



CUMMING SCHOOL OF MEDICINE  
GRADUATE COURSE OUTLINE

COURSE TITLE:			
<b>Course</b>	DATA 623 Big Data in Health		
<b>Pre/Co-Requisites</b>	DATA 601, 602, 603, 604 and admission to the Graduate Diploma in Data Science and Analytics		
<b>Faculty</b>	Cumming School of Medicine, Graduate Science Education		
<b>Instructor Name(s)</b>	Dr. Robin Walker	<b>Email</b>	robin.walker2@ahs.ca
<b>Office Location</b>	Centre for Health Informatics	<b>Office Hours</b>	By Appointment
<b>Instructor Email Policy</b>	Will respond to emails within 24 hours on weekdays		
<b>Telephone No.</b>	403.816.1260		
<b>TA Name, if applicable</b>	Frank Lee	<b>Email</b>	seungwon.lee@ucalgary.ca
<b>Class Term, Days</b>	Winter 2020, Mondays		
<b>Class Times</b>	5pm to 7:50pm		
<b>Class Location</b>	Centre for Health Informatics, TRW 5E16 (Gosling Room)		

COURSE INFORMATION/DESCRIPTION OF THE COURSE
<p>Many of the major health data assets that exist in Alberta and Canada will be explored, including hands-on experience. Specifically, students will learn and work with health databases including health administrative data, registries, wearable, genomic, primary care and various other databases. Issues relating to access, confidentiality, privacy and data stewardship will be examined and students will have the opportunity to apply for data access of a large database. Basic health research methods and epidemiological studies will be explored as they are the foundation of understanding the questions that can be answered using big data in health.</p> <p>This course will be interactive and cover both analytical methodology and practical skills. Experts will be invited to present their work in certain classes. Students will also be expected to present a project for discussion.</p>
LEARNING RESOURCES/REQUIRED READING
<p>While there are no mandatory textbooks, required and recommended papers will be available on D2L for each week. Students should also read papers for their assignments/projects.</p>

**COURSE OBJECTIVES/LEARNING OUTCOMES**

The course goals are to:

- To gain a basic understanding of health research methods and epidemiology
- To understand the purpose and features of various health datasets in Alberta and Canada
- To gain experience using and analyzing various datasets for health purposes
- To gain oral and written communication skills in presenting analysis of health data

**CUT POINTS FOR GRADES**

This course adheres to the grading system outlined in the University of Calgary, Faculty of Graduate Studies Calendar. Grades of A+ and A are not distinguished in the calculation of GPAs. Percentage/letter grade conversion used for this course is as follows

Grade	Grade Point Value	Percentage Conversion	Graduate Description
A+	4.00	95-100	Outstanding
A	4.00	90-94	Excellent – superior performance showing comprehensive understanding of the subject matter
A-	3.70	85-89	Very Good Performance
B+	3.30	77-84	Good Performance
B	3.00	72-76	Satisfactory Performance
B-	2.70	68-71	Minimum Pass for Students in the Faculty of Graduate Studies
C+	2.30	63-67	All grades below ‘B-’ are indicative of failure at the graduate level and cannot be counted toward Faculty of Graduate Studies course requirements

**Assessment Components:** The University policy on grading related matters is outlined in the [2019-2020 Calendar](#).

Assessment Methods	Description	Weight %	Due Date <u>and</u> Time
Assignments	A total of 8 assignments, will help students acquire and practice dealing with various health datasets. D2L will be used for	85%	See Course Timetable

	accessing assignment materials, submission, and grading.		
In class presentation	1 presentation on analysis of a health dataset. Presentations are a useful and effective way to clearly present analysis and results of a project and help students further oral communication using health datasets.	10%	See Course Timetable
Participation	Students are required to participate in class lectures and discussions.	5%	-

#### ASSESSMENT AND EVALUATION INFORMATION

##### ATTENDANCE AND PARTICIPATION EXPECTATIONS:

Students are expected to attend every class in person and actively participate in all components of each class including lecture, discussion, and tutorials.

##### GUIDELINES FOR SUBMITTING ASSIGNMENTS:

Assignments will be outlined at the beginning of course. All assignments must be typewritten, double-spaced with 1" margins and 12-point font, and written in formal English. All assignment submissions must be uploaded to the corresponding Dropbox on D2L. All assignments must be submitted by the start of the class (i.e., 5pm) on the date that they are due.

It is the student's responsibility to keep a copy of each submission and to ensure that the proper version is submitted. Including a name and version date in your file name may be useful.

##### FINAL EXAMINATIONS:

There is no final examination for this course.

##### EXPECTATIONS FOR WRITING:

Writing is clear and typo free

##### LATE AND/OR MISSING ASSIGNMENTS:

Assignments are due on the specified date. Students who hand in assignments late will be penalized 5% per day for handing in late. Assignments that are handed in 5 calendar days or more after the due date will be refused and the students assigned a score of zero for the assignment.

Students may hand in assignments late without penalty under the following circumstances:

- The student has discussed the timelines with course instructor in advance of the due date and the course instructor has granted an extension.
- There is a valid health or family emergency such as is discussed under the University regulations for deferral of final examinations. Students may be required to provide the Course Coordinator with such documentation related to illness and/or emergency as is discussed and required in the University



regulations pertaining to deferral of final examinations. This information can be found in the University Calendar.

Is a passing grade on a particular component essential to pass the course as a whole? No

COURSE TIMETABLE			
Course Schedule Date	Topic & Reading	Instructor	Assignments/Due Dates & Times
Jan 13	Intro to Big Data Data access, confidentiality, privacy and data stewardship Health Research Methods	Robin Walker Stacy Paige	Assignment #1: Due Jan 20 at 5pm (5%)
Jan 27	Observational studies Administrative Data	Robin Walker Frank Lee	Assignment #2: Due Feb 10, 2019 (15%)
Feb 3	AHS Analytics Administrative data continued	Stafford Dean Robin Walker	None
Feb 10	Wearable Data	Reed Ferber	Assignment #3: Due Feb 24 at 5pm (10%). Presentation #1: Given at Feb 24 lecture (10%)
Feb 17	<b>No class – Reading week</b>		
Feb 24	Student Presentations: Wearable Data	Robin Walker Reed Ferber	None
March 2	Processing Big Data	Oscar Chen Alex Krusina	Assignment #4: Due March 9 at 5pm (15%)
March 9	Primary Care Data EMR Data	Lisa Cook Stephanie Garies	Assignment #5: Due March 23 at 5pm (15%)
March 16	Data Quality and Assessment Statistics Canada Data Data Linkage	Robin Walker Cathy Eastwood	None
March 17	Linux	Quan Long	Assignment #6: Due March 23 at 5pm (5%)
March 23	Genomic	Quan Long	Assignment #7: Due March 30 at 5pm (5%)
March 30	Clinical Registries	SPOR Pragmatic Trials	Assignment #8: Due April 14 at 5pm (15%)
April 6	Geographic Information Systems in Health	Alka Patel	None



## INTERNET AND ELECTRONIC COMMUNICATION DEVICE INFORMATION

Cell phones must be turned off in class unless otherwise arranged with the instructor.

The use of laptop and mobile devices is acceptable when used in a manner appropriate to the course and classroom activities. Students are to refrain from accessing websites that may be distracting for fellow learners (e.g. personal emails, Facebook, YouTube). 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-communicationspolicy.pdf>.

## MEDIA AND RECORDING IN LEARNING ENVIRONMENTS

### **Media recording for lesson capture**

The instructor may use media recordings to capture the delivery of a lecture. These recordings are intended to be used for lecture capture only and will not be used for any other purpose. Although the recording device will be fixed on the Instructor, in the event that incidental student participation is recorded, the instructor will ensure that any identifiable content (video or audio) is masked, or will seek consent to include the identifiable student content to making the content available on University approved platforms.

### **Media recording for assessment of student learning**

The instructor may use media recordings as part of the assessment of students. This may include but is not limited to classroom discussions, presentations, clinical practice, or skills testing that occur during the course. These recordings will be used for student assessment purposes only and will not be shared or used for any other purpose.

### **Media recording for self-assessment of teaching practices**

The instructor may use media recordings as a tool for self-assessment of their teaching practices. Although the recording device will be fixed on the instructor, it is possible that student participation in the course may be inadvertently captured. These recordings will be used for instructor self-assessment only and will not be used for any other purpose.

### **Student Recording of Lectures**

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

## UNIVERSITY OF CALGARY POLICIES AND SUPPORTS

### ACADEMIC ACCOMMODATIONS



Students seeking an accommodation based on disability or medical concerns should contact Student Accessibility Services; SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit [www.ucalgary.ca/access/](http://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 their Instructor. The full policy on Student Accommodations is available at <http://www.ucalgary.ca/policies/files/policies/student-accommodation-policy.pdf>

### **IMPORTANT INFORMATION**

Any research in which students are invited to participate will be explained in class and approved by the appropriate University Research Ethics Board

### **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](http://library.ucalgary.ca/files/library/guidance_for_students.pdf)). Further information for students is available on the Copyright Office web page (<https://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 INTEGRITY**

The Cumming School of Medicine expects intellectual honesty from its students. Course participants should be aware of University policies relating to Principles of Conduct, Plagiarism and Academic Integrity. These are found in the printed Faculty of Graduate Studies Calendar, or online under Academic Regulations in the Faculty of Graduate Studies Calendar, available at [Faculty of Graduate Studies Academic Regulations](#)

### **ACADEMIC MISCONDUCT**

For information on academic misconduct and its consequences, please see the University of Calgary Calendar at <http://www.ucalgary.ca/pubs/calendar/current/k.html>

### **EMERGENCY EVACUATION AND ASSEMBLY POINTS**

Assembly points for emergencies have been identified across campus. The primary assembly points for South Campus (Health Science Centre (HSC); Health & Research Innovation Centre (HRIC); Heritage Medical Research Building (HMRB) and Teaching, Research and Wellness (TRW)) are:

- HSC and HMRB: HRIC Atrium (alternate assembly point is Parking Lot 6)
- HRIC: HMRB Atrium (alternate assembly point is Parking Lot 6)
- TRW: McCaig Tower (alternate assembly point is HMRB – Atrium)

### **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 N of the Faculty of Graduate Studies Calendar. Students must follow the official process and should contact the Student Ombuds Office (<http://www.ucalgary.ca/provost/students/ombuds>) for assistance with this and with any other academic concerns, including academic and non-academic misconduct

### **THE FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY (FOIP) ACT**

This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIP) and 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. Assignments given by you to 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

### **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 website <https://www.ucalgary.ca/mentalhealth/>

### **SUPPORTS FOR STUDENT LEARNING, SUCCESS, AND SAFETY**

**Student Ombudsman:** The Student Ombuds' Office supports and provides a safe, neutral space for students. For more information, please visit [www.ucalgary.ca/ombuds/](http://www.ucalgary.ca/ombuds/) or email [ombuds@ucalgary.ca](mailto:ombuds@ucalgary.ca)

**Student Union:** The SU Vice-President Academic can be reached at (403) 220-3911 or [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca); Information about the SU, including elected Faculty Representatives can be found here: <https://www.su.ucalgary.ca>

**Graduate Student's Association:** The GSA Vice-President Academic can be reached at (403) 220- 5997 or [gsa.vpa@ucalgary.ca](mailto:gsa.vpa@ucalgary.ca); Information about the GSA can be found here: <https://gsa.ucalgary.ca>

### **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.