

MDSC 569.05
Cardiovascular Physiology

Instructors:

Dr. Jennifer Thompson, Course Coordinator
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Office Hours/Policy on Answering Student Emails

Contact instructors by email to make an appointment. Student emails addressed to Jennifer Thompson at email address above will be answered within 72 hrs.

Time and Location:

Lectures/presentations: MW 1:00 pm to 2:15 pm, HSC G750
Tutorials: F 1:00 pm to 2:15 pm (as needed), HSC G750

Prerequisite/Co-Requisite:

MDSC 404 or Zoology 463 or consent of course director.

Course Description:

Designed for undergraduates with a general understanding of human physiology who wish to pursue advanced topics in a physiological system(s). The physiological system offered will vary from year-to-year and students should contact the instructor for more information prior to enrolling in the course. There will be a review and then build on basic physiological principles through a series of lectures and/or discussion groups. An examination of the specified area of physiology in-depth by introducing students to research methodologies and pathological processes.

Overarching Theme

This is an advanced physiology course that integrates fundamental principals of vascular biology with an understanding of developmental or pathogenic changes in the vasculature. Students will undertake an in-depth examination of mechanisms governing blood flow and the structural, functional and molecular vascular changes associated with development, disease and pharmacological or lifestyle interventions. Topics will be covered through a series of multi-instructor-led lectures, followed by group discussions and student presentations.

Global Objectives

- To advance understanding in fundamental mechanisms of vascular function and contemporary thought on the role of vascular events in the development of disease.

Course Learning Outcomes

By the end of this course, students will be able to:

- Develop in-depth knowledge of mechanisms governing vascular function and development of cardiovascular disease
- Enhance skills in oral communication, tailored to either a scientific or lay audience
- Improve skills in scientific writing
- Learn to critically evaluate a scientific article and engage in group discussion

Learning Resources

There are no required textbooks. Recommended readings and journal articles for journal clubs and assignments will be provided in the course D2L site.

Recommended Textbooks/Readings

Recommended readings and journal articles for journal clubs and assignments will be provided in the course D2L site.

A Note regarding readings

A list of required readings will be outlined on D2L, and links and documents will be made available, where possible. Required readings have been chosen carefully to inform you and enhance the lecture material. **Students are REQUIRED to complete assigned readings BEFORE each lecture.** Instructors will proceed in class on the assumption that students have read completely the assigned readings. Students should be aware that many of the readings they will be assigned may be of an unfamiliar nature and style. Students should allot sufficient time to allow for several reads of the assigned material.

Learning Technology Requirements

Brightspace (by D2L) is located on the University of Calgary server and will be used extensively for communication with students. **It is the student's responsibility to ensure that they receive all posted communications and documents and that they receive emails sent by instructors or fellow students through D2L.** Only your @ucalgary.ca email address may be linked to D2L. Please ensure that you are regularly checking your @ucalgary.ca account.

A note regarding Zoom

Lectures, student presentations and journal clubs will be conducted on Zoom only when mandated by university policy. Zoom lectures will not be recorded. Links to Zoom lectures will be sent to students via email.

Evaluation

The University policy on grading and related matters is described in section F of the 2021-2022 Calendar. In determining the overall grade in the course, the following weights will be used: Evaluation will be based on oral presentations (total 40%), written papers (total 40%) and class attendance and participation (total 20%). Presentations will include two 10-min oral scientific presentations (15% each) and a final 5 min TED-style talk tailored to a lay audience (10%). Two short written papers will be assigned (20% each). Answers to lecture QUIZ questions provided online in Desire2Learn along with the extent of individual student contributions to journal club-style group discussions of class and student presentations will contribute the class participation grade. There will be no final exam for this course.

A Note regarding Writing Assignments:

Writing skills are important to academic study in all disciplines. In keeping with the University of Calgary's emphasis on the importance of academic writing in student assignments (section E.2 of 2021-22 Calendar), writing is emphasized, and the grading thereof in determining a student's mark in this course. The Bachelor of Health Sciences values excellence in writing. Competence in writing entails skills

in crafting logical, clear, coherent, non-redundant sentences, paragraphs, and broader arguments, as well as skills with the mechanics of writing (grammar, spelling, punctuation). Sources used in research papers must be properly documented. The University of Calgary offers instructional services through the Students' Success Centre's Writing Support Services (<http://www.ucalgary.ca/writingsupport/>) for students seeking feedback on assignments or seeking to improve their general writing skills. Students are **strongly encouraged** to take advantage of these programs.

Grading Scheme:

Letter Grade	Description	Percentage
A+	Outstanding performance	96-100
A	Excellent performance	90-95
A-	Approaching excellent performance	85-89
B+	Exceeding good performance	80-84
B	Good performance	75-79
B-	Approaching good performance	70-74
C+	Exceeding satisfactory performance	65-69
C	Satisfactory performance	60-64
C-	Approaching satisfactory performance	57-59
D+	Marginal pass	54-56
D	Minimal pass	50-53
F	Did not meet course requirements	0-49

Missed Components of Term Work:

Students will lose 5% per day late past the deadline for all assignments. In this case, assignments will **NOT** be accepted more than 72 hours after the posted deadline and students failing to submit any assignment within this time frame will receive a mark of zero. **Students who miss a quiz will receive a mark of zero unless the instructor has been previously notified. There will be NO exceptions to this policy.**

Extensions will NOT be granted on any assignment or quizzes in MDSC 569. The only exceptions to this are those in keeping with the University Calendar (debilitating illness, religious conviction, or severe domestic affliction) that are received in writing and with supporting documentation. Traffic jams and late or full buses are common events in Calgary and are NOT acceptable reasons for late arrivals to class, meetings, and examinations. Please note that while absences are permitted for religious reasons, students are responsible for providing advance notice and adhering to other guidelines on this matter, as outlined in the University Calendar (<https://www.ucalgary.ca/pubs/calendar/current/e-4.html>).

Course Evaluations and Student Feedback

Student feedback will be sought at the end of the course through the Universal Student Rating of Instruction (USRI) and a qualitative student evaluation. Students are welcome to discuss the process and content of the course at any time with the instructor. Students may also address any concerns they may have with Dr. Ebba Kurz, Associate Dean (Undergraduate Health and Science Education) in the Cumming School of Medicine (kurz@ucalgary.ca).

Attendance

All students will be required to sign in at the beginning of class. Attendance will form part of the final grade.

Conduct During Lectures

The classroom should be respected as a safe place to share ideas without judgement - a community in which we can all learn from one another. Students are expected to frame their comments and questions to lecturers in respectful and appropriate language, always maintaining sensitivity towards the topic. Students, employees, and academic staff are also expected to demonstrate behaviour in class that promotes and maintains a positive and productive learning environment.

As members of the University community, students, employees and academic staff are expected to demonstrate conduct that is consistent with the University of Calgary Calendar, the Code of Conduct and Non-Academic Misconduct policy and procedures, which can be found at <https://www.ucalgary.ca/legal-services/university-policies-procedures>.

Students are expected to take notes during class and should not rely solely on material supplied by the instructors.

Use of Internet and Electronic Communication Devices in Class

The Bachelor of Health Sciences program aims to create a supportive and respectful learning environment for all students. The use of laptop and mobile devices is acceptable when used in a manner appropriate to the course and classroom activities. However, research studies have found that inappropriate/off-topic use of electronic devices in the classroom negatively affects the learning of others during class time.

Students are responsible for being aware of the University's Internet and email use policy, which can be found at <https://www.ucalgary.ca/policies/files/policies/electronic-communications-policy.pdf>.

UNIVERSITY OF CALGARY POLICIES AND SUPPORTS

Copyright

All students are required to reach the University of Calgary policy on Acceptable Use of Material Protected by Copyright (<https://www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright-policy.pdf>) and requirements of the Copyright Act (<https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html>) to ensure they are aware of the consequences of unauthorized sharing of course materials (including instructor notes, electronic versions of textbooks, etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy <https://www.ucalgary.ca/pubs/calendar/current/k.html>.

Instructor Intellectual Property

Course materials created by instructors (including course outlines, presentations and posted notes, labs, case studies, assignments, and exams) remain the intellectual property of the instructor. These materials may **NOT** be reproduced, redistributed, or copied without the explicit consent of the professor. **The posting of course materials to third-party websites such as note-sharing sites without permission is prohibited.** Sharing of extracts of these course materials with other students enrolled in the course **at the same time** may be allowed under fair dealing.

Academic Accommodations

It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The Student Accommodations policy is available at <https://ucalgary.ca/student-services/access/prospective-students/academic-accommodations>. Students needing an accommodation based on disability or medical concerns should contact Student Accessibility Services (SAS) in accordance with the Procedure for Accommodations for Students with Disabilities (<https://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities.pdf>). SAS will process the request and issue letters of accommodations to instructors. For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/.

Students who require an accommodation in relation to their coursework based on a protected ground other than disability should communicate this need in writing to Dr. Ebba Kurz, Associate Dean (Undergraduate Health and Science Education) (kurz@ucalgary.ca).

Academic Misconduct

The University of Calgary is committed to the highest standards of academic integrity and honesty. The University of Calgary has created rules to govern all its members regarding the creation of knowledge and the demonstration of knowledge having been learned.

Academic Misconduct refers to student behaviour that compromises proper assessment of a student's academic activities and includes (but is not limited to): cheating, fabrication, falsification, plagiarism, unauthorized assistance, failure to comply with an instructor's expectations regarding conduct required of students completing academic assessments in their courses, and failure to comply with exam regulations applied by the Registrar. **It also includes using of third-party websites/services to access past/current course material, essay/assignment writing services, or real-time assistance in completing assessments, seeking answers to assessment questions and similar, whether paid, bartered, or unpaid.**

For information of the Student Academic Misconduct Policy and Procedures, please visit:

<https://ucalgary.ca/policies/files/policies/student-academic-misconduct-policy.pdf>

<https://ucalgary.ca/policies/files/policies/student-academic-misconduct-procedure.pdf>

Additional information is available on the Academic Integrity website at: <https://ucalgary.ca/student-services/student-success/learning/academic-integrity>.

Recording of Lectures

Audio or video recording of lectures (or similar) is **prohibited** except where explicit permission has been received from the instructor or it is an approved accommodation.

Freedom of Information and Protection of Privacy Act

Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary

Appeals

If there is a concern with the course, academic matter, or a grade, first communicate with the instructor. If these concerns cannot be resolved, students can proceed with an academic appeal, as per Section I of the University Calendar. Students must follow the official reappraisal/appeal process and may contact the Student Ombuds' Office (<http://www.ucalgary.ca/ombuds>) for assistance with this and with any

other academic concerns, including academic and non-academic misconduct. Students should be aware that concerns about graded term work may only be initiated **within 10 business days** of first being notified of the grade. <https://www.ucalgary.ca/pubs/calendar/current/i-2.html>

Sexual Violence Policy

The University recognizes that all members of the University Community should be able to learn, work, teach and live in an environment where they are free from harassment, discrimination, and violence. The University of Calgary's sexual violence policy guides us in how we respond to incidents of sexual violence, including supports available to those who have experienced or witnessed sexual violence, or those who are alleged to have committed sexual violence. It provides clear response procedures and timelines, defines complex concepts, and addresses incidents that occur off-campus in certain circumstances. Please see the policy available at <https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>

Resources for Support of Student Learning, Success, Safety and Wellness

Student Success Centre	http://www.ucalgary.ca/ssc/
Student Wellness Centre	http://www.ucalgary.ca/wellnesscentre/
Distress Centre	http://www.distresscentre.com/
Library Resources	http://library.ucalgary.ca

Wellness and Mental Health Resources

The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness, and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the excellent mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (<https://www.ucalgary.ca/wellnesscentre/services/mental-health-services>) and the Campus Mental Health Strategy (<http://www.ucalgary.ca/mentalhealth/>).

Student Ombuds' Office

The Student Ombuds' Office supports and provides a safe, neutral space for students. For more information, please visit www.ucalgary.ca/ombuds/ or email ombuds@ucalgary.ca

BHSc Student Faculty Liaison Committee (SFLC)

The BHSc SFLC, with elected representatives from all majors, serves to raise issues of interest to BHSc students to the program administration, including items pertaining to curriculum, scheduling and events. A list of current representatives can be found on the BHSc website.

Student Union (SU) Information

The SU Vice-President Academic can be reached at (403) 220-3911 or suvpaca@ucalgary.ca; the SU representatives for the Cumming School of Medicine can be reached at medrep1@su.ucalgary.ca or medrep2@su.ucalgary.ca.

Student Success Centre

The Student Success Centre provides services and programs to ensure students can make the most of their time at the University of Calgary. Our advisors, learning support staff, and writing support staff assist students in enhancing their skills and achieving their academic goals. They provide tailored learning support and advising programs, as well as one-on-one services, free of charge to all

undergraduate and graduate students. For more information visit: <https://www.ucalgary.ca/student-services/student-success>

Emergency Evacuation/Assembly Points

As part of the University of Calgary Emergency Evacuation plan, students, faculty, and staff should locate the closest Assembly Point in case of Fire Alarm. Safety signage is posted throughout the campus showing the locations and the possible route to these locations. All students, faculty, and staff are expected to promptly make their way to the nearest Assembly Point if the Fire Alarm is activated. No one is to return into campus facilities until an all clear is given to the warden in charge of the Assembly Area. For more information, see <https://www.ucalgary.ca/emergencyplan/building-evacuation/assembly-points>

Safewalk

Campus security will escort individuals, day, or night, anywhere on campus (including McMahon Stadium, Health Sciences Centre, Student Family Housing, the Alberta Children's Hospital and the University LRT station). Call 403-220-5333 or visit <http://www.ucalgary.ca/security/safewalk>. Use any campus phone, emergency phone or the yellow phone located at most parking lot pay booths. Please ensure your personal safety by taking advantage of this service.

Class Schedule

The following is a tentative list of topics for class and presentation dates. Please note that unforeseen circumstances may cause changes to the schedule with respect to the timing of topics and readings. Students will be notified of all changes in a timely manner by way of email and D2L announcements. The exam dates are firm and will not be altered.

DATE	DAY		INSTRUCTOR
JAN 10	M	Regulation of blood flow - Microvascular function	Cole
JAN 12	W	Regulation of blood flow –Myogenic tone	Cole
JAN 17	M	Regulation of blood flow - Parenchymal, Neuronal, humoral	Cole
JAN 19	W	Regulation of blood flow – Endothelium	Thompson
JAN 24	M	Regulation of blood flow – Endothelial dysfunction in diabetes	Braun
JAN 26	W	Essential Tips for Critical Review of Published Manuscripts	Thompson/Cole
JAN 31	M	Journal Club	Thompson/Cole
FEB 2	W	Presentations (4 x 10 min + 5 min questions)	Cole
FEB 7	M	Presentations (4 x 10 min + 5 min questions)	Cole
FEB 9	W	Presentations (4 x 10 min + 5 min questions)	Thompson/Cole
FEB 14	M	Presentations (3 x 10 min + 5 min questions)	Thompson/Braun
FEB 16	W	Journal Club	Cole/Thompson
FEB 21	M	TERM BREAK	
FEB 23	W	TERM BREAK	

FEB 28	M	Vascular remodeling in health & disease – Development & Ageing	Thompson
MAR 2	W	Vascular remodeling in health & disease - Hypertension	Cole
MAR 7	M	Vascular remodeling in health & disease - Atherosclerosis	Patel
MAR 9	W	Journal Club	Cole
MAR 14	W	Presentations (4 X 10 min + 5 min questions)	Thompson
MAR 16	M	Presentations (4 X 10 min + 5 min questions)	Patel
MAR 21	W	Presentations (4 X 10 min + 5 min questions)	Cole
MAR 23	M	Presentations (3 X 10 min + 5 min questions)	Thompson
MAR 28	W	Journal Club	Patel/Braun
MAR 30	M	Current treatments – Key CV Therapeutic Agents	Cole
APR 4	W	Current treatments – Lifestyle Strategems for CV Health	Thompson
APR 6	M	Presentations (8 X 3 min + questions)	et al.
APR 11	W	Presentations (7 x 3 min + questions)	et al.
APR 12	M	END OF CLASSES	