University of Manitoba
Faculty of Agricultural and Food Sciences
Department of Animal Sciences

ANSC 2510 Anatomy and Physiology 1: Control Systems
Fall Term 2023

COURSE DETAILS

Course Title & Number:	ANSC 2510 Anatomy and Physiology 1: Control Systems CRN 10381
Number of Credit Hours:	3
Lecture time/Days/Location:	M, W, F / 10:30 – 11:20 am / Animal Science Building Room 107
Lab Time/Days/Location:	W / 2:30 – 5:25 pm / Animal Science Building Room 142 & 107
Pre-Requisites:	

Instructor Contact Information

Instructor(s) Name:	Dr. Karmin O, Professor
Office Location:	St. Boniface Hospital Research Centre RM2022 Animal Science/Entomology Building RM 238
Office Hours or Availability:	Before or after class, or contact to set up an appointment
Email:	Karmin.O@umanitoba.ca

Course Description

This course discusses the structure, function and interaction of the coordinating/regulatory systems in the animal and human body; including basic physiological and anatomical principles of nervous, muscular, cardiovascular, respiratory, renal, endocrine and immune systems.

Course Objectives

1. To recognize, identify and describe the structure and function of the organ systems of the major animal species
2. To discuss the fundamental principles of animal physiology
3. To explain how these principles are incorporated into the adaptations and maintenance of animal body homeostasis.
4. To discuss how changes in one system may impact different systems.
5. To establish the connections between the study of anatomy and physiology with animal health and production.

Learning Outcomes

1. Differentiate the anatomy of different physiological systems and their specific functions
2. Describe interactions between different organ systems (homeostasis)
3. Explain how a whole animal physiological process occurs

Using Copyrighted Material

Please respect copyright. We will use copyrighted content in this course. I have ensured that the content I use is appropriately acknowledged and is copied in accordance with copyright laws and University guidelines. Copyrighted works, including those created by me, are made available for private study and research and must not be distributed in any format without permission. Do not upload copyrighted works to a learning management system (such as UM Learn), or any website, unless an exception to the *Copyright Act* applies or written permission has been confirmed. For more information, see the University's Copyright Office website at http://umanitoba.ca/copyright/ or contact um_copyright@umanitoba.ca.

Recording Class Lectures

No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission of the instructors. Course materials (both paper and digital) are for the participant's private study and research.

Textbook, Readings, Materials

Handouts will be provided to students prior to lectures. The following materials are recommended:

1. Guyton, A.C. and Hall J.E., Textbook of Medical Physiology
2. Spurgeon's Color Atlas of Large Animal Anatomy
3. Acland's Video Atlas of Human Anatomy: sign-in through U of M Librairies https://libguides.lib.umanitoba.ca/az.php?t=12764

Course Technology

It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical and legal manner. Students can use all technology in classroom setting only for educational purposes approved by instructor and/or the University of Manitoba Disability Services. Student should not participate in personal direct electronic messaging / posting activities (e-mail, texting, video or voice chat, wikis, blogs, social networking (e.g. Facebook) online and offline "gaming" during scheduled class time.
Supplementary course guidelines/materials will be provided through UM Learn.

Class Communication

The University requires all students to activate an official University email account. For full details of the Electronic Communication with Students please visit: http://umanitoba.ca/admin/governance/media/Electronic_Communication_with_Students_Policy_-_2014_06_05.pdf

Please note that all communication between instructor and you as a student must comply with the electronic communication with student policy (http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html). You are required to obtain and use your U of M email account for all communication between yourself and the university.

Expectations

Attendance is mandatory
Show academic integrity and honesty
Work effectively as a team to design and execute class activities.
Not to leave the class before it ends unless there is an emergence to which you must attend.
Please be respectful in class and turn your cell phone off or onto vibration mode for the duration of the class.

Use your laptop computers to aid your leaning- Laptops are a perfect way to take notes in class and share information with peers; be respectful to the instructor and other students while using laptops by staying on task in class.
See Respectful Work and Learning Environment Policy.

Academic Integrity

Plagiarism or any other form of cheating in examinations, term tests or academic work is subject to serious academic penalty. Cheating in examinations or tests may take the form of copying from another student or bringing unauthorized materials into the exam room. Exam cheating can also include exam impersonation. A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty. Students should acquaint themselves with the University's policy on plagiarism; cheating, exam impersonation and duplicate submission.

Students Accessibility Services (SAS)

If you are a student with a disability, please contact SAS for academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.
Student Accessibility Services Accessibility for students | University of Manitoba (umanitoba.ca)
520 University Centre
204 474 7423
Student_accessibility@umanitoba.ca

Respectful Work and Learning Environment

In this course we support a climate of respect in the workplace and in the learning environment where individuals or groups of individuals are free from harassment and discrimination. For more information in this policy visit the following link:
http://umanitoba.ca/admin/governance/governing_documents/community/230.html

Course Evaluation Methods

Evaluation	Value of Final Grade
Midterm exams (three at 25% each)	75%
Final Exam	25%

Grading

Standardized grades used are those followed by the Food Science Department:

Final grade	Letter Grade	Grade Point Value	
91 - 100%	A+	4.5	Exceptional
81 - 90%	A	4.0	Excellent
75 - 80%	B+	3.5	Very Good
67 - 74%	B	3.0	Good
61 - 66%	C+	2.5	Satisfactory
56 - 60%	C	2.0	Adequate
50 - 55%	D	1.0	Marginal
Under 50%	F	0.0	Failure
	P	Null	Pass

Note: Grades will not be curved.

Class Schedule

This schedule is subject to changes at the discretion of the instructor and/or based on the learning needs of students

Class and lab schedule (tentative)

ANSC 2510 Anatomy and Physiology 1: Control Systems

This course deals with the structure, functions and interactions of the coordinating/regulatory systems in the animal body. These include the nervous, muscular, cardiovascular, respiratory, renal and endocrine systems.

Instructor: Dr. Karmin O
Email : Karmin.O@umanitoba.ca
Office : R2022, St. Boniface Hospital Research Centre

Class and lab schedule (tentative)

Date 2023	Lecture material	Lab
September 6 September 8 September 11 September 13	Introduction (general) **Homeostasis:** Introduction to homeostasis and membrane physiology. Membrane physiology is key to understanding nerve transmission, muscle contraction (skeletal, cardiac and smooth) and to understanding vascular dynamics, the function of the kidney, lung and actions of hormones.	September 6 Anatomy of the Skeletal system. Review /Tutorial
September 15 September 18 September 20 September 22 September 25 September 27	**Nervous system:** Look at the physics of action potentials and the general organization of the nervous system. Special consideration will be given to the study of synapses and neurotransmitters. We will also look at the role of the central nervous system in integrating information from sensors and the autonomic nervous system.	September 13 Anatomy of the Nervous system. Review /Tutorial
September 29	**Term Test 1 (25% of final grade)**	
October 4 October 6 October 11	**Muscle physiology:** Focus primarily on skeletal muscle. Look at physiology of muscle contraction. Role of muscles. Will also look at how contractions occur in smooth and cardiac muscle. Thanksgiving Day (October 9)	September 27 Anatomy of the Skeletal muscles. Review /Tutorial
October 13 October 16 October 18	**Cardiovascular system:** Study the function of the cardiovascular system. Look at distribution of blood flow, factors that influence heart rate, cardiac output as well as regional blood flow. Also briefly look at blood as a transport medium.	October 18 Anatomy of the Cardiovascular system. Review/Tutorial
October 20	**Term Test 2 (25% of final grade)**	
October 23 October 25	**Endocrine system**: Look at the integrating role of the endocrine system – emphasis on the role of	

October 27 October 30 November 1 November 3	each endocrine gland. Indicating which hormones it releases, what stimulates the release and the role the released hormone has on the system.	November 1 Review/Tutorial
November 6	**Term Test 3 (25 % of final grade)**	
November 8 November 10 November 20 November 22	**Respiratory system:** Study of gas exchange and factors that affect the oxygen and carbon dioxide carrying capacities of blood. **Fall Term break (November 13-17)**	November 22 Anatomy of the Respiratory system Review/Tutorial
November 24 November 27 November 29	**Renal physiology:** Function of the kidney. Factors that affect the concentration of urine. Look at the role of the kidney (along with respiratory system) in acid:base balance.	November 29 Anatomy of the Urinary system Review/Tutorial
December 1 December 4 December 6 December 8	**Immunology** **Review/Tutorial**	
December 11	**Final Exam (25% of final grade)**	

In this course we will focus on the physiology in the classroom and the anatomy in the lab sessions. However, the function of organs and tissues are closely related to their form and therefore it will necessitate some integration of lab and lecture materials.

Text: None required. Recommend Guyton and Hall, Textbook of Medical Physiology
Grade assignment:
Three term tests worth 25% each
Final exam worth 25%
Tests and final exam will contain questions for both class and lab material.

Note: The lecture, lab and test may vary from that scheduled above.

Please check the General Calendar with regards to academic integrity.