COURSE AND CONTACT INFORMATION
Course: STAT 2118 (Regression Analysis) Section 11
Semester: Spring 2014
Time: Monday, Wednesday 12:45-2:00 PM
Location: Corcoran Hall 101

INSTRUCTOR
Name: Dr. Yaji Xu
Campus Address: 1922 F St. NW, Old Main Room 301-C
E-mail: yajixu@gwu.edu
Office hours: Monday 4:00-6:00 PM
TAs: Jie Cong, Xiruo Song, Yu Song

COURSE OBJECTIVE
This is a one semester introductory course in regression analysis. It covers the basic ideas of Applied Regression Analysis including: Simple Linear Regression; Residual Analysis; Multiple Regression; Parameter Estimation and Testing; Indicator Variables; Diagnostics; Model Selection Procedures; Logistic regression. Any changes will be announced in class.

COURSE PREREQUISITE(S)
Knowledge of the basic concepts of probability and statistics (such as Stat 1051, 1053, 2111, or equivalent).

COURSE STRUCTURE:
The class consists of a lecture followed by one lab per week. Your grade is based on homework, projects and two exams.

COURSE OUTLINE
- Review of the basic concepts from probability and statistics
- Introduction to Linear Models: Simple Linear Regression Examples, Assumptions for Linear Models, Ordinary Least Squares (OLS) estimators, R2, Residuals
- Inference in Linear Regression: inference for the slope and the intercept, interpretation of results, prediction, F-tests
- Regression Diagnostics: outliers, influential points, graphical diagnostics, remedies, weighted least squares
- Matrix Algebra
- Regression in matrix notation, multiple regression: estimation, prediction, diagnostics, nested models, multi-collinearity, ridge regression, qualitative predictors, mixture of continuous and categorical variables, model building/selection and model validation
- Regression models with binary response, simple and multiple logistic regression, inference goodness of fit tests, diagnostics
TEXTS
The required text for the course is Regression Analysis by Example, 5th Edition by Chatterjee and Hadi.

LEARNING OUTCOMES
As a result of completing this course, students should be able to:

- Understand basic concepts of correlation, regression, model diagnostics and model building.
- Know how to fit and interpret regression models and apply them in various fields.
- Analyze and interpret Regression data using SAS.
- Compare different competing regression models and select the best one among them.

BLACKBOARD REGISTRATION
All students are required to register for the course in Blackboard, the GWU web-based instructional resource. Course information and materials, including notes, grades, and details about course assignments and quizzes will be posted there periodically. It is the student’s responsibility to check the Stat 2118 Blackboard website frequently for up-to-date information about assignments. Once enrolled in the course, you should automatically be registered on Blackboard. Log into the course website at: https://blackboard.gwu.edu/webapps/portal/frameset.jsp

STATISTICAL SOFTWARE
You will need to use statistical software in order to perform most of the statistical analyses covered in this course. Mainly, we will use SAS. A brief introduction to the SAS package can be found at http://www.umass.edu/statdata/software/handouts/sas_online/

You need a calculator for this course and bring it to class everyday.

GRADING
- Assignments: 30%
  Homework will be assigned almost every week. The majority of the homework will be collected and graded. All students must work independently on the homework sets. HW will be collected on the due date before the lecture starts. Late submission will not be accepted. Your TA will go over problems similar to the HW problems and software examples during lab sessions.
- Data analysis projects: 20%
  There will be at least two (one individual and one group) computer projects involving the use of statistical software to analyze data. A report along with the code and output need to be typed and turned in.
- Exams: 50% (=2*25%)
  Two closed book examinations will be given on Feb. 26 and Apr. 28 (tentatively). If an exam is missed, you will receive zero credit for that part of the grade.
NOTES

- **No Make-up Exams**, except in rare instances (e.g. well-documented medical problems). In order to qualify to take a make-up examination, you must contact me **prior** to the exam and have a University approved excuse with documentation to verify that excuse. If the absence is not excused according to University guidelines, the examination grade will be recorded as a zero. **There will be no exceptions.**
- Students must notify me during the first week of the semester of planned absences for religious observances. Please consult the Religious Holiday Calendar under Files in Blackboard for a list of recognized religious holidays by GW.
- No incomplete grades will be assigned for marginal or failing grades at the end of the semester. There will be no extra credit work available to improve your final grade besides what is already outlined in the syllabus. Your grade will be determined as outlined above. **There will be no exceptions.**
- It is important that you attend classes. You are responsible for any material covered or any announcements made in class. You **MUST** keep your cell phone ringer off during classes.

ACADEMIC INTEGRITY

All examinations, papers, and other graded work products and assignments are to be completed in conformance with The George Washington University Code of Academic Integrity. “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](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/](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: 1. crisis and emergency mental health consultations; 2. confidential assessment, counseling services (individual and small group), and referrals [http://gwired.gwu.edu/counsel/CounselingServices/AcademicSupportServices](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.