

MDSC 308

Interdisciplinary Approaches to Research

Course Coordinator:

Dr. Ebba Kurz, PhD

Instructors:

Biomedical Sciences

Dr. Ebba Kurz, Ph.D.

Associate Dean (Undergraduate Health and Science Education)

Director, Bachelor of Health Sciences Program

Associate Professor, Physiology and Pharmacology

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Teaching Assistant

Ms. Ania Zuba amzuba@ucalgary.ca

Bioinformatics

Dr. Jason de Koning, PhD

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Teaching Assistant:

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Health and Society

Dr. Fabiola Aparicio-Ting, PhD MPH

Instructor, Community Health Sciences

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Teaching Assistant:

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Research Ethics

Dr. Juliet Guichon, SJD

Assistant Professor, Community Health Sciences

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Teaching Assistant: *To be determined*

Time and Location:

Tuesdays and Thursdays 12:00pm – 2:50pm

Clara Christie Theatre and various small group rooms as indicated on course schedule

Please note that some sessions will take place in **Theatre One**. Please consult course schedule to confirm location of individual sessions.

Office Hours/Policy on Answering Student Emails

Faculty and teaching assistants are available to meet by appointment.

Students contacting the instructors or teaching assistants via email can expect a response within **48 hours** (excluding weekends and statutory holidays). Substantive issues should be addressed in person either after class or by appointment.

Prerequisite/Co-Requisite:

MDSC 205 and admission to the BHSc Honours program.

Course Description:

An introduction to the questions, methods and research techniques used across the different majors of Biomedical Sciences, Bioinformatics and Health and Society. Sessions will support the development of a broad perspective on health issues. A component of the course will also introduce students to principal theories and methods in bioethics.

In the context of significant current health issues and to gain a deeper appreciation of the breadth of research perspectives, students will be introduced to the scientific disciplines represented by the three major streams of the Bachelor of Health Sciences program and will explore each stream's approach to generating research questions and the methodologies used to address them.

Global Objectives

- To provide an understanding of the primary discipline specific topics, approaches and tools for each stream
- To introduce current health issues and use these as a context example of the applications for all three streams
- To introduce basic concepts in ethics

Learning Objectives:**Biomedical Sciences**

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

1. Understand the role vaccines play in public health.
2. Understand how vaccines are made and how they confer immunity.

3. Evaluate and substantiate or refute claims related to the safety of vaccines.
4. Identify preventable causes of cancer.
5. Know the principles underlying cancer causation.
6. Evaluate primary literature to assess the evidence supporting classification of carcinogens.

Bioinformatics

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

1. Understand the central role that bioinformatics and computational biology plays in modern biomedical research.
2. Describe the relationship between personalized medicine, genomics, and computational biology.
3. Understand how computational prediction can guide experimental biology and vice versa.
4. Describe the fundamental evolutionary processes that generate and maintain genetic variation in natural populations.
5. Understand the role of natural selection in the biology of cancer.

Health and Society

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

1. Define population health and describe how this framework is used in Public Health and health research.
2. Discuss how an ecological approach to health can be used to shape and to conduct research to address variety of health issues.
3. Know the concepts of health promotion, including harm reduction, and give examples of how these concepts apply to vaccinations, cancer prevention and other prominent public health issues.
4. Describe the main principles of public health and its main functions in Canada.
5. Use information from the lectures and readings to describe some of the challenges to developing and delivering effective vaccination and cancer prevention programs.
6. Name and briefly describe the social science disciplines that constitute the Health and Society stream.

Research Ethics

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

1. Know the significance of key ethical concepts regarding research ethics;
2. Describe the difference between scientific integrity and clinical research ethics;
3. Apply existing rules to case examples concerning scientific integrity; and
4. Make a well-written and convincing argument regarding research ethics in an actual historical research study.

Readings

A list of required readings for all course sections will be posted on D2L and links and documents will be made available, where possible. Your instructors have chosen the required readings carefully to inform you and to 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 assigned readings might be of an unfamiliar nature and style. Students should allot sufficient time to read the assignment material several times.

Evaluation

The University policy on grading and related matters is described in section F.2 of the 2018-2019 Calendar.

In determining the overall grade in the course, the following weights will be used:

15% Biomedical Sciences

- 7.5% Fall Term Assignment
argumentative paper exploring vaccine controversies
Due Thursday, October 4, 2018
- 7.5% Winter Term Assignment
 - details to be provided in the Winter term
 - **Due: TBA**

15% Bioinformatics

- 3.75 % Computer lab 1
Lab assignments will be due 1 week from the laboratory date
Due: October 4 or 9
- 3.75 % Computer lab 2
Lab assignments will be due 1 week from the laboratory date
Due: October 11 or 16
- 3.75 % Computer lab 3
Lab assignments will be due 1 week from the laboratory date
Due: March 5 or 7
- 3.75 % Computer lab 4
Lab assignments will be due 1 week from the laboratory date
Due: March 19 or 21

Group assignments and laboratory submission instructions will be provided at the beginning of the fall unit on September 25.

15% Health and Society

- 7 % Fall Term Assignment
Paper exploring social determinants of health and health promotion strategies
Due Thursday, November 22, 2019 (by NOON via D2L Dropbox)

- 6 % Winter Term Assignment
Policy brief
Due: TBA
- 2 % Participation
Based on participation on in-class discussions and small group work

10% Interdisciplinary Assignment #1
Health Promotion Poster
Due November 2, 2018 (by NOON via D2L Dropbox)
Presentations November 6 & 8, 2018

20% Interdisciplinary Assignment #2
Presentations April 4, 9 & 11, 2019
Group Paper Due April 15, 2019 (by NOON via D2L Dropbox)

25% Introduction to Research Ethics
12.5% Scientific Integrity
In-class exam, December 6, 2018, 12:15pm

12.5% Clinical Research Ethics
Paper due February 4, 2019 (by NOON via D2L dropbox)
Hard copy dropped off in class February 5, 2019 (by 12:15pm)

Each instructor will provide guidelines for the submission of individual assignments.

**There will be no Registrar-scheduled December or April exams for this course though you may be required to submit papers during these periods.

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 2018-19 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). The University of Calgary offers a number of 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:

A+ 97-100%	B+ 80-84%	C+ 65-69%	D+ 54-56%
A 90-96%	B 75-79%	C 60-64%	D 50-53%
A- 85-89%	B- 70-74%	C- 57-59%	F 0-49%

Missed Components of Term Work:

Late assignments will not be accepted and will automatically receive a mark of zero. There will be NO exceptions to this policy.

Faculty members who are involved in MDSC 308 are agreed that **extensions will NOT be granted** on any assignment or quizzes. The only exceptions to this policy are those consistent with the University Calendar (debilitating illness, religious conviction, or severe domestic affliction) that are received in writing. To qualify for an exception, the student must provide supporting documentation to the instructor.

Desire2Learn (D2L)

Desire 2 Learn 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 get 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.

If you need help accessing or using D2L, please visit the Desire2Learn resource page for students: <http://elearn.ucalgary.ca/d2l-student/>.

Policies Governing the Course:

Attendance

Given that part of your grade includes in-class participation, it is important that you make every effort to attend all sessions. We request that you notify the instructor responsible for a given session directly via email for any extended absences.

Attendance is also **mandatory at the library search session** provided by Helen Lee Robertson, Health Sciences Librarian. This session will be clearly marked in your class schedule in the Fall term.

Conduct During Lectures

This course may include the involvement of a number of guest lecturers to cover adequately the depth and breadth of the material with some expertise. Students are expected to conduct themselves in a mature and courteous manner during ALL lectures. Students are expected to frame their comments and questions to lecturers in respectful and appropriate language, always maintaining sensitivity towards the topic.

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

Electronic Devices

The Bachelor of Health Sciences program aims to create a supportive and respectful learning environment for all students. Research studies have found that student use of electronic devices (laptops, tablets, etc) in the classroom negatively affects the learning of both the user and those sitting nearby. Inappropriate use of laptops is also disruptive to your fellow classmates and disrespectful to the lecturer. The use of laptops and other electronic note-taking devices is permitted; however, their use in the classroom should be for course-related work/note-taking only. Please do **NOT to surf the web, check email or do other unrelated work**. Students who use their laptops inappropriately or are otherwise disruptive during lectures will be asked to leave.

Cell phones (or similar devices) should **be turned off** (not merely silent) upon entering the classroom. Sending/receiving text messages or leaving the class to take calls is disruptive to the entire class and will not be tolerated unless absolutely necessary. Students who disregard this rule during lectures or tutorials will be asked to leave. These items are not permitted under any circumstance during exams/quizzes, etc.

Copyright

It is the responsibility of students and professors to ensure that materials they post or distribute to others comply with the Copyright Act and the University's Fair Dealing Guidance for Students (library.ucalgary.ca/files/library/guidance_for_students.pdf). Further information for students is available on the Copyright Office web page (<http://library.ucalgary.ca/copyright>)

A Note Regarding Instructor Intellectual Property

Generally speaking, course materials created by professor(s) (including course outlines, presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the professor(s). 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 Based on Disability or Medical Condition

It is the student's responsibility to register with Student Accessibility Services to be eligible for formal academic accommodation 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_0.pdf). If you are a student who may require academic accommodation and have not registered with Student Accessibility Services, please contact their office at (403) 220-8237; <http://www.ucalgary.ca/access/>. Students will be provided with all necessary accommodations to ensure equal opportunity to succeed in this course. Please provide the instructor your accommodation letter from Student Accessibility

Services within 14 days after the start of this course so that all needed arrangements for exams and assignments can be made.

Accommodations on Protected Grounds other than Disability

Students who require an accommodation in relation to their coursework based on a protected ground other than disability, should communicate this need, preferably in writing, to the designated BHSc program contact, Mrs. Jennifer Logan (jljlogan@ucalgary), or to Dr. Ebba Kurz, Associate Dean, Undergraduate Health and Science Education, Cumming School of Medicine. Students who require an accommodation unrelated to their coursework or the requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Vice-Provost (Student Experience). For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/.

Academic Misconduct

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. These rules are contained principally in Sections J to L of the *University of Calgary Calendar*. This document stipulates the penalties for violating these rules. Please know that the University and the Cumming School of Medicine take these rules seriously. **All incidences of academic dishonesty in this course, such as cheating and plagiarism, will be reported to the O'Brien Centre Office for investigation; infractions will be noted on the record of a student found to be guilty.** Although you will study these rules in the Research Ethics portion of this course, they apply to you now and therefore it is wise to read them now.

Recording of Lectures

Audio or video recording of lectures is prohibited except where explicit permission has been received from the instructor.

Other Important Information

Freedom of Information and Protection of Privacy Act

This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIP); students should identify themselves on written assignments (exams and term work) by their name and ID number on the front page and ID on each subsequent page. Work assigned to you by your course instructor will remain confidential unless otherwise stated before submission. The assignment cannot be returned to anyone else without your expressed permission to the instructor. Grades will be made available on an individual basis and students will not have access to other students' grades without expressed consent. Similarly, any information about yourself that you share with your course instructor will not be given to anyone else without your permission. See <http://www.ucalgary.ca/policies/files/policies/privacy-policy-2011.pdf> for more information.

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 15 days** of first being notified of the grade.

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 (Room 370 MacEwan Student 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

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.

Emergency Evacuation/Assembly Points

Assembly points for emergencies have been identified across campus. Assembly points are designed to establish a location for information updates from the emergency responders to the evacuees; and from the evacuated population to the emergency responders. The primary assembly point for the Health Sciences Centre is the Health Research Innovation Centre (HRIC) Atrium. The alternate assembly point is Parking Lot 6. For more information, see the University of Calgary's Emergency Management website: <http://www.ucalgary.ca/emergencyplan/assemblypoints>.

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.