George Washington University
Department of Statistics

Syllabus for Analysis of Variance—Stat-3119-10
Spring 2011

Class Time: MW 17:10-19:00
Class Location: 2020 K street.
Instructor: Dr. William Chen
Email: wschen@gwu.edu
Office: 2140 Pennsylvania Ave,
Office Hours: MW 1:00pm to 4:00pm

COURSE DESCRIPTION

Introduction to the design of experiments and analysis of variance; randomized block, factorial, Latin square designs, and analysis of covariance.

COURSE PREREQUISITE(S): Stat 2118: Regression Analysis.

Course Homepage: http://blackboard.gwu.edu. Please check this page frequently.

Course Structure: The class consists of two lectures and one recitation per week. During the lectures, we will cover the concepts and solve example problems. In recitation, we will learn how to use a statistical computer program, SAS, and occasionally learn new concepts as in regular lecture.


We will cover the following topics:
1. Introduction to the design of experiments.
2. One way ANOVA and reparametric.
3. Unconditional (Balanced) two way ANOVA.
4. One way ANOCV with one concomitant
5. One way ANOCV with two concomitant
6. Present and absent model
7. Two way balance model.
8. Two way irregular model (Unbalanced model)
9. Treatment block design.
10. Randomized (completely) block design
11. Balance incomplete block design
12. Mixed model
13. Two level factorial and fractional factorial design.
LEARNING OUTCOMES.

As a result of completing this course, students will be able to:
   1. Apply experimental design techniques to analyze data
   2. Understand matrix approach to experimental design
   3. Compare and contrast different designs and conduct ANOVA

Homework:
   You are allowed to discuss the homework with each other or to discuss with me as long as it can improve your knowledge of the course material. Definitely it is not allowed to copy the homework each other. You must use your idea to complete the work. You also need to submit the work on time. Please do not share the homework with other students who didn’t take the course.

Computing

Statistical Packages: You will need to use a statistical package in order to perform most of the statistical analyses covered in this course. We will focus on R and SAS. A brief introduction to the SAS package can be found at

http://www-unix.oit.umass.edu/~statdata/software/handouts/sas_online/.

R is a freeware that we will use extensively in this course. A basic tutorial can be found at http://www.math.ilstu.edu/dhkim/Rstuff/Rtutor.html and a more advanced at http://zoonek2.free.fr/UNIX/48_R/all.html.

Course Grade: Your final letter grade will be based on a total score computed as follows.

   Homework  (1/3)
   Midterm  (1/3)
   Final  (1/3)
Important Notes:

- Please bring a calculator and the textbook to every class.
- Stat 2118 is a prerequisite for this course.
- A grade of INCOMPLETE will ONLY be given to a student who is passing the course and cannot complete the course due to illness or other well documented circumstances beyond their control.
- The quizzes and exams are to be completed in conformance with The George Washington University

NOTE: IN ACCORD WITH UNIVERSITY POLICY, THE FINAL EXAM WILL BE GIVEN DURING THE FINAL EXAM PERIOD AND NOT THE LAST WEEK OF THE SEMESTER

ACADEMIC INTEGRITY
I personally support the GW Code of Academic Integrity. It states:: “Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information.” For the remainder of the code, see: http://www.gwu.edu/~ntegrity/code.html

SUPPORT FOR STUDENTS OUTSIDE THE CLASSROOM
DISABILITY SUPPORT SERVICES (DSS)
Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in the Marvin Center, Suite 242, to establish eligibility and to coordinate reasonable accommodations. For additional information please refer to: http://gwired.gwu.edu/dss/

UNIVERSITY COUNSELING CENTER (UCC) 202-994-5300
The University Counseling Center (UCC) offers 24/7 assistance and referral to address students' personal, social, career, and study skills problems. Services for students include:
- crisis and emergency mental health consultations
- confidential assessment, counseling services (individual and small group), and referrals
  http://gwired.gwu.edu/counsel/CounselingServices/AcademicSupportServices

SECURITY
In the case of an emergency, if at all possible, the class should shelter in place. If the building that the class is in is affected, follow the evacuation procedures for the building. After evacuation, seek shelter at a predetermined rendezvous location.