

SS2857A: Probability and Statistics I

Fall 2018

1. General Course Information

Lectures

Monday & Wednesday 12:30-1:30 in SSC 2050

Tutorial

Tuesday 4:30-5:30 in WSC 55

Pre-requisites

A minimum mark of 60% in 0.5 course from (Calculus 1000A/B or Calculus 1500A/B) plus 0.5 course from Calculus 1301A/B (minimum mark 85%) or Calculus 1501A/B (minimum mark 60%). A minimum mark of 60% in Applied Mathematics 1413 may also be used to meet this 1.0 course prerequisite.

As noted in the Senate Guidelines, unless you have either the requisites for this course or written special permission from your Dean to enrol in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2. Instructor Information

Instructor

Dr. Simon Bonner

Office: WSC 276

Phone: 519-661-2111 ext. 88205

E-mail: sbonner6@uwo.ca

Office hours: Fridays 9:30-11:30 or by appointment

Contact

The best way to contact me outside of class is either by coming to my office hours or by e-mail. I do my best to respond to e-mail within 24 hours, excluding weekends. You may also drop by my office at any time. If I can't meet you at that time then I will set up a time to meet later.

3. Course Description

Outline

Western's course calendar states that this course will cover: "Probability axioms, conditional probability, Bayes' theorem. Random variables motivated by real data and examples. Parametric univariate models as data reduction and description strategies. Multivariate distributions, expectation and variance. Likelihood function will be defined and exploited as a means of estimating parameters in certain simple situations." This is technically a correct, but rather boring, description of what you will learn in this class. It's a bit like telling someone that for dinner you are going to eat paste made from ground wheat topped with crushed tomatoes boiled with herbs and garlic, grated coagulated cow's milk, and pepperoni. Doesn't that sound tasty?

Statistics gives us a way to understand the world and make decisions in the face of uncertainty. Life would be much easier if there were no uncertainty. You'd always pick the right clothes for the weather, choose the right investments, and there would never be any misdiagnoses. Unfortunately, the world isn't like that. Decisions are hard to make because we can never know all of the necessary information. The field of probability provides a language with which we can talk and reason about uncertainty in the world, and forms the underpinnings of all statistical methods. In this class you will learn probability with a focus on real world examples in order that you can understand and apply the statistical methods presented in the follow-up course (SS2858).

4. Course Materials

Textbook

The required text for this course is:

Devore, JL and Berk, KN (2012) Modern Mathematical Statistics with Applications. 2nd Edition. Springer.

You may access a free electronic copy of this book in PDF or EPUB format through Western Libraries by following this link to [Springer Link](#). From there you can also purchase a softcover copy of the book for 25 USD (approximately 34 CAD).

The schedule for textbook readings is available through the [Textbook Reading Schedule](#) link on OWL. I will notify you if the schedule changes. It is your responsibility to check the schedule and keep up-to-date.

iClickers

I will be using iClicker to conduct the reading quizzes and to obtain feedback from you during the class. You can download the iClicker Reef app for your phone through either the Android Playstore or Apple App Store, or access iClicker Reef through the web at <https://app.reef-education.com/#/login>. Once you have logged in and selected the institution you can find the course by searching for "SS2857" or for "Bonner".

5. Methods of Evaluation

Assessment Activities

Your progress and performance in the course will be on the following activities:

Reading Quizzes	10%
Review Exercises	10%
Tutorial Quizzes	50%
Final exam	30%

Reading Quizzes

Reading quizzes will be held at the start of lecture on an approximately weekly basis using the iClicker response system to make sure that you are doing the course readings. Each quiz will cover material from the

assigned readings for that day only. You will not be able to write the quiz if you are late for class. No credit will be given for late submissions without a valid excuse confirmed by an academic counsellor (see Section 6 for details on excused absences).

Review Exercises

I will post review exercises from the textbook every Monday starting September 17th. These questions will serve as models for the questions on the Tutorial Quizzes and Final Exam. Answers to these questions must be submitted through CrowdMark, an on-line collaborative grading system. Instead of submitting paper copies you will scan your answers with your phone or other electronic device and submit these online. You are welcome to handwrite your solutions, but it is your responsibility to make sure that the text is legible. Submissions that cannot be read by the grader will receive a grade of zero. Solutions will be released shortly after the submission deadline. No credit will be given for late submissions without a valid excuse confirmed by an academic counsellor (see Section 6 for details on excused absences).

Tutorial Quizzes

Tutorial quizzes will cover the material in one chapter of the text and will be held on the following days:

- October 2: Chapter 1
- October 23: Chapter 2
- November 6: Chapter 3
- November 20: Chapter 4
- December 4: Chapter 5

Each quiz will be worth 10% of your final grade. Midterm grades based on at least the first two quizzes (20% of your final grade) will be available before the November 9 midterm grading deadline. No credit will be given for late submissions without a valid excuse confirmed by an academic counsellor (see Section 6 for details on excused absences).

Final Exam

The date of the final exam will be set by the university. The final exam will be cumulative. Note that you are responsible for the material in Chapters 6 by the Tutorial Quizzes.

How to Do Well in this Course

I intend there to be no surprises in this course. The final exam for this course will be based on the Tutorial Quizzes which will be based on the Review Exercises. The best way to do well in this course is to:

1. Read the assigned chapters before coming to lecture.
2. Complete the Review Exercises each week.
3. Review the solutions for the Review Exercises before each tutorial.
4. Attend tutorials to clarify any solutions that you didn't follow.
5. Meet with me or the TA during office hours if you still have questions.
6. Write the Tutorial Quizzes.
7. Check the solutions of the Tutorial Quizzes after they are posted.
8. Meet with me or the TA if you have questions about the Tutorial Quiz solutions.
9. Write the final exam.

6. Accommodation and Accessibility

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or supporting documentation to the Academic Counselling Office of your home faculty as soon as possible. If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in WSC 140, and can be contacted at scibmsac@uwo.ca.

For further information, please consult the university's medical illness policy at http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

If you are exempted from a Reading Quiz, set of Review Exercises, or Tutorial Quiz then the other activities in that component will be reweighted accordingly. E.g., if you are excused from one Tutorial Quiz then each of the remaining quizzes will contribute 12.5% to your final grade.

If you miss the Final Exam, please contact your faculty's Academic Counselling Office as soon as you are able to do so. They will assess your eligibility to write the Special Exam (the name given by the university to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (see http://www.registrar.uwo.ca/examinations/exam_schedule.html).

7. Academic Policies

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.

You will be permitted to use calculators on the Tutorial Quizzes and Final Exam. You may not use any other electronic device in place of a calculator.

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.

Students' privacy will be protected with respect to data gathered from the iClicker responses, that the data gathered using the devices will not be used for research purposes without their consent, and that they cannot be used by anyone but the student. See http://www.uwo.ca/univsec/pdf/academic_policies/exam/courseoutlines.pdf for more details.

8. Support Services

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:
www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_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

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.uwo.ca>) 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.

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

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