

**Department of Epidemiology and Biostatistics**  
**Biostatistics 9510A Biostatistical Research Methods**

Course outline for 2020/2021



Although this academic year might be different, Western University is committed to a **thriving campus**. We encourage you to check out the [Digital Student Experience](#) website to manage your academics and well-being. Additionally, the following link provides available resources to support students on and off campus:  
<https://www.uwo.ca/health/>.

**1. Technical Requirements:**



Stable internet connection



Laptop or computer



Working microphone



Working webcam

**2. Course Overview and Important Dates:**



Delivery Mode	Dates	Time
Online	Tuesday and Thursday	10:00am – 11:30am

\*Details about design and delivery of the course are listed below in Section 4

Classes Start	Reading Weeks	Classes End	Exam Period
September 10	November 2 - 8	December 8	December 11 - 22

\*November 30, 2020: Last day to drop a full course and full-year half course without penalty

**3. Contact Information**



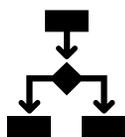
Course Coordinator	Contact Information
Yun-Hee Choi	Use OWL message

Teaching Assistant	Contact Information
TBA	

#### 4. Course Description and Design

The purpose of this course is to introduce students to statistical methods and software that can be used most frequently in research in the health sciences, in particular, in epidemiology and medical research. It includes review of statistical methodology from epidemiological viewpoint, such as cohort and case-control designs, relative odds (odds ratio) and relative risks, computer simulation study, scientific writing, and introduction to computer packages SAS, R and LaTeX.

Mode	Dates	Time	Frequency
Virtual synchronous	T/Th	10:00-11:30	Weekly
Virtual asynchronous	N/A	1 hour	Occasionally



- Asynchronous pre-work must be completed 1 day prior to synchronous sessions
- Attendance at synchronous sessions is required
- Missed work should be completed within 48 hours

All course material will be posted to OWL: <http://owl.uwo.ca>. Any changes will be indicated on the OWL site and discussed with the class.

If students need assistance, they can seek support on the [OWL Help page](#). Alternatively, they can contact the [Western Technology Services Helpdesk](#). They can be contacted by phone at 519-661-3800 or ext. 83800.

[Google Chrome](#) or [Mozilla Firefox](#) are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click [here](#).

#### 5. Learning Outcomes



Upon successful completion of this course, students will be able to:

- Explain principal concepts about biostatistics
- Understand appropriate use of biostatistical methods frequently used in medical research
- Conduct simulation studies to assess statistical methods
- Design and conduct biostatistical research and write scientific papers
- Confidently use statistical software for biostatistical research.

## 6. Course Content and Schedule



Week	Dates	Topic
1	Sept 10	Introduction
2	Sept 15, 17	Statistical inference
3	Sept 22, 24	Simulation study
4	Sept 29, Oct 1	Relative risk estimates and tests
5	Oct 6, 8	Sample size and power
6	Oct 13, 15	Scientific writing
7	Oct 20, 22	Stratified analysis
8	Oct 27, 29	Case control and matched studies
9	Nov 2 – 8	Reading Week
10	Nov 10, 12	Case control and matched studies
11	Nov 17, 19	Maximum likelihood
12	Nov 24, 26	logistic regression models
13	Dec 1, 3	Logistic regression models
14	Dec 8	Final project presentation

## 7. Online Participation and Engagement



- Students are expected to participate and engage with content as much as possible
- Students can also participate by interacting in the forums with their peers and instructors

## 8. Evaluation

Below is the evaluation breakdown for the course. Any deviations will be communicated.

Assessment	Weighting	Due Date
Biweekly paper summary	10%	TBA
Assignments	30%	TAB
Midterm	20%	Nov 19
Oral presentation	10%	Dec. 8
Final project	30%	Dec. 15

- All assignments are due at 11:55 pm EST unless otherwise specified.
- In the beginning of every Tuesday class, students will complete a “one sentence” quiz within 10 minutes on a topic covered during the previous week classes. The first quiz will be held on September 15 starting at 10am.
- Midterm exam will be an open book exam and should be returned within 3 hours.
- After an assessment is returned, students should wait 24 hours to digest feedback before contacting their evaluator; to ensure a timely response, reach out within 7 days



Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading.

### Information about late or missed evaluations:

- Late assessments without self-reported absences will be subject to a late penalty 10%/day
- Late assessments with self-reported absences should be submitted within 24 hours of the end of the 48-hour period
- An assessment cannot be submitted after it has been returned to the class

## 9. Communication:



- Students should check the OWL site every 24 – 48 hours
- Students should email their instructor(s) and teaching assistant(s) using OWL “messages”
- Emails will be monitored daily; students will receive a response in 24 – 48 hours
- This course will use the OWL forum for discussions
- Students should post all course-related content on the discussion forum so that everyone can access answers to questions
- The discussion forums will be monitored daily by instructors or teaching assistants

## 10. Office Hours:



- Office hours will be held remotely using Zoom TBA.

## 11. Resources



- All resources will be posted in OWL
- Required textbook: Lachin (2011) Biostatistical Methods (2<sup>nd</sup> ed.) Wiley
- Additional resources: Casella and Berger (2002) Statistical Inference (2<sup>nd</sup> ed.) Duxbury

## 12. Professionalism & Privacy:



Western students are expected to follow the [Student Code of Conduct](#). Additionally, the following expectations and professional conduct apply to this course:

- Students are expected to follow online etiquette expectations provided on OWL
- All course materials created by the instructor(s) are copyrighted and cannot be sold/shared
- Recordings are not permitted (audio or video) without explicit permission
- Permitted recordings are not to be distributed
- Students will be expected to take an academic integrity pledge before some assessments
- All recorded sessions will remain within the course site or unlisted if streamed

## 13. How to Be Successful in this Class:



Students enrolled in this class should understand the level of autonomy and self-discipline required to be successful.

1. Invest in a planner or application to keep track of your courses. Populate all your deadlines at the start of the term and schedule time at the start of each week to get organized and manage your time.
2. Make it a daily habit to log onto OWL to ensure you have seen everything posted to help you succeed in this class.
3. Follow weekly checklists created on OWL or create your own to help you stay on track.
4. Take notes as you go through the lesson material. Treat this course as you would a face-to-face course. Keeping handwritten notes or even notes on a regular Word document will help you learn more effectively than just reading or watching the videos.
5. Connect with others. Try forming an online study group and try meeting on a weekly

- basis for study and peer support.
6. Do not be afraid to ask questions. If you are struggling with a topic, check the online discussion boards or contact your instructor(s) and or teaching assistant(s).
  7. Reward yourself for successes. It seems easier to motivate ourselves knowing that there is something waiting for us at the end of the task.

## 14. Western Academic Policies and Statements

### Absence from Course Commitments

#### [Policy on Academic Consideration for Student Absences](#)

If you are unable to meet a course requirement due to illness or other serious circumstances, you must seek approval for the absence as soon as possible. Approval can be granted either through a **self-reported absence** or via the **Academic Counselling** unit. Students have two self-reports to use throughout the academic year; absence from course commitments including tests, quizzes, presentations, labs, and assignments that are worth 30% or less can be self-reported. Self-reported absences cover a student for 48 hours (yesterday + today or today + tomorrow). Your instructor will receive notification of your consideration; however, you should contact your instructor immediately regarding your absence. Students are expected to submit missed work within 24 hours of the end of the 48-hour period. Please review details of the [university's policy on academic consideration for student absences](#).

If you have used both their self-reported absences or will miss more than 48 hours of course requirements, a Student Medical Certificate (SMC) should be signed by a licensed medical or mental health practitioner and you should contact academic counselling. Academic Counselling will be operating virtually this year and can be contacted at [scibmsac@uwo.ca](mailto:scibmsac@uwo.ca).

### Accommodation for Religious Holidays

The policy on Accommodation for Religious Holidays can be viewed [here](#).

### Special Examinations

A Special Examination is any examination other than the regular examination, and it may be offered only with the permission of the Dean of the Faculty in which the student is registered, in consultation with the instructor and Department Chair. Permission to write a Special Examination may be given on the basis of compassionate or medical grounds with appropriate supporting documents. To provide an opportunity for students to recover from the circumstances resulting in a Special Examination, the University has implemented Special Examinations dates. These dates as well as other important information about examinations and academic standing can be found [here](#).

### Academic Offences

"Scholastic offences are taken seriously, and students are directed [here](#) to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence.

### Accessibility Statement

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Accessible Education (AE) at 661-2111 x 82147 for any specific question regarding an accommodation or review [The policy on Accommodation for Students with Disabilities](#).

## Correspondence Statement

The centrally administered **e-mail account** provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner. You can read about the privacy and security of the UWO email accounts [here](#).

## Turnitin and other similarity review software

All assignments will be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. Students will be able to view their results before the final submission. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between Western University and [Turnitin.com](http://Turnitin.com).

## 15. BMSUE Academic Policies and Statements

### Copyright and Audio/Video Recording Statement

Course material produced by faculty is copyrighted and to reproduce this material for any purposes other than your own educational use contravenes Canadian Copyright Laws. You must always ask permission to record another individual and you should never share or distribute recordings.

### Rounding of Marks Statement

Across the Basic Medical Sciences Undergraduate Education programs, we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during this course. All students will be treated equally and evaluated based only on their actual achievement. **Final grades** on this course, irrespective of the number of decimal places used in marking individual assignments and tests, will be calculated to one decimal place and rounded to the nearest integer, e.g., 74.4 becomes 74, and 74.5 becomes 75. Marks WILL NOT be bumped to the next grade or GPA, e.g. a 79 will NOT be bumped up to an 80, an 84 WILL NOT be bumped up to an 85, etc. The mark attained is the mark you achieved, and the mark assigned; requests for mark "bumping" will be denied.

## 16. Support Services

The following links provide information about support services at Western University.

[Academic Counselling \(Science and Basic Medical Sciences\)](#)

[Appeal Procedures](#)

[Registrarial Services](#)

[Student Development Services](#)

[Student Health Services](#)