



## COURSE SYLLABUS

COURSE TITLE:	BIOL 318 Comparative Animal Systems Physiology		
COURSE CODE:	24098	TERM:	Winter 2018
COURSE CREDITS:	3.0	DELIVERY:	Lecture & Practicum (Lab)
CLASS SECTION:	01	START DATE:	3 Jan 2018
LECTURE LOCATION:	room 124 Biology Bldg	LAB LOCATION:	room 212 Biology Bldg
LECTURE TIME:	8:30 to 9:20 am MWF	LAB TIME:	1:30-5:20 pm Wednesday
WEBSITE:	via PAWS/Blackboard		

### Course Description

An in-depth examination of cardiovascular, respiratory, osmoregulatory, digestive, and reproductive system physiology in animals. Examples are drawn from vertebrate and invertebrate models. Emphasizes endocrine and nervous coordination of cellular and whole animal body functions.

Prerequisite(s): BIOL 317 (formerly BIOL 217).

Note: Students with credit for BIOL 218 will not receive credit for this course.

### Learning Outcomes

By the completion of this course, students will be expected to:

1. have an in depth understanding of physiological principles and processes associated with major animal organ systems
2. develop their problem-solving skills and be able to apply their theoretical knowledge to realistic medical, veterinary or other applied case studies.
3. have improved their scientific writing skills
4. be able to find and read up-to-date scientific literature relevant to course material
5. have competent oral presentation skills
6. be able to work with a group to accomplish complex tasks
7. understand the scientific knowledge discovery process and be able to locate the new findings that are continually transforming our understanding of how the animal body functions

Note: 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/learning\\_charter/](http://www.usask.ca/learning_charter/)

## Course Overview

The course consists of 50 minutes of lecture on the MWF schedule, starting on Jan 3 2018 and ending on Apr 6 2018. This will result in 36 days of lectures during the term (approximately 30 hours of face-to-face instruction in the lectures). Six afternoons of hands-on lab exercises plus three afternoons for student presentations are also included in this course. Completion of the labs is a required course component. You will hone your scientific writing and oral communication skills through the preparation of group case reports, literature research assignments and a class presentation during the laboratory. In the hands-on exercises, you will work in small groups to solve problems associated with case studies drawn from medical, veterinary or other real-world situations. The case studies are used to provide a practical illustration of some of the major lecture concepts and are coordinated with lecture material as shown in the schedule below. You will have access to the internet and electronic University Library resources during the lab period. A one-page report summarizing your case study will be prepared as a group exercise during the lab period and submitted at the conclusion of the lab. Each student will also be assigned three recent scientific articles to read and understand. These will be spaced-out during the term and coordinated with other lab work and lecture material as shown in the Class Schedule below. You will be responsible for completing a one page summary of each article, and giving a 20 minute oral presentation on one of the articles. Note that the lab periods are scheduled for 3 hrs 50 minutes per afternoon; students must make themselves available for this entire time period.

## Class Schedule

Week/ Dates	Instructor Major Lecture Topics Laboratory Activity	Readings*	Student Work Due/Other Types of Assessment
<b>Week 1</b> Jan 3 Jan 5	Nature and purpose of class; Circulatory System Physiology  <i>No lab scheduled this week</i>	<u>Textbook</u> : Part V (Oxygen, Carbon Dioxide & Internal Transport)	Nothing due
<b>Week 2</b> Jan 8 Jan 10 Jan 12	Circulatory System Physiology  <i>No lab scheduled this week</i>	<u>Textbook</u> : Part V	Nothing due
<b>Week 3</b> Jan 15 Jan 17 Jan 19	Circulatory System Physiology  <i>Lab Period: Orientation &amp; Intro to Literature Research Assignment #1 (cardiac physiology)</i>	<u>Textbook</u> : Part V  <u>Lab Folder</u> : Instructions for Literature Research Assignments	Nothing due
<b>Week 4</b> Jan 22 Jan 24 Jan 26	Circulatory System Physiology  <i>Lab Period: Case Study #1 (cardiac electrophysiology)</i>	<u>Textbook</u> : Part V  <u>Lab Folder</u> : Instructions for Case Study #1	Group Case #1 Report
<b>Week 5</b> Jan 29 Jan 31 Feb 2	Circulatory System Physiology Respiratory System Physiology  <i>Lab Period: Case Study #2 (cardiac pharmacology)</i>	<u>Textbook</u> : Part V  <u>Lab Folder</u> : Instructions for Case Study #2	Group Case #2 Report

<b>Week 6</b> Feb 5 Feb 7 Feb 9	Respiratory System Physiology <i>Lab Period:</i> Literature Research #1 - Student Presentations; Intro to Literature Research Assignment #2 (renal physiology)	<u>Textbook:</u> Part V <u>Lab Folder:</u> Instructions for Literature Research Assignments	Literature Research Assignment #1 Summary & Presentations
<b>Week 7</b> Feb 12 Feb 14 Feb 16	Osmoregulatory Physiology <i>Lab Period:</i> Case Study #3 (respiratory physiology)	<u>Textbook:</u> Part VI <u>Lab Folder:</u> Instructions for Case Study #3	Group Case #3 Report
<b>Week 8</b> Feb 19 Feb 21 Feb 23	Midterm Break <i>No lectures or lab scheduled this week</i>		
<b>Week 9</b> Feb 26 Feb 28 Mar 2	Osmoregulatory Physiology <i>Lab Period:</i> Case Study #4 (renal physiology)	<u>Textbook:</u> Part VI <u>Lab Folder:</u> Instructions for Case Study #4	Group Case #4 Report
<b>Week 10</b> Mar 5 Mar 7 Mar 9	Digestive System Physiology <i>Lab Period:</i> Midterm Exam	<u>Textbook:</u> Part II	90 minutes during lab period on Mar 7 (to end of Respiratory System Physiology)
<b>Week 11</b> Mar 12 Mar 14 Mar 16	Digestive System Physiology <i>Lab Period:</i> Literature Research #2 - Student Presentations; Intro to Literature Research Assignment #3 (endocrine physiology)	<u>Textbook:</u> Part II <u>Lab Folder:</u> Instructions for Literature Research Assignments	Literature Research Assignment #2 Summary & Presentations
<b>Week 12</b> Mar 19 Mar 21 Mar 23	Endocrinology & Reproductive Physiology <i>Lab Period:</i> Case Study #5a (gastrointestinal physiology)	<u>Textbook:</u> Chapters 16 & 17 <u>Lab Folder:</u> Instructions for Case Study #5a	Group Case #5 Case preparation
<b>Week 13</b> Mar 26 Mar 28	Endocrinology & Reproductive Physiology <i>Lab Period:</i> Case Study #5b (gastrointestinal physiology)	<u>Textbook:</u> Chapters 16 & 17 <u>Lab Folder:</u> Instructions for Case Study #5b	Group Case #5 Report
Mar 30	Good Friday – no lecture		
<b>Week 14</b> Apr 2 Apr 4 Apr 6	Endocrinology & Reproductive Physiology Course wrap-up <i>Lab Period:</i> Literature Research #3 - Student Presentations		Literature Research Assignment #3 Summary & Presentations
	Final Exam during regular exam period (Apr 9 to 28)		

\* Additional readings may be assigned as the course proceeds. These will be noted during the lectures or in the lab folders as appropriate.

## Instructors:

### Contact Information:

Dr Tracy Marchant	room 322 Biology bldg tracy.marchant@usask.ca	966-4420
Ms Sheri Fisher (lab coordinator/instructor)	room G77.3 Thorvaldson sheri.fisher@usask.ca	966-4431
Mr Andrew Elgin (teaching assistant)	andrew.elgin@usask.ca	

**Office Hours:** Generally-speaking, the instructors above will be available in their offices on a drop-in basis. However, please note that all instructors have other commitments that may take them away from their office. Specific appointments can be set by email or through a phone call. Email responses to specific questions about course material are at the discretion of each instructor; information about individual policies will be provided in the lecture or laboratory by each instructor.

**Instructor Profiles & Other Information:** Dr Marchant is a regular faculty member/professor in the Department of Biology. She holds advanced degrees (MSc, PhD) and teaches and conducts research in the general area of animal physiology. Ms Fisher also holds an advanced degree (MSc) and is responsible for coordinating and teaching in the laboratories for BIOL 318. Mr Elgin is an MSc student in the Department of Biology and is responsible for teaching and grading in the laboratories for BIOL 318.

## Required Resources

### Textbooks

Hill, Wyse & Anderson. 2016. Animal Physiology 4 ed, Sinauer.

This is available from the University of Saskatchewan Bookstore:

[http://www.usask.ca/consumer\\_services/bookstore/textbooks](http://www.usask.ca/consumer_services/bookstore/textbooks)

Laboratory Instructions for BIOL 318 (will be available as a free download from the course Blackboard)

### Electronic Resources

The laboratory portion of this course will require a working knowledge of computers and various computer programs, including MS Excel, Word and Powerpoint. Computers will be used extensively to search the internet and access University Library resources and prepare reports in the laboratory. You will need to access your University computer account during the laboratory; make sure you know your university nsid and password and how to log on to your account. Further details about the lab exercises are in the Blackboard lab folders.

### Downloads

These will be available as appropriate through the course Blackboard. The only document that you are required to download and read is the course syllabus. Please note that Dr Marchant's Powerpoint slides may be provided to you as a courtesy. You are not required to download or print these slides. While the instructor will endeavour to have the lecture Powerpoint slides posted sometime in advance of the lecture, this will not be guaranteed.

## Supplementary Resources

From time to time, your instructors may make supplementary material available to you through the course Blackboard. This material will not replace the lecture or lab experience and you are encouraged to attend all lectures and take your own notes. A number of paper-based resources for the laboratory may be placed on reserve for you in the Natural Sciences Library; information about these is provided in the lab folders as appropriate.

## Grading Scheme

Midterm Exam	20
Final Exam	45
Group Case Reports/Description (six X 2.5% each)	15
Literature Research Summary (three X 5% each)	15
Oral Presentation (one)	5
Total	100%

## Evaluation of Student Performance

### Midterm Exam

**Value:** 20% of final course grade  
**Date:** Mar 7 (to be written at 2 pm during the lab period)  
**Length:** 90 minutes  
**Format:** a mix of multiple choice questions and those requiring a written answer.  
**Description:** Will include lecture material to the end of Respiratory Physiology. Calculators allowed. No phones, laptops, tablets or other materials allowed.

### Final Exam

**Value:** 45% of final grade  
**Date:** Consult the Final Exam Schedule when it is released.  
**Length:** 3 hours  
**Format:** a mix of multiple choice questions and those requiring a written answer.  
**Description:** The exam is comprehensive in that it will cover all lecture material. However, material delivered since the midterm exam will be emphasized. Calculators allowed. No phones, laptops, tablets or other material allowed. Students should plan to be in Saskatoon during the final exam period (Apr 9 to 28) as the BIOL 318 final exam could be scheduled on any day during this period.

### Group Case Reports:

**Value:** 15% of final grade  
**Due Date:** See Course Schedule for exact dates  
**Format:** Each group of students will prepare five one-page reports about the case they studied in the lab. Each report is to be submitted electronically prior to the end of the lab period when the case was studied. For Case #5, each group will also prepare a powerpoint case description for their fellow students to analyze in the subsequent laboratory period  
**Description:** Comprehensive information about the format and style to be used for these reports is contained in the lab folder and will be explained in detail during the orientation lab period. Each report will consist of one page of writing plus a separate page for the references

used to prepare the case report. Students are required to know and understand what constitutes plagiarism and the University's Regulations on Academic Student Misconduct (see below). Five cases will be studied by each group and each case report will be worth 2.5% of the final grade. The powerpoint case description in Lab 5a is to be prepared following the format of the other case descriptions prepared by Dr. Marchant and will consist of 5 to 7 powerpoint slides. The quality of the case prepared for Lab 5a will be assessed by the instructors and the student group who analyzed the case.

**Publication of the Case Report:** Each group case report will be posted on the course Blackboard so that other students can read and learn from the case. The grade assigned to the report will remain confidential (ie will not be posted).

### Literature Research Summaries:

**Value:** 15% of final grade

**Due Date:** See Course Schedule for exact dates

**Format:** Each student will independently prepare a one-page summary of the research article they were assigned to study in the lab. Each summary is to be submitted electronically to their laboratory demonstrator prior to the start of the lab period when presentations are given on each research topic.

**Description:** Comprehensive information about the format and style to be used for these summaries is contained in the lab folder and will be explained in detail during the orientation lab in week two of the course. Each summary will consist of one page of writing plus a separate page for the references used to prepare the summary. Students are required to know and understand what constitutes plagiarism and the University's Regulations on Academic Student Misconduct (see below). Three articles will be studied by each student and each summary will be worth 5% of the final grade.

**Publication of the Literature Research Summary:** Each summary will be posted on the course Blackboard so that other students can read and learn from the literature research assignment. The grade assigned to the summary will remain confidential (ie will not be posted).

### Lab Presentation:

**Value:** 5% of final grade

**Date:** See Course Schedule; exact dates are assigned randomly to each student.

**Format:** 20 minute Powerpoint presentation

**Description:** Each student will be required to give one presentation detailing the article they studied for a Literature Research Assignment. Presentation topics are assigned randomly in the lab orientation period.

**Publication of the Lab Presentation:** Each Powerpoint will be posted on the course Blackboard so that other students can read and learn from the presentation. The grade assigned to the presentation will remain confidential (ie will not be posted).

### Submitting Assignments/Feedback to Students

Students will work collaboratively with other group members to prepare a one-page summary of each case study assigned to them. The case reports will be graded by the teaching assistant who will also watch for plagiarism. Reports will be graded and returned on a schedule such that students will have regular feedback about their work after they have submitted the first two reports. Each student must independently write a one-page summary for each of the three research articles assigned to them. These will be graded by the teaching assistant who may consult with Dr Marchant. Grades will be assigned based on the quality of the writing including formatting, grammar, spelling, scientific writing and other aspects of the report. Additional information about the format of the summaries is contained in the lab folder on Blackboard; students must read this carefully. The oral presentation will be evaluated by the teaching

assistant, Dr. Marchant and other students in the lab section. A rubric and weighting scheme for assessing the presentation will be posted on Blackboard. Presenters will be provided with written feedback about their performance. Marks from the midterm exam will be approximately one week after the exam, well in advance of the last day to withdraw deadline.

### Lab Attendance Expectations

Students are expected to attend, and be on time, for all scheduled labs. A student who arrives late may be penalized by a 10% deduction on the learning assessment for that lab period, and in serious cases, may even be excluded from the laboratory session by the instructor. In that case, the student will receive a grade of zero for that lab activity.

It is impossible to schedule make-up labs for this course. Students who miss a lab period are assigned a mark of zero for the work that was to be completed during the missed lab period. Students are required to contact the course coordinator prior to the end of the lab period if they are too ill to attend the lab or are facing extenuating personal circumstances that requires them to be away from the University. When a lab is missed due to illness or personal circumstances, an opportunity to complete the group lab work at another time may be given. Note that each situation will be judged separately and the instructors may choose not to allow the lab work to be completed at another time. In that case, the marks associated with the missed lab exercise will be distributed to the remaining lab exercises. Similar procedures must be followed if a student is going to miss giving their scheduled lab presentation.

### Criteria That Must Be Met to Pass

Students must write the final exam in order to pass the course. Students who do not write the final exam will be assigned a final course grade of 49%, or lower depending on their performance in other aspects of the course, along with a grade comment of INF (Incomplete Failure). The final grade will be adjusted if a deferred final exam is written (see below).

### Midterm and Final Examination Scheduling

The midterm must be written on the day scheduled. If a student is unable to write the midterm at the scheduled time due to other course or work commitments, students must make themselves available to write the midterm at another time on that day. The University Administration schedules final course examinations between April 9 to 28. Students should therefore avoid making prior travel, employment, or other commitments for this period. **Students who miss the final exam must contact the College and apply for a deferred final exam.** Deferred exams may utilize a different format than the regular exam, at the sole discretion of the instructors. Students are encouraged to review all University examination policies and procedures (see links above).

### Copyright

All previously-published material used in this course under the fair-use provisions of Canadian copyright legislation or with permission of the copyright holder. The instructors retain copyright of their own work. Students shall refrain from redistributing any material provided to them, except with the permission of the instructors.

## Student Feedback

The Department of Biology or the instructors may survey students regarding the course. This is generally done through an in-class assessment.

## Recording of the Course

Students are not allowed to record the lectures in this course, except with the permission of the instructors or as provided for by arrangements with Access and Equity Services. Any recording made under these provisions are to only be used for the personal learning of the student who made the recording.

## University of Saskatchewan Grading System

Students are reminded that the University has established a grading system to be used in all of its courses. Information on literal descriptors for grading at the University of Saskatchewan (reproduced below) can be found at:

<https://students.usask.ca/academics/grading/grading-system.php>

**Exceptional (90-100)** A superior performance with consistent evidence of

- a comprehensive, incisive grasp of the subject matter;
- an ability to make insightful critical evaluation of the material given;
- an exceptional capacity for original, creative and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

**Excellent (80-90)** An excellent performance with strong evidence of

- a comprehensive grasp of the subject matter;
- an ability to make sound critical evaluation of the material given;
- a very good capacity for original, creative and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

**Good (70-79)** A good performance with evidence of

- a substantial knowledge of the subject matter;
- a good understanding of the relevant issues and a good familiarity with the relevant literature and techniques;
- some capacity for original, creative and/or logical thinking;
- a good ability to organize, to analyze and to examine the subject material in a critical and constructive manner.

**Satisfactory (60-69)** A generally satisfactory and intellectually adequate performance with evidence of

- an acceptable basic grasp of the subject material;
- a fair understanding of the relevant issues;
- a general familiarity with the relevant literature and techniques;
- an ability to develop solutions to moderately difficult problems related to the subject material;
- a moderate ability to examine the material in a critical and analytical manner.

**Minimal Pass (50-59)** A barely acceptable performance with evidence of

- a familiarity with the subject material;
- some evidence that analytical skills have been developed;
- some understanding of relevant issues;
- some familiarity with the relevant literature and techniques;



- attempts to solve moderately difficult problems related to the subject material and to examine the material in a critical and analytical manner which are only partially successful.

**Failure <50** An unacceptable performance

## **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. 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/index.php> All students should read and be familiar with the Regulations on Academic Student Misconduct as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals available on the University Secretary Website.

## **Student Supports**

### **Student Learning Services**

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <https://library.usask.ca/studentlearning/>.

### **Student and Enrolment Services Division**

The Student and Enrolment Services Division (SESD) focuses on providing developmental and support services and programs to students and the university community. For more information, see the SESD web [site http://teaching.usask.ca/](http://teaching.usask.ca/).

### **College Supports**

Students in Arts & Science are encouraged to contact the Undergraduate Student Office and/or the Trish Monture Centre for Success with any questions on how to choose a major; understand program requirements; choose courses; develop strategies to improve grades; understand university policies and procedures; overcome personal barriers; initiate pre-career inquiries; and identify career planning resources. Contact information is available at: <http://artsandscience.usask.ca/undergraduate/advising/>

### **Examinations through Access and Equity Services (AES)**

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with 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 more information, check <https://students.usask.ca/health/centres/access-equity-services.php> or contact AES at 966-7273 or [aes@usask.ca](mailto:aes@usask.ca).

Students who are in need of accommodation for the course must present the appropriate letter from AES to the course coordinator. Students registered with AES may require alternative arrangements for examinations. Students must arrange such accommodations through AES by their stated deadlines.