UNIVERSITY OF SASKATCHEWAN and **St. Peter's College**

The UofS and St. Peter's College have campuses situated on Treaty 6 Territories and the Homelands of the Métis. We pay our respects to the First Nations and Métis ancestors of this place and reaffirm our relationship with one another. We would also like to recognize all other Treaty Territories and Homelands within Saskatchewan.

COURSE SYLLABUS

COURSE TITLE:	Biology 224 Animal Body Systems		
COURSE CODE:	23021	**TERM:**	2
COURSE CREDITS:	3	**DELIVERY:**	Lecture & Practicum (Lab)
CLASS SECTION:	96		
CLASS START DATE:	Jan. 9th, 2020	**LAB START DATE:**	Jan. 16th, 2020
CLASS LOCATION:	St. Peter's College	**LAB LOCATION:**	St. Peter's College
CLASS TIME:	Thurs. 9 - 12 AM	**LAB TIME:**	Thurs. 1 - 4 PM
WEBSITE:	www.usask.ca and www.bblearn.usask.ca		

Instructor Information

Contact Information

Dr. Naresh Ramesh naresh.ramesh@usask.ca

Office Hours

Before and after regularly schedule lecture and lab times. See posted schedule outside the faculty office or contact *via* email.

Course Description

Students will study the problems all animals overcome to survive and reproduce, and the different body systems that must deal with both unique and common environmental challenges. Prerequisites: Biology 120.3

Note: BIOL 121 is strongly recommended. Students with credit for BIOL 203 or BIOL 217 or BMSC 224 or HSC 208 will not receive credit for BIOL 224. Students with credit for PHSI 208 may not subsequently receive credit for BIOL 224. Students may receive credit for both of BIOL 224 and PHSI 208 only if BIOL 224 is completed first. BIOL 224 and PHSI 208 may not be taken concurrently.

Course Overview

Every week Biology 224 will require 3 hours of lecture, 3 hours of lab and a *minimum* of 3 hours of study. Reading the textbook prior to lecture and the lab manual prior to lab will ensure greater understanding of the material.

Learning Outcomes

By completing the lecture and lab portion of this course, students will be expected to:

1. Improve your critical thinking skills and observation skills.
2. Understand how organization of the major body systems in vertebrate animals, and from a number of relevant invertebrate examples.
3. Understand the basic concepts of organ system physiology, and link processes that occur at the cellular, tissue, and organ levels to whole animal physiology.
4. Appreciate the evolutionary adaptation of the vertebrate body, and how homeostasis allows animals to respond to short term changes in their environment.
5. Learn how select physiological variables can be measured in a laboratory setting and be able to explain experimental results in the context of physiological concepts.
6. Become competent at using Microsoft Excel to quantify and present scientific data, to draw and interpret scientific graphs and tables, and writing descriptive figures.
7. Learn to work effectively in a group setting.

Information on literal descriptors for grading at the University of Saskatchewan can be found at: http://students.usask.ca/current/academics/grades/grading-system.php

Please note: There are different literal descriptors for undergraduate and graduate students.

More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at:
http://www.usask.ca/university_secretary/council/academiccourses.php

The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at:
http://www.usask.ca/university_secretary/LearningCharter.pdf

Required Resources

Readings/Textbooks

BIOLOGY: Exploring the Diversity of Life: 4th Can. Ed., by Russell, Nelson Pub. (either printed copy or e-text). Highly recommended. Textbook readings from the 4th Edition are available on page 4. **Please note**: Older editions are still usable.

Anatomy and Physiology, by OpenStax. OpenStax.org

2019-2020 Lab Manual for Biology 224.3. University of Saskatchewan, Biology Department. Required (PDF available for purchase).

Textbooks are available from the University of Saskatchewan Bookstore:
www.usask.ca/bookstore/

Electronic Resources, Downloads & Supplementary Resources

There are a number of online resources to help support your learning in BIOL 224. We highly recommend the use of these resources as a means to help increase your performance and success in this course.

Blackboard Learn (https://bblearn.usask.ca) is where you will be able to access lecture notes, learning objectives, syllabus, and other resources from your instructor.

Those students who purchase a copy of the textbook (including the electronic version) will have access to MindTap. MindTap is an online platform and provides access to a digital copy of the textbook, animations, and self-tests.

Other readings/resources for the lecture and laboratory are on reserve in the library.

Class Schedule

(Approximate number of 50 minute lectures indicated in brackets)

WEEK	LECTURE TOPIC	LAB TOPIC (see lab manual for details)
1 (Jan. 9)	Intro. (1); Evolution of animals (1); Adaptation (1)	*No Lab*
2 (Jan. 16)	Communication Systems & Intro. to Nervous System (3)	Organization, Introduction to Excel and LabScribe.
3 (Jan. 23)	Nervous System (3)	Sensory & Motor Integration
4 (Jan. 30)	Nervous and Sensory system (3)	Nerve Action Potential
5 (Feb. 6)	Endocrine system (3)	*No Lab*
6 (Feb. 13)	**Midterm (Weeks 1-5), 9 AM** Skeletal-muscle system (1)	Lecture during lab Skeletal muscle system (2)
7 (Feb. 17-22)	***Midterm Break***	
8 (Feb. 27)	Osmoregulation (3)	Skeletal Muscle Physiology. **Lab Test 1**

Schedule continues on the next page.

WEEK	LECTURE TOPIC	LAB TOPIC
9 (Mar. 5)	Respiratory System (3)	Osmoregulation
10 (Mar. 12)	Circulatory System (3)	Human Respiratory Physiology
11 (Mar. 19)	Digestive System (3)	Human Circulatory System Physiology
12 (Mar. 26)	Food and Energy balance, The Neuroendocrine system (3)	Metabolism **Lab Test 2**
13 (Apr. 2)	Reproductive Physiology and Animal Development (3)	Lab Review
14 (Apr. 9)	**Final Lab Exam, 10-11.30 AM**	

Russell Textbook Readings

LECTURE TOPIC	TEXTBOOK READINGS - Russell
Intro; Evolution of Animals; Adaptation/Homeostasis & Communication	Chapter 27 Chapter 32 & 38
Nervous Systems & Sensory Systems	Chapter 45
Endocrine Systems	Chapter 43
Skeletal-muscle systems	Chapter 46
Osmoregulation	Chapter 42
Respiratory Systems	Chapter 40
Circulatory Systems	Chapter 41
Digestive Systems & Food/Energy	Chapter 39
Metabolism & Temperature	Chapter 39 & 42
Reproduction & Development	Chapter 44 & Development video

Midterm and Final Examination Scheduling

Midterm and lab (test and final) examinations must be written on the date scheduled, and at the location scheduled. See above schedule for midterm exam dates and lab exam dates. St. Peter's final exam dates will be posted online.

Final examinations may be scheduled at any time during the examination period (April 9th to April 30th, 2020); students should therefore avoid scheduling travel plans, employment, or other commitments for this period.

If a student is unable to write an exam through no fault of his or her own for medical or other valid reasons, documentation must be provided and an opportunity to write the missed exam may be given. Students absent for a midterm exam must advise their lecturer in person, by telephone or by e-mail and initiate arrangements for writing a

Deferred Midterm Exam. Contact must be made within **three working days** of the missed exam, **supported by appropriate documentation**, in order to avoid being assigned a grade of zero for the exam. The same rules apply for a Deferred Final Exam, but applications are made to the Dean's Office of your college.

As a student, you must bring your current College or University of Saskatchewan student ID card to all exams and be prepared to present it for verification purposes.

It is forbidden for you to utilize, in any way during an exam, any electronic device (e.g. cellphone, smartphone, tablet, laptop, electronic dictionary and/or translator) other than a simple calculator (if required by the examiner) for solving mathematical problems.

Students are encouraged to review all examination policies and procedures at: http://students.usask.ca/academics/exams.php

Grading Scheme

Midterm Exam	20%
Final Exam	45%
Group Lab Reports	8%
Pre-Lab Quizzes	3%
Lab Tests	9%
Lab Exam	15%
Total	**100%**

Evaluation Components

Midterm Exam

Value: 20% of final grade
Date: See course Schedule on pages 3-4
Length: 50 minutes
Type: 40 Multiple choice. Closed book, hand marked.
Description: Multiple choice questions, based on information presented in Weeks 1-6. During the exam, it is forbidden for you to utilize any electronic device other than a simple calculator (if required).

Final Exam

Value: 45% of final grade
Date: St. Peter's final exam schedule will be posted online
Length: 3 hours
Type: Multiple choice, comprehensive. Closed book, hand marked.
Description: 100 multiple choice questions, based on all course information. This exam will be split approximately 30% Weeks 1-6 and 70% Weeks 7-14. During the exam, it is forbidden for you to utilize any electronic device other than a simple calculator (if required).

Lab Reports

Value: 8% of final grade
Due Date: Every week, during lab time.
Type: Written lab report.
Description: Weekly reports consisting of figures and tables drawn with MS Excel and containing appropriate scientific figure legends and presented in a scientific manner. Based on data collected during lab time. All group members are to participate in the preparation of these reports. Reports must be handed in during lab time. Complete instructions about these group reports are contained in the lab manual.

Pre-Lab Quizzes

Value: 3% of final grade
Due Date: Every week, prior to lab time
Type: Multiple choice, fill in the blank, T/F. Online, open book
Description: These quizzes will be 10 minutes in duration and test material for the upcoming lab exercises, i.e. completed prior to each lab. Quizzes are open book but are to be completed individually. Additional information is available in the lab manual.

Lab Tests

Value: 9% of final grade
Date: See schedule on pages 3-4
Type: Short answer, calculations, multiple choice, fill in the blank, T/F.
Description: Two tests approximately 15-20 minutes in length, based on previous lab exercises. Closed book. Basic calculators allowed. Additional information is available in the lab manual.

Lab Exam

Value: 15% of final grade
Date: See course Schedule on pages 3-4
Type: Short answer, calculations, multiple choice, fill in the blank, T/F.
Description: Closed book exam based on all material presented in the laboratories. 1.5 hours in length. Basic calculators allowed. Additional information is available in the lab manual.

Submitting Assignments & Late Assignments

All exams, quizzes and assignments are to be completed during the assigned class time. Any assignments handed in late or remaining uncompleted will be assigned a mark of zero. Please see above for other rules and regulations around missed exams. Please refer to the current lab manual for other polices around missed lab assignments.

Student Feedback

All exam, quiz and assignment marks will be returned to the student within one week (5 working days) of the exam/quiz/assignment date. Lecture midterms will be discussed with students during lecture time during the week following the midterm date. Lab assignments will be returned to the students the week following the assignment date. Final lecture exam and lab exam marks will be posted (in class, online or sent via email), but you must make separate arrangements with the instructor to review these exams.

Attendance Expectations & Participation

It is to the student's benefit to be on time and attend all lectures and labs. When attending classes or labs, it is essential you attend the section(s) in which you are enrolled. Asking questions and engaging in the material is also beneficial.

Criteria That Must Be Met to Pass

A recorded grade for all assignments, quizzes and exams, with a total grade of 50%, is required to pass this course. INF (incomplete failure) can be applied to those students not attending a lab final exam. INF will be applied to those students not attending the lecture final exam.

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (http://www.usask.ca/secretariat/student-conduct-appeals/StudentAcademicMisconduct.pdf) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (http://www.usask.ca/secretariat/student-conduct-appeals/StudentNon-AcademicMisconduct.pdf)

For more information on what academic integrity means for students see the Student Conduct & Appeals section of the University Secretary Website at: http://www.usask.ca/secretariat/

Examinations with Access and Equity Services (AES)

Students who require accommodations based on disability, religion, family status and gender identity are strongly encouraged to register with Access and Equity Services (AES), if they have not already done so. Students who suspect they may require accommodations should contact AES for advice and referrals, as soon as possible. To access AES programs and supports, students must follow AES policy and procedures. For more information, check https://students.usask.ca/health/centres/access-equity-services.php, or contact AES at 966-7273 or aes@usask.ca.

Students will provide a copy of their AES letter to the instructor at the beginning of term, or as soon as it is available. This letter may allow for certain accommodations for lab exams and mid-term and final lecture exams. However, to receive accommodation **students must provide AES documentation to the instructor and to college staff 14 days prior to the midterm exam date or lab exam dates, and a minimum of 3 weeks before the start of final exams.** Accommodations not listed in the AES letter will be denied, unless agreed upon by all parties prior to the exam date.

You may record lectures, but please give the instructor notice if you intend to do so, as fair warning to other students must be given.