

STAT 4200 (CRN: 51419)
STATISTICAL INFERENCE II
WINTER 2019

Instructor: Dr. Yuliya V. Martsynyuk
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Office Hours: Monday, Wednesday and Friday 11:30 am – 12:30 pm, or by appointment

Prerequisite: STAT 4100 (with a grade of C or better)

References: The following textbooks are recommended, but not required.

- Hogg, R.V., McKean, J.W. and Craig, A.T. *Introduction to Mathematical Statistics*. 6th ed. Pearson, 2005.
- Casella, G. and Berger, R.L. *Statistical Inference*. 2nd ed. Duxbury, 2002.

Lectures: Monday, Wednesday and Friday 13:30 pm -- 14:20 pm, in 316 Machray Hall

- attendance is mandatory
- several lectures will be dedicated exclusively to solving practice problems

Homework: Selected practice problems will be assigned as no-credit homework.

Term Tests: There will be three 50-minute closed-book tests that will be held during the regular class time on **January 30, March 6 and April 3, 2019**, in **201 Armes**. The test problems will be related to the homework and the problems solved in class. There are no early and deferred term tests in this course.

Evaluation: Final grade is based on:

- Term Work (50%): term tests 1, 2 and 3 (equally weighted)
- Final Exam (50%): two-hour closed-book test based on the whole term

Course Topics:

- Interval Estimation, Confidence Sets, Pivotal Quantity Method, Optimal Confidence Intervals, Simultaneous Confidence Intervals
- Large-Sample Confidence Intervals, Likelihood-Based Confidence Intervals, Confidence Intervals for Two Populations
- Bayes Interval Estimation
- Statistical Hypotheses, Statistical Tests, Likelihood Ratio Tests, Power Function, Tests for the Normal Mean, Most Powerful Tests, Uniformly Most Powerful Tests, Monotone Likelihood Ratio, P-value, Hypothesis Tests and Confidence Intervals
- Large-Sample Tests of Statistical Hypotheses
- Bayesian Tests of Statistical Hypotheses

Voluntary Withdrawal Deadline: March 20, 2019

Academic Dishonesty: It is important that you understand what constitutes academic dishonesty and that you are familiar with the very serious consequences. Links to resources that describe academic dishonesty (including plagiarism, cheating, inappropriate collaboration and examination impersonation, as well as typical penalties) can be found at:

<http://umanitoba.ca/science/undergrad/resources/webdisciplinedocuments.html>

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Class Communication: The University requires all students to activate an official University email account. Please note that all communication between your instructor and you as a student must comply with the Electronic Communication with Students Policy. Please see

http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html

You are required to obtain and use your U of M email account for all communication between yourself and the university.

Student Accessibility Services: If you are a student with a disability, please contact SAS for academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.

<http://umanitoba.ca/student/saa/accessibility/>

ROASS Schedule A: Schedule A of the Responsibilities of Academic Staff with regards to Students (ROASS) policies of the University of Manitoba lists resources and policies for students. It is important that you familiarize yourself with these resources and policies. Schedule A is posted on the Department of Statistics webpage.