STA437H1-F/STA2005H-F LEC0101
Methods of Multivariate Data/Applied Multivariate Statistics
Course Outline - Fall 2017

Class Location & Time: Wed, 02:00 PM - 05:00 PM AH 100
Instructor: Dehan Kcng
Office Location: Sidney Smith Hall 6027G
Office Hours: Wed, 10:00AM-12:00PM
Telephone: 4169788580
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Course Web Site: https://portal.utoronto.ca

Teaching Assistants: Arvind Vijay Shrivats, Xiucui Ding and Boris Garbuzov
Office Hours: Arvind: Friday 10AM-11AM, Xiucui: Tuesday 12PM-2PM
Office Location: SS 623B in the Sidney Smith Basement in level ‘G’
E-mail Address: arvind.shrivats@gmail.com, xd301@nyu.edu, boris.garbuzov@gmail.com.

Course Description

This course covers some important and useful techniques for the analysis of multivariate data: multivariate normal distribution theory, basic estimation and hypothesis testing for multivariate means and variances, multivariate analysis of variance, repeated measurements, classification and linear discriminant analysis, principal components, canonical correlation and factor analysis.

Prerequisites


Assumed background is linear algebra, calculus, basic probability theory (including normal, Student’s t, Chi-square, and F distributions), and mathematical statistics (including point estimation, maximum likelihood, confidence intervals, hypothesis tests, linear regression, and one-way analysis of variance).

Text and Resources


Recommended Textbook: The Elements of Statistical Learning - Data Mining, Inference and Prediction, by Trevor Hastie, Robert Tibshirani, and Jerome Friedman, 2nd edition, Springer

There will be a computing component in this course, and the statistical software R will be used throughout the course. You are also allowed to use other software if it has the same capabilities. However, please be advised that the TA and I may not be familiar with your software of choice resulting in limited assistance.
**Blackboard:** Please access the Blackboard for all course and grade information. Course materials provided on Blackboard are for the use of students currently enrolled in this course only. Providing course materials to anyone outside of the course is unauthorized use.

**Test and Exam**

Tests and final exam will be **CLOSED BOOK**, and **NO aid sheet** is permitted, while I will provide some basic formulas/facts on the test/exam paper depending on the problems. You can only bring a **NON-PROGRAMMABLE calculator** for the test/exam.

**Grade Breakdown**

<table>
<thead>
<tr>
<th>Item</th>
<th>% of grade</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>Term test 1</td>
<td>25%</td>
<td>Tentative time: Oct 4th (Wed), 2 or 3 hours during class time.</td>
</tr>
<tr>
<td>Term test 2</td>
<td>25%</td>
<td>Tentative time: Nov 1st (Wed), 2 or 3 hours during class time.</td>
</tr>
<tr>
<td>Final exam</td>
<td>50%</td>
<td>TBA</td>
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**Course Policies**

**Missed test:** There are **no make-up test**. Should you miss the test due to illness, you are required to submit to your instructor, within one week, completed by your doctor, the "U of T Student Medical Certificate". The quiz/test weight will be shifted to the final exam. **If this documentation is not received, your test mark will be zero.**

**Missed final:** Follow the Faculty of Arts and Science policy & procedures to proceed.

Test grading disputes: must be submitted in writing **within one week after work is returned. Disputes will not be considered, should you have used pencil on the quiz/test.** For disputes on final exam, you need to follow the Faculty of Arts and Science policy & procedures to proceed.

**Academic Integrity**

Any form of academic dishonesty will be given the most severe penalty possible. Cheating includes representing the ideas of anybody except yourself as your own ideas. The minimum penalty I am required to enforce by policy is a zero for tests or examination. The following link contains information for students about how to act with academic integrity, the Code of Behaviour on Academic Matters, and the processes by which allegations of academic misconduct are resolved: [www.artsci.utoronto.ca/osai/students](http://www.artsci.utoronto.ca/osai/students)