The George Washington University
Department of Statistics

COURSE AND CONTACT INFORMATION

Course: Statistics 6289-11 Longitudinal Data Analysis
Semester: Fall 2012 (08/28/12 - 12/15/2012)
Class: Tuesday 6:10-8:40 pm
Location: Rome Hall 5th floor (http://goo.gl/maps/6ed4y)

INSTRUCTOR
Name: Professor Jeremy Wu
Phone: (703)-462-3068
E-mail: jswu@gwu.edu
Office hours: Tuesdays 3-5 pm at Arlington Education Center
950 N Glebe Road, 6th floor
Arlington, VA 22203

Grader/TA: Xiao Lin
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COURSE DESCRIPTION

“The sexy job in the next ten years will be statisticians.”
- Hal Varian, Google Chief Economist

Advancing information technology has greatly expanded the approach to data analysis and opened many new frontiers and opportunities for statisticians. Enormous amounts of digital data are now collected, stored, processed, and transmitted rapidly at relatively low cost. Longitudinal data systems are developing and evolving as new data sources for longitudinal and time series analyses. However, abundance of available data does not replace the need for properly designed data collection and statistical thinking in applying effective longitudinal analytical methods to visualize and extract maximum information. This course will discuss and impart important ideas and methods in the creation and analysis of longitudinal data with emphasis on practical real-life issues and fundamental statistical concepts.

COURSE PREREQUISITE(S):
STAT 6201-6202 Introduction to Mathematical Statistics or equivalent

TEXT(S):

General Course Outline (order may not be exact):
- Review of statistical fundamentals
  Mathematical Statistics; Multivariate/Time Series Analysis; Modeling
- Introduction to Longitudinal Studies
  Exploratory Data Analysis; Visualization; Traditional Analysis
• Consequences and Implications of The Internet Age
  Data Availability; Data Integration; System Design; Longitudinal Data Systems;
  Data Mining
• Modeling and Analysis of Longitudinal Data
• Practical Issues and Challenges
  Missing Values; Imputation; Statistical Computing; Confidentiality Protection;
  Data Quality
• Public Policy and Advanced Topics

LEARNING OUTCOMES:
As a result of completing this course, the student will be able to
• Understand and apply principles and methods to collect and analyze longitudinal data
• Explore new opportunities in longitudinal data systems and analysis with statistical thinking
• Appreciate the practical real-life considerations and challenges

GRADING
Weekly Homework/Reading Assignments 35%
Class Participation 5%
Quizzes (6-9) 25%
Final Project 35%

Incomplete: will only be considered when 1) you are passing the course AND 2) cannot complete the course due to illness or other circumstances beyond your control.

Software: SAS with optional use of R and Tableau
Visit ITL (basement of Gelman Library) for a copy of SAS on your PC
SAS manual online at http://support.sas.com/onlinedoc/913/docMainpage.jsp
Visit http://cran.r-project.org/bin/macosx/ for a copy of R for Mac OS X
Visit http://cran.r-project.org/bin/windows/base/ for a copy of R for Windows
Visit http://math.illinoisstate.edu/dhkim/rstuff/rtutor.html for simple R tutorial
Tableau (http://www.tableausoftware.com/) is distributed through Blackboard.

Project:
You will need to allocate time working on your project. Additional information provided separately.

Quizzes
Quizzes are closed book and notes. In general, they will NOT be announced in advance.

Homework/Reading assignments:
Submit homework electronically to Blackboard with copies to Instructor and Grader; expect extensive use of Internet.
CLASS POLICIES

Attendance policy:
You are expected to attend and participate actively every lecture. You are responsible for the material covered and the handouts distributed.

Late work: will not be accepted.

Blackboard:
Check http://blackboard.gwu.edu/ for the latest course information.

Class Lectures/Notes:
Will be made available through Blackboard and http://Prezi.com if used.

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.