



**CUMMING SCHOOL OF MEDICINE  
GRADUATE COURSE OUTLINE**

<b>COURSE TITLE:</b> Biostatistics II : Models For Health Outcomes			
<b>Course</b>	<b>MDCH 611</b>		
<b>Pre/Co-Requisites</b>	MDCH 610		
<b>Faculty</b>	Cumming School of Medicine, Graduate Science Education		
<b>Instructor Name</b>	Gordon Hilton Fick	<b>Email</b>	ghfick@ucalgary.ca
<b>Office Location</b>	TRW 3D16		
<b>Telephone No.</b>	403 220 6939		
<b>TA Name</b>	Nikki Stephenson	<b>Email</b>	nstephe@ucalgary.ca
<b>TA Name</b>	Ayoola Ademola	<b>Email</b>	ayoola.ademola@ucalgary.ca
<b>Class Term, Days</b>	Tuesdays and Thursdays		
<b>Class Times</b>	1:00 pm to 3:20 pm		
<b>Class Location</b>	HSC 1405A or G500 or Theatre 4		

<b>COURSE INFORMATION/DESCRIPTION OF THE COURSE</b>
Extends the fundamental concepts to modelling health outcomes using modern regression analysis techniques. Logistic and linear regressions, and their extensions, are covered in detail. The rationale, formulation, and statistical assumptions underlying each regression technique are discussed. Methods for selecting and assessing models are included. STATA statistical software is used for illustrations, assignments and exams. Required course for Biostatistics and Epidemiology specializations.
<b>LEARNING RESOURCES/REQUIRED READING</b>
There are no required textbooks for this course. Class notes will be provided using D2L Stata may be purchased directly from : <a href="https://www.stata.com/order/new/edu/gradplans/student-pricing/">https://www.stata.com/order/new/edu/gradplans/student-pricing/</a>

<b>COURSE OBJECTIVES/LEARNING OUTCOMES</b>
At the end of the course, students will achieve a graduate level understanding and skills concerning the topics listed in the Course Timetable below

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

<b>Assessment Components:</b> The University policy on grading related matters is outlined in the <a href="#">2019-2020 Calendar</a> .			
Assessment Methods	Description	Weight %	Due Date and Time
Assignment 1	Assigned January 14	25/6	January 21 13:00
2	January 21	25/6	January 28 13:00
3	January 28	25/6	March 4 13:00
4	February 28	25/6	March 7 13:00
5	March 7	25/6	March 14 13:00
6	March 14	25/6	March 21 13:00
Project	Oral Presentations in Groups of 3	15	March 31 13:00
Midterm Exam	3 hour closed book	20	February 25 12:00
Final Exam	3 hour closed book	40	Registrar scheduled

#### ASSESSMENT AND EVALUATION INFORMATION

**ATTENDANCE AND PARTICIPATION EXPECTATIONS:**

Advise the instructor [or one of the teaching assistants] if you need to miss a class, be late for class or must leave early from class.

**GUIDELINES FOR SUBMITTING ASSIGNMENTS:**

Assignments must be printed and stapled [no paper clips]. All Mathematics, Greek letters, subscripts and superscripts, hats and other symbols must be correctly formatted. Solutions must be in the form of complete sentences.

**FINAL EXAMINATION:**

The final examination is based on the entire course. Other specific instructions will be given in class.

**EXPECTATIONS FOR WRITING:**

The Department of Community Health Sciences 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 online in the Faculty of Graduate Studies Calendar:

<https://www.ucalgary.ca/pubs/calendar/grad/current/gs-academic-regulations.html>

**LATE AND/OR MISSING ASSIGNMENTS:**

Assignments are due on the specified date by 1 pm. Students who hand in assignments late will be penalized 5% per day for handing in late. Assignments that are handed in 14 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:

1. The student has discussed the timelines with course instructor in advance of the due date and the course instructor has granted an extension.
2. 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 online:

<http://www.ucalgary.ca/pubs/calendar/current/g-6.html>

**A passing grade on a particular component is not essential for you to pass the course as a whole.**

**Course Timetable: (revisions to this outline will be announced in D2L)**

- 1: January 14 – Odds and Rates
- 2: January 16 - Stratified Analysis
- 3: January 21 – Linking Stratified Analysis to Logistic Regression
- 4: January 23 – The Modeling Process



- 5: January 28 – Logistic Regression with Lines
- 6: January 30 – Modification and Confounding Specifics
- 7: February 4 – Nonlinearity
- 8: February 6 – Incorrect Adjustment
- 9: February 11 – Exposure Extended
- 10: February 13 – Issues with Modeling  
February 18 – Midterm Break  
February 20 – Midterm Break  
February 25 – Midterm Exam
- 11: February 27 – Model Assessment
- 12: March 3 – Models with More Than Two Outcomes
- 13: March 5 – Matched Studies
- 14: March 10 – Trouble: Identification and Issues
- 15: March 12 – Linear Regression
- 16: March 17 – Linear Regression Assumptions
- 17: March 19 – Data Base Development, Data Management and Data Transfer
- 18: March 24 – Missing Values
- 19: March 26 – Sample Size, Power and Confidence Intervals  
March 31 – Project Presentations
- 20: April 2 – Exact Methods
- 21: April 7 – Longitudinal Studies
- 22: April 9 - Time To Event Studies  
April 14 – Review

#### 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.