

University of Manitoba  
Department of Statistics

Winter Term 2013

**STAT 7080**

**Course Title:** Advanced Statistical Inference (CRN: 21125)

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**Outline of Covered Topics:**

The course will be mainly focused on asymptotic methods for both parametric and non-parametric statistical inference from the frequentist perspective. Specific topics will include: convergence, consistency and large sample methods and approximations, including asymptotic distributions (univariate and multivariate) and Edgeworth expansions. In particular, we will study the cases of the empirical distribution function and order statistics. We will also discuss non-i.i.d. samples.

Time permitting, some Bayesian large sample methods and approximations will also be considered.

**Course Schedule:** Tuesday/Thursday from 1:00 to 2:30 pm in 316 Machray Hall.

**Office Hours:** Tuesday from 9:30 to 11:00 a.m. and Friday from 10:30 a.m. to 12 p.m. (noon), or by appointment.

**Textbook:** You are not expected to buy a textbook.

**Jump Portal:** Any course material to be posted will be available on the Jump Portal.

<b>Breakdown of the Marks:</b>	Assignments (6 to 10)	30%
	Midterm Test	30%
	Final Exam	40%

**About the Test and Exam:**

The Midterm Test will be scheduled for mid to late February, the exact date to be determined later. However, it will be scheduled outside of regular class time (probably in the afternoon) and will be 2 hours in duration. If you miss the midterm test, you will be assigned a mark of zero, unless reasons and acceptable evidence are provided. A make-up test will not be scheduled.

The Final Exam will be held on a date to be selected later by the Department of Statistics and will be 3 hours in duration.

## **About Assignments:**

Assignments will be handed out at a rate of about one assignment per one/two weeks of class. Students are encouraged to discuss and work together on the solutions to the assignments. However, each student must hand in his or her own copy of each assignment with personalized solutions, including comments, discussions and interpretations.

Note that actions will be taken against students who are found guilty of acts of academic dishonesty.

Assignments will be due in class on the day assigned. Late assignments will NOT be accepted.

Your assignments should conform to the following standards:

- Assignments are to be done on  $8.5 \times 11$  paper, writing on one side only.
- Assignments are to be stapled.
- Write your name at the top of each page.
- Revise your assignments so they are reasonably free of grammatical and typographical errors.
- Make sure each step in your solutions are well justified: I mark what is written on paper and should not have to guess what you mean.
- Messy or unreadable assignments will be returned with a mark of zero.
- Assignments that are well presented and properly typesetted in L<sup>A</sup>T<sub>E</sub>X will get up to a 10% bonus.

## **Some guarantees regarding final grades:**

If your final mark exceeds 90%, you are guaranteed an A+ in the course. Similarly, final marks above 80%, 75%, 70% and 65% will lead to a final grade of no less than, respectively, A, B+, B and C+. Recall that a final grade of C or below is considered a failing grade in this course.

## **Intellectual Property of Course Material:**

All course notes, assignments, tests, exams, practice exams and solutions are the intellectual property of your respective instructors. Reproduction or distribution of these materials is strictly forbidden without the consent of the Department of Statistics.

**Note:** This document is dated December 18, 2012.