

Statistics 3858b: Theory of Statistics

January, 2016

1. Instructor: R. J. Kulperger
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2. Text: J. A. Rice, Mathematical Statistics and Data Analysis, Third Edition (most recent), ISBN 0-534-39942-8
3. Coverage: Chapters 6 (review as needed), 8, 9, 10, 13 with the supplementary material discussed in class or in items posted on the course web site. There are a few definitions and ideas from Chapter 7 that are used, but the material on survey sampling theory and methods is not covered in this course. Some additional topics are studied which are not included in the Rice text. :
(i) statistical models, parameter spaces and identifiability; (ii) parametric and nonparametric bootstrap; (iii) connecting probability theory to statistical inference.
4. Course schedule: MWF 11:30 AM – 12:20 PM, WSC 240
Tutorial Wednesday 5:30-6:30 PM, WSC 240. This room and time will also be used for two one hour tests that will constitute the mid-term. See the section on Grading below. The tutorial will be used for detailed worked problems and examples, as well as answering questions. Common errors from assignments will be discussed and corrected in these sessions.
5. Web page for the course:
<http://www.stats.uwo.ca/faculty/kulperger/Stat3858/s3858.htm>
Assignments and general announcements will be posted there. The user ID and password for this web site will be given in class.
The semester starts on January 4, 2016 and ends on April 6, 2016.
6. Office Hours: to be announced in class. There are no office hours on the day of a test and exam. The course TA will also have one office hour, starting in week 2 or 3.

Course Description: The course is an introduction to the basic concepts of statistical theory. Included in the syllabus are notions of statistical models, parameter identifiability, point and interval estimation, a paradigm for comparing estimators and statistical inference, method of moments and maximum likelihood estimators, hypothesis testing and application to contingency tables, sufficiency, Bayesian methods, and data analysis. The course will also give an introduction to bootstrap methods, including non parametric and parametric bootstrap.

To facilitate calculations R will be used for some assignments and examples. Some assignments will include the use of computing and simulation methods, done in R. Students from other disciplines may be able to do these in another programming language such as MatLab but should speak with me about the suitability of the software.

Policies:

1. There will be no make up exam the mid-term. Absence at the mid-term will result in a zero, unless permission is obtained from the Faculty of Science Counselors. If the faculty of science counselor agrees with the students reason and supporting documentation, then the entire weight of the mid-term test missed will be counted in the final exam. Their exam will have one question substituted to cover material missed in a term test. Such students *will identify themselves at the beginning of the exam and will then be given the appropriately modified exam.*
2. There will be about 5 assignments, handed out roughly every second week, but a slightly longer intervals around midterm time. Assignments are typically due one week after they are assigned. They are **DUE** at 11:30 AM at the **beginning** of class on the due date, unless otherwise stated in class.
3. The final exam will cover all the material covered in class, in the text and on the assignments. It will be cumulative, but with more emphasis on the later material course.
4. Grading:

Assignments	10%	the lowest assignment grade will be dropped, so there is no penalty for missing one assignment
Mid-term	35%	There will be two 50 minute tests in the Tutorial Hour, held from 5:30 - 6:30 PM in WSC 240. The two tests will be on Feb 3 and March 16, 2016.
Final Exam	55%	To be scheduled by the Registrar's Office.
		If a student scores higher on the final exam the midterm tests will count for 25% and the final exam will count for 65%

5. Formal notices : The following is a general statement for all courses at the University.

Plagiarism is a serious Scholastic Offence.

Plagiarism: Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar).

6. If a Student wishes to contact me by email they should use their uwo email. Other addresses are sometimes blocked by spam filters.