

Statistics 6217

Design of Experiments

Fall 2021

Instructor: Zhaohai Li

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This course is a graduate level introduction to Design of Experiments, an area of statistics concerned with the planning of scientific investigation. The main components of an experimental design are the selection of the independent and dependent variables to be studied, determination of sample size, and allocation of experimental units to experimental treatments.

Specific topics which will be covered in detail include Replication, Blocking, Randomization, Factorial and Fractional -Factorial experiments, Repeated Measures designs, and Latin Square designs.

Textbook

The required text for the course is *Fundamental Concepts in the Design of Experiments* by Charles R. Hicks and Kenneth V. Turner, Jr.

Learning Objectives and Outcomes

As a result of completing this course, students will be able to:

Understand theory of design of experiments and analysis of variance, blocking for design, randomization, and factorial experiments;

Perform analysis of variance;

Use software either R or SAS to perform analysis of variance;

Understand linear regression analysis.

Grading: Your final letter grade will be based on weighted average: 35% Homework, 35% Midterm Exam, and 30% Final Exam.

No incomplete grades will be assigned for marginal or failing grades at the end of the semester. There will be no extra work available to improve your final grade. Your grade will be determined as outlined above. **There will be no exceptions.**

Class Attendance

Class discussions will extend the materials covered in the textbook. Therefore, it is important that you attend the class. You are responsible for any materials covered or any announcements made in class, even if you are not present.

Amount of Time on Direct and Independent Learning: It is expected that students spend 150 minutes in classroom on lecture plus 300 minutes of independent learning per week.

Homework: Late homework will not be accepted.

University policies:

University policy on observance of religious holidays

In accordance with University policy, students should notify faculty during the first week of the semester of their intention to be absent from class on their day(s) of religious observance. For details and policy, see: students.gwu.edu/accommodations-religious-holidays.

Academic integrity code

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 details and complete code, see: studentconduct.gwu.edu/code-academic-integrity

Safety and 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.

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 Rome Hall, Suite 102, to establish eligibility and to coordinate reasonable accommodations. For additional information see: disabilitysupport.gwu.edu/

Mental Health Services 202-994-5300

The University's Mental Health Services 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. For additional information see: counselingcenter.gwu.edu/