STATISTICS 567 (16:960:567): Applied Multivariate Analysis
Section: 01, Index Number: 13875, Spring 2023

Room:	SEC 205 (Busch Campus)
Time:	Monday, 6:00 - 9:00 PM (7^{th} and 8^{th} periods)
Course web-site:	statweb.rutgers.edu/∼dtyler/Stat567-23
Instructor:	Dr. David Tyler
Offices:	567 Hill Center (Busch Campus)
E-mail:	dtyler@stat.rutgers.edu
Web-site:	statweb.rutgers.edu/∼dtyler
Office Hours:	Tuesday 5:00 - 6:00 Monday: 9:00 - 9:30 PM (depending on demand) Other times by appointment.
Course Text:	*Applied Multivariate Statistical Analysis*, 6^{th} *Edition* by R.A. Johnson and D.W. Wichern
Supplementary Text:	*Multivariate Analysis* (see course website) by K.T. Mardia, J.T. Kent, and J.M. Bibby

Quizzes and Exams			**Dates (Tenative)**
Quiz 1	=	30	February 20
Midterm	=	100	March 20 or 27
Final	=	100/150	To be announced
Total	=	230/280	

Exam policy

- The quiz is in-class and is approximately 40 minutes. The quiz is closed book but with two pages of notes allowed.
- The midterm exam is in-class and uses the full two periods.
- The final exam is 3 hours and is semi-comprehensive. The time and location of the final exam will be announced at a later date. Tentatively, it will be on Monday, May 8, 6-9 pm in SEC 205.
- The midterm and final exams are closed book exams but with some notes allowed. These exams may have both an in-class part and a take-home part and/or a take-home project.
- The final exam will count as either 100 or 150 points, depending on which scale results in the highest total percentage for the individual student.
- For exams and quizzes, bring a calculator and pencils (not pens).

STATISTICS 567.01: Applied Multivariate Analysis, Spring 23

Syllabus (Tentative)

- Review of Linear Algebra (self review).
  Chapter 2: sections 2.2, 2.3, 2.4, 2.7; Supplement 2A.
- Graphical Displays and Descriptive Statistics.
  Chapter 1; plus class notes.
- Multivariate Random Variables and Principal Components Analysis (PCA)
  Chapter 2: sections 2.5, 2.6; Chapter 8: section 8.2; plus class notes.
- Multivariate Distribution Theory
  Chapters 3 and 4.
- Estimation and Testing for One and Two Sample Problems.
  Chapter 5; sections 5.1-5.5; Supplement 5A; Chapter 6: sections 6.2, 6.3.
- MANOVA and Multivariate Regression.
  Chapter 6: sections 6.4, 6.5, 6.8; Chapter 7: sections 7.1-7.8.
- Other Topics (as time permits)
  - Factor Analysis
  - Canoncial Correlation Analysis
  - Discriminant Analysis
  - Cluster Analysis

Lectures: The lectures will cover some material which is not in the text.

Homework: There will be homework problems assigned from the textbook, as well as homework problems assigned in class during the course of the lectures. Unless otherwise stated, homework will not be collected or graded. The student though is responsible for doing the homework problems. Some problems may appear on the quiz and exams. The may also be some extra credit homework problems.