Econ 445

Design and Analysis of Experiments
Department of Economics, George Mason University
Fall 2019

Class: Thursday 4:30 -7:10 pm
Location: Mason Hall D180

Instructor:
Daniel Houser
Tel: 703-993-4856
Office: Mason Hall D154, Fairfax
Website: http://mason.gmu.edu/~dhouser/
Email: dhouser@gmu.edu
Office Hour: Thursday after class
         or by appointment

TA:
Jian Song
Email: jsong25@gmu.edu
Office Hour: Thursday 3:30-4:30 pm
at Mason Hall D150 Tutoring Room

Course Description

This class provides an introduction to the design and analysis of economics experiments. The topics covered will be useful to anybody interested in running scientific experiments, but will be primarily geared toward behavioral experiments as conducted by economists and psychologists.

Textbooks

Required:

Recommended:
Grades

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>25%</td>
</tr>
<tr>
<td>Presentation</td>
<td>10%</td>
</tr>
<tr>
<td>Midterm – on Oct. 17</td>
<td>25%</td>
</tr>
<tr>
<td>Final exam – TBD</td>
<td>40%</td>
</tr>
</tbody>
</table>

Your course grade will be based 25% on the problem sets (drop one with lowest grade, the rest equally weighted), 10% on the presentation of one of the reading assignments, 25% on the midterm exam, and 40% on the final exam. Good class participation can improve your evaluation. **We do not give make-up exams. Homework must be turned in on time. Late homework won't be accepted.**

Outlines

Notes are available at [http://mason.gmu.edu/~dhouser/courses.htm](http://mason.gmu.edu/~dhouser/courses.htm)

1. **Science and Experiments**
   *Box, Hunter & Hunter, Chapter 1; Cox, Chapter 1; Houser website, Lecture 1*

2. **Review of Basic Statistics**
   Probability distributions, parameters, statistics
   *Box, Hunter & Hunter, Chapter 2; Houser website, Lecture 2*

3. **Comparing Two Entities**
   a. Relevant reference sets and distributions
   b. Randomized Paired Comparison Design
   c. Blocking and Randomization
   *Box, Hunter & Hunter, Chapter 3; Houser website, Lecture 3*

4. **Comparing k treatment means**
   a. Completely Randomized Design - One-way ANOVA
   b. Randomized Block Design - Two-way ANOVA
   *Box, Hunter & Hunter, Chapter 4; Houser website, Lecture 4*

5. **Designs with more than one blocking variable**
   a. Latin squares
   b. Greaco and hyper-graecolatin squares
   c. Balanced incomplete block designs
   *Houser website, Lecture 5*

6. **Repeated Measures**
a. Introduction
b. Standard ANOVA for repeated measures without order dependencies
c. Comments on repeated measures designs that address order and sequencing effects

*Houser website, Lecture 6*

**Reading Articles**


Students with disabilities

Students with Faculty Contact Sheets for this class need to present them to the instructor as soon as possible. Other students requiring reasonable accommodations, as covered under the Americans with Disabilities Act, should contact the Disability Resource Center (DRC) to open up a DRC file and discuss needed accommodations. Questions and requests for reasonable accommodations should be directed to DRC, 234 SUB I, phone (703) 993.2474 or email dwyne@gmu.edu.

Honor code

George Mason University is an honor code university. Students pledge not to cheat, lie, plagiarize or steal in academic matters.