

University of Guelph
Department of Mathematics and Statistics

Stat*3320 Sampling Theory with Applications
Course Outline for Fall 2019

Instructor Information

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Office hours: Monday 3:00PM-5:00PM and Friday 10:00AM-Noon. Any necessary changes will be posted on Courselink.

General Information

Course Description (from the Undergraduate Calendar 2019-2020)

This course focuses on the design and analysis of survey samples for finite populations. Topics covered include: non-probability and probability sampling, simple random sampling, stratified sampling, cluster sampling, systematic sampling, double sampling, two-phase sampling and multi-stage cluster sampling. Expectation, variance estimation procedures and sample size calculations for the above techniques are included.

Offering(s): Offered in odd-numbered years.

Prerequisite(s): (1 of IPS*1510, MATH*1210, MATH*2080), (1 of STAT*2050, STAT*3240, STAT*3100)

Department(s): Department of Mathematics and Statistics

Credit Weight: 0.5

Class Schedule and Location: MWF 8:30AM-9:20AM, currently in Alexander 028 (and this may or may not change).

Course Content

Specific Learning Outcomes:

I try to optimize the educational outcomes for each student in the course. Some of the outcomes I consider desirable are:

- Increase the breadth and depth of your knowledge in the statistical field of Survey Sampling.
- Improve your capacity to plan and implement sample surveys for both human and non-human populations and to analyze and interpret the data generated.
- Gain a strong understanding of the cost-benefit tradeoffs among different sampling schemes.
- Strengthen your understanding of the role of mathematical models for condensing and communicating information.
- Improve your capacity to communicate statistical results to other researchers.

Lecture Content:

Lectures will vary in style and content, you need to be there to understand what is going on!

Labs:

This course does not have a closed lab, but you will have access to an open “R” lab, weekdays 10:30AM-12:30PM; on Monday the lab is in SSC 1306 and Tuesday-Friday the lab is in SSC 1305. The lab is staffed by a GTA with a high level of ability in the use of R statistical software. This is NOT a “required attendance” lab, rather it is a resource for those seeking assistance with the R. I will have more to say in class as to why R will be the primary software for this course.

The computers in the lab rooms have R installed on them. You cannot save files for the longer term on these computers, so you will want to email files to yourself or store them on a memory stick.

The R lab will be used by other courses, so at times the GTA will be inundated by students seeking assistance. Try to plan to access the lab in lower demand times and please be patient!

Course Assignments and Tests:

Your final grade in this course is determined as follows.

Assignments	40%
Term test #1	15%
Term test #2	15%
Final exam	30%

If you miss a term component for a validly documented reason (such as illness), the weight for the missed component will be transferred to the final exam.

Test Dates and Times:

Test 1 is on Monday October 7, 2019 (in class) (45 minutes).

Test 2 is on Friday November 8, 2019 (in class) (45 minutes).

Final examination date and time:

Thursday December 12, 2019 at 7:00PM–9:00PM.

Room assignments will be announced by the Office of the Registrar on WebAdvisor.

Assignments:

Assignments will be submitted via Crowdmark, details will be posted on our course website. Deadlines are strictly enforced, unless I decide otherwise. A penalty of 20% per day for up to two days can be imposed for late assignments, thereafter the assignment or project may not be accepted. There will be four assignments, equally weighted.

The due dates for the Assignments are:

Assignment #1 – due Thursday September 26, 2019

Assignment #2 – due Thursday October 24, 2019

Assignment #3 – due Thursday November 14, 2019

Assignment #4 – due Thursday November 28, 2019

Course Resources

Text (Required):

Elementary Survey Sampling, seventh edition, by Richard L. Scheaffer, William Mendenhall III, R. Lyman Ott and Kenneth Gerow. Hard cover and electronic versions are available. One copy of the text is on reserve in the Library. We will cover most of the material in chapters 1–10 and possibly a bit more. I recommend hearing what I say in the first class before deciding what kind of purchase you might want to make.

Other Resources:

I like short in-class handouts. I do not post notes; I expect you to be at class to make your own notes. If you are absent from a class for any reason you need to negotiate with a class colleague to get the notes you missed!

Course Policies

Course Policy on Group Work:

Some assignments may allow group work on one or more components. Explicit rules for such components can vary; guidelines will be set for each assignment as required.

Course Evaluation Information:

Please see:

https://mathstat.uoguelph.ca/sites/uoguelph.ca.mathstat/files/public/TeachevaluationformW16_1.pdf

Drop date:

The last date to drop one-semester courses this semester, without academic penalty, is **Friday, November 29, 2019**. For regulations and procedures for Dropping Courses, see the Academic Calendar.

University Policies

E-mail Communication

As per university regulations, all students are required to check their <mail.uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions

<https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml>

Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

Associate Diploma Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml>

Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared

responsibility between the University and the student. When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway. Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability. Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance and not later than the 40th Class Day.

For Guelph students, information can be found on the SAS website <https://www.uoguelph.ca/sas>
For Ridgetown students, information can be found on the Ridgetown SAS website <https://www.ridgetownc.com/services/accessibilityservices.cfm>

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Undergraduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.