

The University of Western Ontario
Department of Statistical and Actuarial Sciences
STATISTICAL SCIENCE 2857 Spring 2021
Probability and Statistics I

Instructor: Joseph Raaymakers, M.Sc.
Contact: jraaymak@uwo.ca or via forums in OWL
Office Hours: Online via Zoom (by appointment)
Lectures: Online via Zoom on Tuesday to Friday, 9:00 AM-11:00 AM

Prerequisite(s)

A minimum mark of 60% in 0.5 course from (Calculus 1

Note

This course is accredited under the Canadian Institute of Actuaries (CIA) University Accreditation Program (UAP) for the 2019-20 academic year. Achievement of the established exemption grade in this course may qualify a student from exemptions from writing certain preliminary exams.

Please note, a combination of this course, Statistics 3859A and Statistics 3860B, is required to achieve an exemption for preliminary exam SRM (minimum of 80% in each course is required). Please see the following link for full details:

<http://www.cia-ica.ca/membership/university-accreditation-program---home>

Course Outline

Chapter	Topics
1 Descriptive Statistics	Graphing Data, Sample Statistics: Mean, median, Variance, IQR, Percentiles, Outliers
2 Probability Theory	Probabilities, Events, Union, Intersection, Conditional Probability, Bayes Rule
3/4 Random Variables and Probability Distributions Discrete and Continuous	Discrete and Continuous Random Variables, Expectation, Variance, Moment Generating Functions, Functions of Rand

Policy on quizzes, tests and examinations

Students are encouraged to ask questions on the appropriate forums. Do not use course-related OWL Forums for social conversation unrelated to the course. Keep postings to the OWL Forums positive and productive – the OWL Forums are an important component of our learning environment. Inappropriate or disrespectful postings will not be tolerated.

Department Policy on Missed Course Requirements and Student Health and Wellness

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. During the COVID-19 pandemic, medical notes are not required. Medical absence can be reported through the Student Illness Reporting Tool at

https://www.registrar.uwo.ca/academics/academic_considerations/index.html.

If this portal is not available (i.e., if the COVID-19 pandemic has lifted before the end of the course), or if you have missed (or will be missing coursework) for a non-medical reason beyond your control, approval can be granted either through a Self-reported Absence (if the portal is available) or via the Dean's Office/Academic Counselling unit of your Home Faculty. Non-medical reasons must be accompanied by supporting documentation. If you are a Science student, contact information for the Academic Counselling Office for the Faculty of Science is available at

<https://www.uwo.ca/sci/counselling/>.

In all cases, you must contact your instructor as soon as possible, and no later than 24 hours after the period covered, to clarify how you will be expected to fulfil the academic expectations you have missed (unless other instructions are indicated in this Course Outline).

Academic Policy

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, 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.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at this website:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

Computer-marked, multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Support Services

Learning-skills counsellors at the Student Development Centre are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling: <http://sdc.uwo.ca/>.

Students who are in emotional/mental distress should refer to Mental Health@Western for a complete list of options about how to obtain help: <https://www.uwo.ca/health/>

Additional student-run support services are offered by the USC: <https://westernusc.ca/your-services/>.

Accessibility

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 ext. 82147 if you have questions regarding accommodation.

The policy on Accommodation for Students with Disabilities can be found here:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic%20Accommodation_disabilities.pdf

The policy on Accommodation for Religious Holidays can be found here:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

Weekly Course Calendar

Lectures 2021	Section	
May 10-14	Descriptive stats, Probability theory (sections 1.1 - 1.4, 2.1 - 2.2)	
May 17-21	Probability theory, Random variables (sections 2.3 – 2.5, 3.1 – 3.3)	
May 21	Quiz 1	
May 24-28	Random variables, Discrete probability distributions, Continuous probability distributions (sections 3.5 – 3.7, 4.1 – 4.3)	
May 28	Quiz 2 and Tutorial/Class	
May 31-Jun 4	Continuous probability distributions, Joint probability distributions (sections 4.3 – 4.7, 5.1)	
Jun 4	Midterm Test	
Jun 7-11	Joint probability distributions, Conditional probability distributions, Statistics and sampling distributions (sections 5.1 – 5.5, 6.1)	
Jun 11	Quiz 3	
Jun 14-18	Statistics and sampling distributions, Central Limit Theorem (sections 6.1 – 6.4)	
Jun 18	Quiz 4	
Final Exam To be scheduled by the Registrar's office (3 hours)		