F17 course outline

STAT 322 –Sampling and Experimental Design (*non-specialist level)*

University of Waterloo

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Office hrs. posted weekly on door and on LEARN.

Lecture Times and Location: T/Th: 10:00 - 11:20, MC 4042.

Note: Lecture attendance is strongly recommended. Exam content will be based on concepts and material discussed in lectures.

Required Text: *STAT 322 Course Notes*, by J. MacKay, S. Steiner, and M. Schonlau.

Note: Lecture material and content may deviate from the order and presentation of the course notes.

Course Web Page: Please check the course web page (LEARN) regularly for important announcements and updates to posted material.

Course Description:

- Experimental design: Fundamentals of experimental design; observational and experimental studies; models for comparing two or more treatments; ANOVA; contrasts; interaction; factorial designs.
- Survey sampling. Survey issues; random sampling methods; estimation methods; precision of estimators; management of sample and non-sample error.

Course Objectives:

- To provide the elements of experimental design and inference necessary to conduct and understand the results of an empirical investigation.
- To provide students with the statistical concepts, theory and techniques necessary to carry out a sample survey to answer relevant questions about a group or population of interest.
- To provide students with sufficient understanding of statistical concepts to be able to critically evaluate, understand and interpret the results of sample surveys reported in newspaper, internet and scientific articles.

Evaluation:

- Term Tests (2) 30%* Thur. Oct. 19; Thur. Nov. 23 during class.
- Assignments (4) 10% Due dates and details TBA.
- Final Exam 60% Time and Location TBD.

*The term test weighting is as follows: Highest grade = 20%; lowest test grade = 10%

Examination Procedures: Term tests and final exam will be closed book. Details on format and content will be posted on the course website. There are no deferred term tests or final exam. The weight of a test missed for an acceptable reason and accompanied by medical documentation will be transferred to the final exam.

University of Waterloo and Mathematics Faculty Policies

Academic Integrity: In order to maintain a culture of academic integrity, member of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility.
See: www.uwaterloo.ca/academicintegrity/ for more information.

Discipline: A student is expected to know what constitutes academic integrity to avoid committing an academic offence, and to take responsibility for their actions. 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 instructor, academic advisor, or the undergraduate Associate Dean.
For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline, www.adm.uwaterloo.ca/infosec/Policies/policy71.htm.
See: www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm for guidelines for the assessment of penalties.

Avoiding Academic Offenses: For more information on commonly misunderstood academic offenses and how to avoid them, students should refer to
the Faculty of Mathematics Cheating and Student Academic Discipline Policy. See:
http://www.math.uwaterloo.ca/navigation/Current/cheating_policy.shtml.

Grievance: A student who believes that a decision affecting some aspect of their university life has been unfair or unreasonable may have grounds for initiating a grievance. See Policy 70, Student Petitions and Grievances, Section 4: https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-70. When in doubt, please 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 they have grounds for an appeal should refer to Policy 72 (Student Appeals).
See: www.adm.uwaterloo.ca/infosec/Policies/policy72.htm.

Mathematics Faculty INC Grade Policy: A grade of INC is awarded to a student who has completed course work during the term well enough that they could reasonably be expected to earn a passing mark in the course, but who was unable to complete end-of-term course requirements (usually the final exam) for reasons beyond his or her control. See: http://www.math.uwaterloo.ca/navigation/Current/inc.procedure.shtml.

- **Instructor INC Policy for STAT 322**: In the case of a missed final exam with documentation, an INC grade will only be awarded if **both** the following conditions are satisfied:

  1) A minimum (combined) average of 50% on all term grading components (assignments, term tests).

  2) A minimum (combined) average of 50% on all term tests.

  Any student who misses the final exam due to illness and whose performance during the term does not warrant an INC grade will receive a failing grade of DNW (Did Not Write), that carries an associated numeric grade of 32, regardless of the severity of the illness, or whether or not they have medical documentation. Exceptions to this policy will be made at the discretion of the instructor.

AccessAbility Services: AccessAbility Services, located in Needles Hall, Room 1132, 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 AccessAbility Services at the beginning of each academic term.