams for the Anatomy/Physiology portion of the course.**

To pass this course, student must achieve a ***minimum overall grade of 60% in each component of the course*** (Anatomy/Physiology and Pathology, separately). If the student is unsuccessful in one component of the course, they will be awarded the mark for that component ONLY as their final grade and they will fail the course. If they are successful or unsuccessful in both components, their mark will be a combination as detailed in the Marks Distribution.

Attendance is essential for success in this class, and if a student misses a class or a lab for any reason not approved or accepted by the instructor and/or not supported by documentation (eg. doctor's notes and notification of instructor for illness, prior approval and notes for appointments that cannot be otherwise scheduled, etc.), the student will be deducted several marks from their final grade for

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each hour of class missed. If a student misses anything during class (including quizzes and exams), any assignments and/or quizzes and/or exams and/or handouts, whether scheduled or not, that occur or are distributed in the class or lab that was missed, will not be provided to the student or made up in any way unless arranged with the instructor. The student will be assigned a mark of zero for those assignments/exams/ etc. missed. IF the student contacts the instructor prior to missing a class/lab/exam/etc., and if the student has an acceptable excuse (the validity of the excuse is at the discretion of the instructor and will require documentation such as a note from a doctor), the student may be excused without penalty and may be given access to the missed material. Overall excessive coming to class late, or leaving during class, may also result in mark deductions at the instructor's discretion.

For examination policies, please see the NWP Final Examination Policy document.

COURSE SCHEDULE/TENTATIVE TIMELINE:

Anatomy and Physiology for 8 weeks, followed by Pathology lectures and Pathology labs for the remaining 8 weeks

Course schedules are posted.

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.

Veterinary Technology Program Attendance & Conduct Summary

- **Zero Tolerance for Impairment:** Attending labs, exams/quizzes, lectures, or guest speaker events under the influence of alcohol or impairing substances (including certain medications) is strictly prohibited. Violations result in unexcused absences and a mark of zero.
- **Mandatory Attendance:** Attendance is required for all exams, guest speakers and labs. Arriving late to labs, lectures, quizzes/exams will be considered an unexcused absence. Unexcused absences (at the instructor's discretion) result in:
    - **5% deduction** from the final course grade (labs/guest speakers)
- **Absence Approval:** Absences must be approved in advance or as soon as possible afterward with valid written documentation (e.g., doctor's note). Employment conflicts are not considered valid excuses.

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- **Make-Up Policy:** Labs, lectures, and guest speakers cannot be made up. Missed assessments due to unexcused absences receive a grade of zero. Excused absences do not exempt students from required work or deadlines.
- **Exam Conduct:** No electronic devices (phones, smartwatches, headphones, tablets etc) are permitted during exams or evaluations. Having one present will result in immediate dismissal and a grade of 0%.
- **Further Guidelines:**
    - Spelling errors in exams/quizzes, assignments and medical records will results in a 0.5% deduction for each occurrence.
    - All handwritten materials that are submitted to the instructor must be using blue or black pen, no white out and using appropriate medical corrections.

Information Technology

NWP servers may be monitored. Student accounts are visible via ABTutor and student activity on NWP networks may be monitored during supervised exams and/or anytime students are on NWP networks. The collection of and access to the personal information listed above as permitted by the *Freedom of Information and Protection of Privacy Act*.

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 at https://www.nwpolytech.ca/about/polytechnic-leadership/policies-directory

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

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