

University of Waterloo
Department of Economics – Fall 2019
Econ 221: Statistics for Economists – Section 1
Tuesday and Thursday, 11:30-12:50 pm RCH 110

Instructor Information

Instructor: Zara Liaqat
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Note:

- When sending an email, “Econ 221” must appear in the subject line and the message must include your full name and student ID number.
- Please use emails for administrative matters only. I will be available during office hours, or by appointment, to discuss course material.

Territorial Acknowledgement

We acknowledge that we are living and working on the traditional territory of the Attawandaron (also known as Neutral), Anishinaabeg and Haudenosaunee peoples. The University of Waterloo is situated on the Haldimand Tract, the land promised to the Six Nations that includes six miles on each side of the Grand River.

Course Description

In this course we ask how we can use a sample of individuals to make well-reasoned claims about an unobserved population. We start by discussing ways of describing a population. We then learn how probability theory can be used to model uncertain events. Next we connect these two discussions and derive probability distributions of estimators of population characteristics. These distributions provide a basis for statistical inference about the population. The course introduces some basic forms of statistical modeling (single population, two population, simple regression).

Course Goals and Learning Outcomes

Through lectures, reading and practice in solving problems by hand and spreadsheet calculations students will obtain:

- a basic literacy with regard to statistical techniques and data analysis;
- familiarity with the use of probability theory in modeling random events.

Required Text

Paul Newbold, William L. Carlson, and Betty M. Thorne, *Statistics for Business and Economics* 8th edition, (Toronto: Pearson Education Inc., 2013). A copy of the 8th edition is on reserve at Dana Porter.

Course Webpage

This course outline is available at two locations for the duration of the term:

- (a) Department of Economics website <http://economics.uwaterloo.ca/courses>
- (b) LEARN website <http://learn.uwaterloo.ca/> (use WatIAM/Quest username and password)

Readings Available on LEARN

- Lecture overhead slides and/or additional course material will be posted on the LEARN web site <http://learn.uwaterloo.ca>.
- The LEARN site is down occasionally. Save the course materials to your computer as soon as they are posted. Always be prepared!
- Students writing test and exams are responsible to save course materials on LEARN before the access to their courses is shut off (normally on the first day of classes of the next term).

Course Requirements and Assessment

The course grade will be based on higher grade from the following two schemes:

Assessment	Date of Evaluation (if known)	Weighting Scheme #1	Weighting Scheme #2
Assignments (2 @ 7.5% each)	<i>T.B.A.</i>	15%	15%
Tutorial Participation	<i>weekly</i>	10%	10%
Midterm Exam (In Class)	October 24, 2019	35%	25%
Final Exam (Comprehensive)	<i>T.B.A.</i>	40%	50%
Total		100%	100%

- Participation is recommended. Attend all the lectures and actively participate in class. Studying just from the lectures slides is not a substitute of attending lectures. Attendance is an important component in ensuring your complete understanding of the material presented.
- The date and time for the final exam will be set by the Registrar during the exam period and announced in class and on LEARN.
- Examinations in this course are based on the material contained in the assigned textbook readings and presented as lecture contents.
- Read the textbook and other assigned readings and go through your lecture notes. Some of the materials covered during lectures may NOT be available in lecture slides.
- Work out all optional assignments and practice questions in the textbook and on the textbook's website. These are meant for helping you prepare for the exams.
- There will be two assignments over the course of the term. Each will count for 7.5% of the final grade. The assignments will be posted on LEARN, and due in class. Due dates to be announced. Without a prior arrangement with the instructor, *no late assignments will be accepted*.

Tutorial Participation

Students are required to attend 11 tutorial meetings over the course of the term. Exercises will be given and reviewed. Students will be given problems to solve and submit and these will be graded (1 attended tutorial, 2 used correct approach, 3 solved problem out of 3). The best 8 out of 11 tutorial performances will be used to calculate the tutorial participation mark.

Examination Policy

- Failure to write an exam results in a grade of zero. Exceptions will only be made under the most extreme circumstances, with a written note, and according to the policies of the department of economics and faculty of Arts.
- Students must report to me the reasons for not writing an exam prior to the exam date or immediately after the exam for my approval.
- Travel plans are not an acceptable reason for requesting an alternative final exam. See <http://www.registrar.uwaterloo.ca/exams/finalexams.html> for details.

- Please note that students who decide to take an exam cannot be given accommodation after the fact due to illness or personal complicating factors that may have affected their performance. If you are not well on the day of an exam it is advisable that you not take the exam and obtain valid documentation of the circumstances of this decision.

Submission of Exam Papers

Late submission of exam papers is not accepted and missed submissions will receive a zero mark for whatever reason. Exam papers must be submitted in whole and on time in the exam room. Exam papers:

- (a) not submitted on time,
- (b) submitted with missing pages,
- (c) submitted elsewhere, with the exception of students with permission to write in the AS Office,
- (d) not received at all

will receive a grade of zero for whatever reason. It is the responsibility of students to ensure that they write exams in the location, date, and time assigned to their sections. Students writing exams in the wrong section will be assessed a 20% penalty on the final exam grade. There will be no accommodation for possible differences in exam material or content.

Missing the Midterm Exam

- Missing the midterm will automatically result in a grade of zero. If the illness can be documented with a UW Verification of Illness Form (the only acceptable document), with approval you may be allowed to write a makeup midterm exam. This remedy is a privilege and not a right.
- Students are advised to notify the instructor about the missed exam in person or via email notification as soon as possible, and within 24 hours of the missed exam.

Missing the Final Exam

- Missing the final exam is a very serious matter which automatically results in a grade of zero for the final exam and possibly a failing grade for the course. Please carefully read the Economics Department policy on deferred final exams for instructions.
- No deferred final exam will be provided for students who missed all the exams (including the final exam) in this course.

Electronic Device Policy

To avoid disruptions to the learning environment handheld devices must be turned off during the lecture and laptops must be used strictly for lecture-related purposes. If a student's use of a laptop becomes a distraction for adjacent students that student will be asked to discontinue its use.

Economics Department Deferred Final Exam Policy

Deferred Final Exam Policy is detailed on the department website in the 'Resources and Policies' section of the Undergraduate program page. The web address is:

<https://uwaterloo.ca/economics/undergraduate/resources-and-policies/deferred-final-exam-policy>

Cross-listed course

Please note that a cross-listed course will count in all respective averages no matter under which rubric it has been taken. For example, a PHIL/PSCI cross-list will count in a Philosophy major average, even if the course was taken under the Political Science rubric.

Course Schedule (*Tentative*)

Week	Topic	Readings Due
1	Describing a Population, Sampling and Statistics Basic Set Theory	Chapters 1 & 2 (1.1-1.3, 1.5) (2.1-2.2, 2.4)
2	Introduction to Probability Theory, Conditional Probabilities	Chapter 3 (3.1-3.5)
3	Discrete Random Variables	Chapter 4 (4.1-4.3)
4	Discrete Random Variables	Chapter 4 (4.4-4.5, 4.7)
5	Continuous Random Variables	Chapter 5 (5.1-5.3)
Reading Week		
7	Continuous Random Variables & Review	Chapter 5 (5.5-5.6 & Appendix)
Midterm Exam (October 24, 2019)		
8	Sampling Distributions, Obtaining and Evaluating Estimators	Chapter 6 (6.1-6.4)
9	Confidence Interval Estimation	Chapter 7 (7.1-7.5)
10	Introduction to Hypothesis Testing	Chapter 9 (9.1-9.3)
11	Useful Hypothesis Tests	Chapter 9 (9.4-9.6)
12	Simple Regression – Model, Estimation Hypothesis Tests	Chapter 11 (11.1-11.6)
13	Simple Regression – Prediction, Graphical Analysis Review and Final Exam Details	Chapter 11 (11.9)

Academic Integrity

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo are expected to promote honesty, trust, fairness, respect and responsibility. See the [UWaterloo Academic Integrity webpage](#) for more information.

Discipline: A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. Check [the Office of Academic Integrity](#) for more information. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary

penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to [Policy 71 - Student Discipline](#). For typical penalties check [Guidelines for the Assessment of Penalties](#).

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read [Policy 70 - Student Petitions and Grievances](#), Section 4. When in doubt, please be certain to contact the department's administrative assistant who will provide further assistance.

Appeals: A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 - Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to [Policy 72 - Student Appeals](#).

Accommodation for Students with Disabilities

Note for students with disabilities: The [AccessAbility Services](#) office, located on the first floor of the Needles Hall extension (1401), collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AS office at the beginning of each academic term.

Mental Health Support

All of us need a support system. The faculty and staff in Arts encourage students to seek out mental health support if they are needed.

On Campus

- Counselling Services: counselling.services@uwaterloo.ca / 519-888-4567 ext. 32655
- **MATES:** one-to-one peer support program offered by Federation of Students (FEDS) and Counselling Services
- Health Services Emergency service: located across the creek from Student Life Centre

Off campus, 24/7

- **Good2Talk:** Free confidential help line for post-secondary students. Phone: 1-866-925-5454
- Grand River Hospital: Emergency care for mental health crisis. Phone: 519-749-4300 ext. 6880
- **Here 24/7:** Mental Health and Crisis Service Team. Phone: 1-844-437-3247
- **OK2BME:** set of support services for lesbian, gay, bisexual, transgender or questioning teens in Waterloo. Phone: 519-884-0000 extension 213

Full details can be found online on the Faculty of Arts [website](#)

Download [UWaterloo and regional mental health resources \(PDF\)](#)

Download the [WatSafe app](#) to your phone to quickly access mental health support information.