

## STAT 4504 Statistical Design and Analysis of Variance

W/20

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**Text:** *Design and Analysis of Experiments*, ed 8, by Douglas C. Montgomery

**Computer Software:** SAS software is the package of choice. It will be introduced in the labs & reproduced in Published assignment solutions. You may, however, use R if you prefer.

**Computer Labs:** Start Week of January 20 in 4385 HP

**Prerequisites:** STAT 2559 & STAT 3533 or equivalent

**Assignments:** There will be a final **Group Project**. There will also be 4 assignments to be handed in approximately: Jan. 23, Feb. 6, Feb. 27, Mar. 19. Some of these assignments will incorporate the type of questions that must be answered in your final project report. The assignments will **not** necessarily all have the same weight. **ALL** assignments **count** toward the term mark.

**Tests:** There will be 2 quizzes given during the lab period in approximately the 4<sup>th</sup> and 8<sup>th</sup> weeks.

<b>Grading:</b>	Final Exam	50% (consisting of a 2 hour written exam and a take home question requiring programming)
	Assignments	20%
	Quizzes	15%
	Group Project	15%

- NOTE:**
1. A mark of **at least 40%** is required on the final exam in order to receive a passing grade in the course.
  2. An overall **Term Mark** of **at least 40%** is required in order to pass the course.
  3. Only **non-programmable** calculators are allowed for tests and exams.

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**Topics:** Note that topics & chapters given are approximate only. More information on exact coverage will be given in class. You are **responsible for all material covered in class whether it is in the textbook or not** unless you are specifically told otherwise. You are also **responsible for any announcements made in class.**

Introduction to Experimental Design: Overview, terminology, difference between experimental and observational studies, steps in designing an experiment (chap. 1 + course notes)

Experiments with a single factor (chap. 2)

Factorial Experiments with crossed factors, fixed factor levels and equal sample sizes (chap. 5 + course notes)

Randomized Complete Block design, Latin Square Design, Balanced Incomplete Block Designs (chap. 4)

Blocking & Confounding in  $2^k$  Factorial Experiments (chap. 6,7)

Fractional Factorials (chap. 8)

Experiments with Random Factors (chap. 13)

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### **Academic Accommodations for Students with Disabilities**

The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or [pmc@carleton.ca](mailto:pmc@carleton.ca) for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. The deadline for requesting accommodations for the formally scheduled final examination is March 6. Please consult the PMC website ([www.carleton.ca/pmc](http://www.carleton.ca/pmc)) for more details.