UNIVERSITY OF MANITOBA

Faculty of Agricultural and Food Sciences
Department of Animal Sciences

ANSC 2510 Anatomy and Physiology 1: Control Systems
Fall Term 2021

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 (remote)
Lab Time/Days/Location:	W / 2:30 – 5:25 pm / Animal Science Building Room (remote)
Pre-Requisites:	CHEM 2770 or MBIO 2770 or CHEM 2360 or MBIO 2360.

Instructor Contact Information

Instructor(s) Name:	Dr. Karmin O, Professor
Office Location:	St. Boniface Hospital Research 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 (http://umanitoba.ca/student/resource/student_advocacy/media/Advoc-Cheat-Booklet-rev04-web.pdf).

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 http://umanitoba.ca/student/saa/accessibility/
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

Assignments	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	
90 - 100%	A+	4.5	Exceptional
80 - 89%	A	4.0	Excellent
75 - 79%	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

Date 2021	**Lecture material** (Virtual - Cisco WebEx)	**Lab** (Virtual - Cisco WebEx)
September 8 September 10 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 8 Anatomy of the Skeletal system. Focus on main muscle groups and their actions.
September 15 September 17 September 20 September 22 September 24 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 15 Anatomy of the Nervous system. General overview of the gross anatomy of the nervous system. Will focus on those nerves that are most involved in the systems we will be covering (renal, respiratory etc.) but will also discuss others. September 22 Review /Tutorial
September 29	**TERM TEST ONE (25% of final grade)**	
October 1 October 4 October 6	**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.	September 29 Anatomy of the Skeletal muscles. Focus on main muscle groups and their actions.
October 8 October 13 October 15 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. Thanksgiving Day (October 11)	October 6 Review/Tutorial October 13 Anatomy of the Cardiovascular system. Focus on the structure of heart as well as major arteries and veins.
October 20	**TERM TEST TWO (25% of final grade)**	
October 22 October 25 October 27 October 29 November 1 November 3	**Endocrine system**: Look at the integrating role of the endocrine system – emphasis on the role of each endocrine gland. Indicating which hormones it releases, what stimulates the release and the role the released hormone has on the system.	November 3 Review/Tutorial
November 5	**TERM TEST THREE (25 % of final grade)**	

November 15 November 17 November 19	**Respiratory system:** Study of gas exchange and factors that affect the oxygen and carbon dioxide carrying capacities of blood. Fall break (November 8 – 12)	November 17 Anatomy of the Respiratory system.
November 22 November 24 November 26	**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 24 Anatomy of the Urinary system.
November 29 December 1 December 3 December 6	**Immunology** **Review/Tutorial**	
December 10	**TERM TEST – FINAL (25% of final grade)**	