



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. 6, 2022	LAB START DATE:	Jan. 20, 2022
CLASS LOCATION:	St. Peter's College	LAB LOCATION:	St. Peter's College
CLASS TIME:	Thurs. 9 a.m.	LAB TIME:	Thurs. 1 p.m.
WEBSITE:	www.usask.ca and www.bblearn.usask.ca		

Treaty and Land Acknowledgement

As we engage in learning, we would like to acknowledge that the St. Peter's College and the Saskatoon campus of the University of Saskatchewan are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another. We would also like to recognize that some may be attending this course from other traditional Indigenous lands. We ask that you take a moment to make your own Land Acknowledgement to the peoples of those lands. In doing so, we are actively participating in reconciliation as we navigate our time in this course, learning and supporting each other.

Instructor Information

Contact Information

Kim Cross

kim.cross@usask.ca

Office Hours

30 minutes before lecture and 30 minutes following lecture, 30 minutes following lab. If you cannot attend these office hours, please email questions between Monday to Thursday. I unfortunately cannot guarantee emails will be answered between Friday to Sunday. If urgent, please email me again or contact the College and ask them to pass on a message. Zoom meetings can also be set up, for more in-depth explanations.

Remote Learning Context

This course (lecture and lab) will be delivered face-to-face. However, due to the complex circumstances presented by the pandemic, the delivery of this course may take many forms and may change over time. Elements of remote learning may be required by some, or all, students for portions of the course. As participants in this class please act with empathy and care toward other students, the instructors and university staff. All participants wish for the best possible outcome in this class.

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.

Course Overview

Biology 224 will require 3 hours of lecture, 3 hours of lab, and a *minimum* of 3 hours of study. Lectures and labs will be delivered face-to-face from St. Peter's College in Muenster, Saskatchewan. 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:

- Describe the organization of the major body systems in vertebrate animals. (knowledge)
- Explain how processes at the cellular, tissue and organ levels link to whole animal physiology. (understand)
- Contrast homeostatic mechanisms and evolutionary adaptations in the vertebrate body that allow animals to respond to changes in their environment. (understand, analyze)
- Compare vertebrate and invertebrate body systems in selected examples. (understand, analyze)
- Quantify select physiological variables in a laboratory setting. (analyze)
- Interpret experimental results and draw appropriate conclusions in the context of physiological concepts. (apply)
- Construct scientific graphs and tables. (apply, create)
- Write concise reports to evaluate results obtained during scientific experiments. (evaluate, create)
- Work cooperatively in a small group setting to complete assigned tasks.
- Promote academic integrity and professionalism.

Note: The learning outcomes for BIOL 224 encompass course-specific content, skills, and long-term attitudes or values. The descriptors shown in the parentheses after each learning objective refers to the placement of active verbs within Bloom's taxonomy of educational objectives. Specific skills transferable to other university level courses are developed in outcomes 5,7,6 and 8, whereas outcomes 9 and 10 address learner attitude/values. A copy of the Learning Charter can be found at:

<https://teaching.usask.ca/about/policies/learning-charter.php>

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

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 below. **Please note:** Older editions are still usable. **Alternate text:** Anatomy and Physiology, by OpenStax. OpenStax.org

Laboratory Manual for BIOL 224 (2021-22 edition must be purchased). An electronic version of the \$40 manual must be purchased from the University of Saskatchewan Bookstore: www.usask.ca/consumer_services/bookstore/textbooks

You will be provided with a unique access code for the digital copy of your lab manual affixed to a sheet of paper. Each student registered in Biology 224 must purchase an access code for the lab manual. Students who fail to do so will be given a 0% on all pre-lab concept quizzes, group assignments and group and self-assessment in the lab. The access code is linked to your registration in BIOL 224 and lab manual purchase will be monitored. Do not lose your access code, as you will have to purchase another. We recommend taking a photo of your access code in case you lose it. You may print one copy of the manual for your own use. You are not permitted to distribute the manual to others in any form, electronic or otherwise. To do so is considered copyright infringement and students who do so will be subject to disciplinary action in accordance with University of Saskatchewan academic conduct policies. 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 Biol224. We highly recommend the use of these resources as a means to help increase your performance and success in this course. Canvas (<https://canvas.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) have the option to purchase/access MindTap. MindTap will not be used in the St. Peter's section of Biology 224.3. Other readings/resources for the lecture and laboratory are on reserve in the library.

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

Important Academic Dates

Mon. Jan. 18th – Last day to withdraw from T2 (Winter) classes with 100% tuition credit.

Mon. Jan. 24th – Last day to withdraw from T2 (Winter) classes with 75% tuition credit.

Mon. Jan. 31st – Last day to withdraw from T2 (Winter) classes with 50% tuition credit.

Wed. Apr. 5th – Last day to withdraw from T2 (Winter) classes.

Laboratories

Labs begin January 20th, 2022. Online lab components (modules) will be integrated into the Lecture section on Canvas. PAWS registration will list a time and day of the week for each lab section and the general lab schedule is provided on the final page of this syllabus.

St. Peter's College staff and instructors will strive to deliver the best possible learning experience, as such there will be an attempt to deliver all components of the lab face-to-face. This delivery will have to meet with COVID-19 safety standards set out by the University and the Health Authority. More information about specific face-to-face lab exercises will be given during the first lecture and in each lab module on Canvas. Where labs cannot be completed face-to-face, data for exercises will be provided to the students. Any face-to-face labs will be delivered as exercises done in small groups of 3. Some labs will require student volunteers.

After all students have received the data from the exercises, all students will discuss and interpret the outcome of the exercises together. After the general discussion group, students will once again break into their smaller groups of 3 to write their assignments.

2021-2022 edition of the Lab Manual for Biology 224.3 is required for all labs. A device capable of capturing digital photographs (ex. smartphone camera, webcam, digital camera) may also be required. Students are expected to participate in and complete all lab activities and assignments.

Grading Scheme

Lecture Midterm Exam	15%
Lecture Final Exam	45%
Academic Integrity Certificate	0%
Lab Group Assignments & Reports	10%
Lab Group & Self Assessments	2%
Pre-lab Quizzes	4%
Lab Exam #1	9%
Lab exam #2 (comprehensive)	15%
Total	100%

Evaluation Components

Lecture Midterm Exam

Value: 15% of final grade
Date: See Course Schedule
Length: 50 minutes
Format: 40 Multiple choice. Closed-book, in-person.
Description: Multiple choice questions, based on information presented in Weeks 1-6. Any use of resources or non-approved electronic device utilized during the exam will be considered academic misconduct.

Lecture Final Exam

Value: 45% of final grade
Date: April 2022 Final Examination Period
Length: 3 hours
Format: 100 Multiple choice, comprehensive. Closed-book, in-person.
Description: 100 multiple choice questions, based on all course information. This exam will be split approximately 30% Weeks 1-6 and 70% Weeks 7-13. Any use of resources or non-approved electronic device utilized during the exam will be considered academic misconduct.

Academic Integrity Certificate

Value: 0% of final grade but completion required as a lab prerequisite
Date: See Course Schedule
Format: Online tutorial.
Description: Our goal is to ensure a learning and teaching environment with a high standard of academic integrity for BIOL 224. The University of Saskatchewan has developed some outstanding web-based resources to help students understand and practice academic integrity. This includes an opportunity to complete three modules dealing with various aspects of academic integrity. You will be sent a certificate on completion of each of the modules. As a BIOL 224 student, you must complete the first module, and upload the certificate as a Canvas assignment. It is acceptable if you have received the certificate of completion for the first module as a requirement in other courses. We also recommend completing the other two modules. This assignment will be graded as complete/incomplete (ie it does not contribute to your final course grade).

Lab Group Assignments & Reports

Value: 10% of final grade
Due Date: Every week, during lab time
Format: These will mostly consist of figures and tables. Data obtained during the lab periods are to be organized and presented in a scientific manner in these reports. Open-book, in-person.
Description: All group members are to participate in the preparation of these reports. Figures will be drawn using MS Excel. A scientific figure legend will be written and included with each graph. These must be printed and handed in to your lab demonstrator before the end of the lab period. Complete instructions about these group reports are contained in your lab manual.

Lab Group & Self Assessments

Value: 2% of final grade

Due Date: See Course Schedule

Format: Survey based on work within their group.

Description: Students are expected to actively contribute to the work being performed within your group. Rubrics that will be used to determine these contributions will be posted on Canvas. You are encouraged to review the rubric to understand the exact details of how you will be assessed for your contributions. Your contribution to the work of your group will be assessed by the other members in your group and your TA. It is fully expected that students will collaborate within their group to help each other with the collection, analysis and presentation of data. This assessment will count for 2% of your final grade.

Pre-lab Quizzes

Value: 4% of final grade

Date: Every week, before lab time.

Format: Eight online (Canvas) quizzes to precede each lab period, each worth 0.5% of the final grade. Open-book.

Description: The pre-lab quizzes will be 10 minutes in duration and test material for the upcoming lab exercise. They will be made available online following the previous week's lab, and will consist of multiple choice, or short answer questions with answers to be submitted through Canvas. The quizzes are to be completed by each student working individually and will require use of the lab manual and textbook. Other reference material is allowed as needed. Additional information about the pre-lab quizzes is found in your lab manual.

Lab Exams

Value: 9% & 15% of final grade

Date: See Course Schedule

Format: These Canvas delivered exams will be a mixture of short written answers, long answer, calculations and multiple-choice questions. Closed-book, in-person.

Description: The first lab exam will be 1 hour in duration and test material from lab exercises 1 – 4. The second lab exam will be 1.25 hours in duration testing all labs with a focus on labs 5 – 8. Calculators allowed. Laptops permitted as exam is conducted using Canvas. Additional information about the lab exams is found in your lab manual and will be provided in the lab review sessions.

Lecture Midterm, Lecture Final and Lab Examination Scheduling

These examinations must be written on the date scheduled, and at the location scheduled (these exams are in-person exams, even if delivered through Canvas). See the course schedule for the Lecture Midterm and Lab Exam dates.

Consult the April Final Exam Schedule when it is released for the Lecture Final Exam date and time. The Lecture Final Exam will be scheduled by Student Services, in consultation with the UofS. Your instructor does not set the date/time on the Lecture Final Exam. The Final Exam period runs April 7 to 28, 2022.

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 the Lecture Midterm or Lab Exams must advise their lecturer in person, by telephone or by e-mail and initiate arrangements for writing a Deferred Midterm Exam or Deferred Lab Exam. Contact must be made within **three working days** of the missed exam and **supported by appropriate documentation**, in order to avoid being assigned a grade of zero for the exam. The same rules apply for a Deferred Lecture Final Exam, but applications are made to the Dean's Office of your college. Your instructor cannot give a Deferred Final Lecture Exam without permission from the UofS.

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 other than that required to take the exam. Use of non-approved devices will be considered academic dishonesty.

Students are encouraged to review all examination policies and procedures:

<http://students.usask.ca/academics/exams.php>

Criteria That Must Be Met to Pass, including Attendance, Assignment Submissions, & Grading

Students are encouraged to review all University examination policies and procedures:

<http://policies.usask.ca/policies/academic-affairs/academic-courses.php>.

All assignments and exams are to be completed during the assigned time (see Evaluation Components section above). Any incomplete quizzes, assignments and exams will be assigned a mark of zero. At the end of Term 2, all grades from all assignments and exams will be tallied. A total grade of 50% is required to pass this course. However, students not attending the Lecture Final Exam will be assigned an INF and a grade of 49% or lower (depending on work completed). In short, students must attend the Lecture Final Exam. University regulations concerning grading and examinations are at

<https://students.usask.ca/academics/exams.php>

It is to the student's benefit to be on time and attend all lectures. It is essential students attend the section number in which they are enrolled, as content can vary from section to section.

Submitting Assignments & Late Assignments

All exams, quizzes and assignments are to be completed during the assigned class time or on the due date assigned. 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 policies around missed lab assignments.

Student Feedback

All exam, quiz and assignment grades will be posted to Canvas within one week of the exam/quiz/assignment date. Lab assignments will be returned to the students the week following the assignment date. Online pre-lab quiz results will be released once all students have completed the quiz. You must make arrangements with your instructor to view the Lecture Midterm Exam, Lab Exams and Lecture Final Exam, these will not be returned to the students.

Use of Video, Recording the Course, and Copyright

At times in this course students will be required to have video on during video conferencing sessions. It will be necessary for students to use of a webcam built into or connected to a computer. Video conference sessions in this course, including student participation, will be recorded and made available only to participants in the course section for viewing via Canvas after each session. This is done, in part, to ensure that students unable to join the session (due to, for example, issues with their internet connection) can view the session at a later time. This will also provide students the opportunity to review any material discussed.

Please remember that course recordings belong to the instructor, the University, and/or others (like a guest lecturer) depending on the circumstance of each session and are protected by copyright. Do not download, copy, or share recordings without the explicit permission of the instructor (see <http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html>). More information on class recordings can be found in the Academic Courses Policy <https://policies.usask.ca/policies/academic-affairs/academic-courses.php#5ClassRecordings> . For more information about copyright, please visit <https://library.usask.ca/copyright/index.php> where there is information for students available at <https://library.usask.ca/copyright/students/rights.php> , or contact the University's Copyright Coordinator at <mailto:copyright.coordinator@usask.ca> or 306-966-8817.

Students Writing Exams with Access and Equity Services (AES)

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals. In order to access AES programs and supports, students must follow AES policy and procedures. For general information, check www.students.usask.ca/aes, or contact AES at 966-7273 or aes@usask.ca. Please see additional information on AES COVID-19 response: <https://students.usask.ca/documents/AES/aes-covid-19-response.pdf>. Students should also contact St. Peter's Student Services for more details.

Students registered with AES may request alternative arrangements examinations. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide examinations for students who are being accommodated by AES, by the deadlines established by AES.

Integrity Defined (from the Office of the University Secretary)

Although the face of teaching and learning has changed due to COVID-19, the rules and principles governing academic integrity remain the same. If students ever have questions about what may or may not be permitted, ask the instructor. Students have found it especially important to clarify rules related to exams administered remotely and to follow these carefully and completely.

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 (<https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS>)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <https://library.usask.ca/academic-integrity#AboutAcademicIntegrity>

Students are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial>

Class Schedule

(Approximate number of 50 minute lectures indicated in brackets)

WEEK	LECTURE TOPIC	LAB TOPIC (see lab manual for details)
1 (Jan. 6)	Intro (1); Evolution of animals (1); Adaptation/Homeostasis (1)	NO LAB
2 (Jan. 13)	Communication Systems & Intro to Nervous System (3)	Complete the Academic Integrity Tutorial, email certificate to instructor.
3 (Jan. 20)	Nervous System (3)	Lab 1: Highlighting Homeostasis Pre-Lab Quiz for Lab #1 due 30 minutes before lab Lab Report #1 due at end of lab
4 (Jan. 27)	Sensory system (3)	Lab 2: Neural Integration Pre-Lab Quiz for Lab #2 due 30 minutes before lab Lab Report #2 due at end of lab
5 (Feb. 3)	Endocrine system (3)	Lab 3: Sensory Neuron Action Potentials Pre-Lab Quiz for Lab #3 due 30 minutes before lab Lab Report #3 due at end of lab
6 (Feb. 10)	Skeletal-muscle system (3)	Lab 4: Skeletal Muscle Physiology Pre-Lab Quiz for Lab #4 due 30 minutes before lab Lab Report #4 due at end of lab
7 (Feb. 17)	Lab Exam 1 (Labs 1-4) 1 hour exam time Osmoregulation (1.5)	Osmoregulation (2.5)
8 (Feb 21-25)	Midterm Break	
9 (Mar. 3)	Lecture Midterm (Weeks 1-6) 50 minute exam time Respiratory system (2)	Lab 5: Osmoregulation Pre-Lab Quiz for Lab #5 due 30 minutes before lab Lab Report #5 due at end of lab
10 (Mar. 10)	Respiratory system (2) Circulatory system (1)	Lab 6: Respiratory Physiology Pre-Lab Quiz for Lab #6 due 30 minutes before lab Lab Report #6 due at end of lab
11 (Mar. 17)	Circulatory system (3)	Lab 7: Circulatory System Physiology Pre-Lab Quiz for Lab #7 due 30 minutes before lab Lab Report #7 due at end of lab
12 (Mar. 24)	Digestive system & Metabolism – Nutrients and Energy (3)	Lab 8: Metabolism Pre-Lab Quiz for Lab #8 due 30 minutes before lab Lab Report #8 due at end of lab
13 (Mar. 31)	Lab Exam 2 (All labs, focus 5-8) 1.25 hour exam time Homeostasis of Digestive & Metabolism (1.5)	Reproduction & Development (2)
14 (Tuesday Apr. 5)	Last day of Term 2 Classes	Lab Group & Self Assessments due