

Department of Surgery

Surgery 9200A – Advanced Statistics and Research Methods for Surgeons

COURSE INFORMATION

September 2024

Course Coordinator:	Dr. Luc Dubois
Course Instructors:	Drs. L. Dubois, Dr. K. Vogt, and L. Somerville
Course Time:	Fall
Course Weight:	0.5 credit

Course Description:

The purpose of this course is to provide statistical expertise pertaining to surgical research. Students in this course will be provided with an introduction to quantitative research methods and statistics in surgical research. The course will specifically address how to design a study, sample size calculation, regression, survival analysis and how to interpret and present research results.

Learning Objectives:

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

- 1) Recognize and correctly classify different types of data used in scientific research.
- 2) Perform basic statistical tests and correctly interpret the outputs of those tests.
- 3) Have a basic understanding and working knowledge of a statistical analysis software package.
- 4) Assess and select the appropriate statistical tests based on the types of data and analysis required.
- 5) Explain the importance of assumptions in statistical tests and when certain tests are not appropriate.
- 6) Communicate the results of statistical tests and data analysis in a clear, correct, and concise manner.

Course Administration:

The course begins on October 28, 2024 and concludes on December 16, 2024. Class sessions are held on Monday afternoons from 3:00 PM – 6:00 PM **in person in Room E2-128, Victoria Hospital.**

Course session/lecture dates and topics can be found on pages 3 of this document.

This course is a mandatory requirement of the MSc in Surgery Program.

Course Material/Resources:

Course material will be posted to OWL Brightspace: <https://westernu.brightspace.com/d2l/login>

Technical Requirements:

You will need a laptop or computer (**it is recommended you bring your laptop to the class sessions so you can work on the material with SPSS during the session**).

Course Evaluation:

For this course students will be graded as Pass/Fail. **In order to pass the course, you must attend at least 80% of the lectures and successfully pass the six assignments.**

Participation at all sessions is expected and advanced notice must be given, supported by valid reason, if you cannot attend a session.

An assignment will be posted in OWL for sessions 1 to 6 and will be **due one week later.** Assignments will be graded as pass/fail.

Owl Brightspace:

This site will be used primarily for lecture material, announcements and all assignments will be posted in OWL Brightspace. The website for OWL Brightspace is:

<https://westernu.brightspace.com/d2l/login>

Late Policy for Assignments:

Please note unless supported by valid reason any assignment that is more than one week late will not be accepted and will be graded as fail.

Recommended Textbook:

Bland, J.M. (2015). *An Introduction to Medical Statistics*. Oxford University Press (available through Amazon and Chapters) ISBN 978-0-19-958992-0 (4th edition). The textbook readings are from this book.

Required Software:

Each student is required to purchase the student version of SPSS. SPSS will be used in class and is needed for all assignments. The program costs approximately \$60.00 and is in stock at the Campus Computer Store in UCC, across from the Bookstore (lower level of UCC) or can be ordered online at the link below:

https://computerstore.uwo.ca/search/ccs/products?search=spss%20student&sort=search_api_relevance%20DESC

Suggested Reading:

Bhandari, M (2009). *Clinical Research for Surgeons*.

Course Material & Course Notes:

Instructors will select relevant material to be read for each of the topic areas. If any additional material aside from the required textbook reading is needed it will be available in OWL one week prior to the lecture. If any additional material is provided during the lecture the material will be posted after the class on the OWL site for the course.

Lecture Topics 2024:

Date	Lecture	Topic	Textbook Chapter(s)	Instructor
October 28	1	Introduction, Study Design & Outcome Measures	1,2,3,7	Dr. K. Vogt
November 4	2	Statistical Tests & Interpretation	9, 10, 12,13	Dr. K. Vogt
November 11	Surgery 9000 class instead (on Zoom). Assignment 2 still due.			
November 18	3	Survival Analysis	16	Dr. L. Somerville
November 25	Surgery 9000 class instead (on Zoom). Assignment 3 still due.			
December 2	4	Sample Size and Confounding	18,19,20	Dr. L. Dubois
December 9	5	Regression Analysis I	14, 15	Dr. L. Dubois
December 16	6	Regression Analysis II & Meta-analysis	14,17	Dr. L. Dubois

Assignments

Assignment Number	Session Topic	Due Date
1	Study Design & Outcome Measures	November 4
2	Statistical Tests & Interpretation	November 11
3	Survival Analysis	November 25
4	Sample Size & Confounding	December 9
5	Regression Analysis 1	December 16
6	Regression Analysis 2	December 23

Course Instructor Contact Information:

Dr. Luc Dubois Associate Graduate Program Chair	VH, E2-117	58161	Luc.dubois@lhsc.on.ca
Dr. Kelly Vogt	VH, E2-214	58547	Kelly.vogt@lhsc.on.ca
Dr. Lyndsay Somerville	UH, B6-209	36645	Lyndsay.somerville@lhsc.on.ca
Ms. Melissa Serrano (Research & Graduate Program Coordinator)	SJHC, E3-113	34776	Melissa.Serrano@sjhc.london.on.ca

Statement on Academic Offences:

Scholastic Offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf

Graduate Course Health and Wellness:

As part of a successful graduate student experience at Western, we encourage students to make their health and wellness a priority. Western provides several on campus health-related services to help you achieve optimum health and engage in healthy living while pursuing your graduate degree. For example, to support physical activity, all students, as part of their registration, receive membership in Western's Campus Recreation Centre. Numerous cultural events are offered throughout the year. Please check out the Faculty of Music web page <https://music.uwo.ca/>, and our own McIntosh Gallery <https://mcintoshgallery.ca/>. Information regarding health- and wellness-related services available to students may be found at <https://www.uwo.ca/health/>

Students seeking help regarding mental health concerns are advised to speak to someone they feel comfortable confiding in, such as their faculty supervisor, their program director (graduate chair), or

other relevant administrators in their unit. Campus mental health resources may be found at <https://www.uwo.ca/health/psych/index.html>

To help you learn more about mental health, Western has developed the Mental Health e-Learning Module on OWL: <https://owl.uwo.ca/portal/directtool/91d607ca-3f5d-4b17-9c83-f8ae54b2a529/>. This 15-minute module provides participants with a basic understanding of Mental Health issues and of available campus and community resources.

More self-help resources can be found here: <https://www.uwo.ca/health/psych/index.html>

Accessible Education Western (AEW):

Western is committed to achieving barrier-free accessibility for all its members, including graduate students. As part of this commitment, Western provides a variety of services devoted to promoting, advocating, and accommodating persons with disabilities in their respective graduate program.

Graduate students with disabilities (for example, chronic illnesses, mental health conditions, mobility impairments) are strongly encouraged to register with Accessible Education Western (AEW), a confidential service designed to support graduate and undergraduate students through their academic program. With the appropriate documentation, the student will work with both AEW and their graduate programs (normally their Graduate Chair and/or Course instructor) to ensure that appropriate academic accommodations to program requirements are arranged. These accommodations include individual counselling, alternative formatted literature, accessible campus transportation, learning strategy instruction, writing exams and assistive technology instruction. More information is on the Academic Support & Engagement website at: http://academicsupport.uwo.ca/accessible_education/index.html