

STA 437H1F/STA2005HF (L5101): Methods for Multivariate Data

Class Time, Location & Office Hour

The lecture takes place on every **Monday 6:10pm-9:00pm in SS1073**. Office hour will be held in SS6027B on every **Monday 3pm-5pm**.

Course Description

This course covers some important and useful techniques for the analysis of multivariate data: an introduction to underlying 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 (if time permits).

Prerequisites

ECO375Y1/STA302H1/STA352Y1. Recommended preparation: APM233Y1/MAT223H1/MAT240H1.

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

Text and Resources

Textbook: Applied Multivariate Statistical Analysis, **6th Edition**, by R. A. Johnson and D. W. Wichern (Prentice Hall)

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 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. I will temporarily post course information and material at www.utstat.utoronto.ca/fyao/sta437/sta437.html for students who are not yet enrolled. But this link may be no longer active after Sept 22, 2013 (the deadline for undergraduate students to be added into the class).

Test and Exam

Term test and final exam will be closed book. **For term test, you may bring one page of 8.5 x 11 inch aid sheet** (you can write on both sides) with whatever facts, formulas, or explanations you find helpful. **The final exam will be comprehensive and you can bring two pages of aid sheets** (double-sided 8.5 x 11 inch). You are only allowed to use a **nonprogrammable calculator on the test and exam**.

Grade Breakdown

Item	% of grade	Comments
Homework	25%	
Term test	30%	Oct 28 (Monday), 6:10-8:10pm
Final exam	45%	TBA

Course Policies

- No late homework without an official excuse, for example, a letter from your director (advisor) of study, or a letter from doctor etc.
- **Missed test:** There are **no make-up test** . Should you miss the term 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**", obtainable from your college registrar, the Office of the Faculty Registrar (SS1006), the Statistics Department, or the Koffler health service. The test's weight will be shifted to the exam. **If this documentation is not received, your test mark will be zero.**
- Homework/exam credit: must show the necessary work to receive full credit for any problem, and any work turned in must be your own.
- Homework/exam grading disputes: must be submitted in writing **within one week after work is returned.**
- In general, I am not able to answer questions about the course material by email. Before sending an email, make sure that you are not asking information that is already on the Blackboard, or questions about the course material that are more appropriate to discuss during office hours and/or tutorials. If you do not receive my response in a timely manner, this would likely be the reason.

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 the homework assignment 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