Course 4803/5803: Analysis of Variance

Fall 2007

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Office Hours: Tuesday: 10:15 – 11:00 am, 1:00 – 2:00 pm and 3:15-4:00 pm
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Any change in office hours will be notified in class

Course Number: MATH 4803/5803

Course Title: Analysis of Variance

Hours Credit: 3 hours

Prerequisites: MATH

Course Description: This course involves a thorough examination of the analysis of variance statistical method including hypotheses tests, interval estimation, and multiple comparison techniques of both single-factor and two-factor models. Extensive use of a statistical computer package, Minitab, will be a necessary part of the course.

Topics: The course will cover a wide range of topics from simple two-sample hypothesis testing to single factor analysis of variance techniques. We will discuss important concepts of blocking, randomization and sample size selection while designing an experiment. The course will also introduce factorial experiments and discuss in detail the 2^2 and 2^3 design. Experiments with random factors and nested designs will be introduced in this course.

Text: Design and Analysis for Experiments, *Douglas Montgomery*. John Wiley and Sons.

Learning Outcomes: Upon successful completion of this course, the students will know how to properly design and analyze an experiment with various sources of variation. The students will be aware of the many important techniques to use and keep in mind while analyzing data. The course will also give students competence in using the statistical software Minitab.

Syllabus

Chapter 1: Introduction

Chapter 2: Simple Comparative Experiments

Chapter 3: Experiments with a Single Factor: The Analysis of Variance
(We will not cover 3-6, 3-8, 3-9 and 3-10)

Chapter 4: Randomized Blocks, Latin Squares and Related Designs
(We will not cover 4-3 and 4-4)

Chapter 5: Introduction to Factorial Designs

Chapter 6: The 2^k Factorial Design
(We will not cover 6-4, 6-5, 6-6 and 6-7)

Chapter 13: Experiments with Random Factors
(We will not cover 13-3, 13-4, 13-5, 13-6 and 13-7)

Chapter 14: Nested and Split-Plot Designs
(We will not cover 14-2, 14-3, 14-4 and 14-5)

Grading:

You will be asked to turn in certain homework questions each week, which will be graded and will count towards your final grade.
4 Test/ Projects (100 points each)
1 Final (100 points)

Final Marks = 30% Quizzes + 45% Tests + 25% Final Exam

Grading Scale:

- A = 90-100%
- B = 80% to < 90%
- C = 70% to < 80%
- D = 60% to < 70%
- F= below 60%

Class Policies:

- ***You get to drop your homework grade.***
- ***The final exam is COMPULSORY and COMPREHENSIVE.***
- ***If you miss less than 3 days of class, you will earn two bonus points at the end of term.***

- ***Please turn your homework and projects in on time to earn full credit. Late submissions will incur penalties.***
- ***There are NO other extra credits available for this course.***
- ***There are NO make up tests. In case of an illness (with medical certificate) or dire emergency, the instructor must be contacted prior to the test or quiz, via phone or email. Accommodations for missed tests and quizzes will be handled depending on the severity of the situation between the student and the instructor.***
- ***If you need to arrive late or leave early, please clear it with the instructor BEFORE the class begins.***
- ***Cheating of any sort will not be tolerated. If you are found cheating or assisting in any form of cheating, you will be awarded a failing grade in that test or quiz.***
- ***Turn off cell phones and other devices when you enter the classroom.***
- ***If using email, you must use your university email account (@westga.edu) for any communication; also check your university email account for any announcement regarding the class.***
- ***You can come and see me during my office hours or by appointment. Please free to come and talk to me about any problems related to the course.***