COURSE AND CONTACT INFORMATION
Course: Statistics 2112, section 11
Semester: Spring, 2011
Time: MW 12:45 – 2:00pm.
Location: Funger Hall 210

INSTRUCTOR
Name: Prof. Joseph L. Gastwirth
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Office hours: M W 2:00 -3:00pm. Extra hours will be set before exam days.
TA offices are in the basement of 2140 Pennsylvania Ave.

COURSE DESCRIPTION
STAT 2112 is the second of the business statistics courses which builds upon basic statistical concepts covered in the previous introductory statistics course (e.g., STAT 1111). This course will cover the materials in Chapters 8, 9, 10 and 11. If time permits, material on nonparametric methods and index numbers will be covered. The topics in Chapters 8 -11 are: estimation, hypothesis testing, analysis of variance, categorical data analysis, simple linear regression and multiple regression,. These statistical concepts and methods are used to analyze data arising in business and economics and other important areas of application, such as law, medicine and the social sciences. In class, you may learn about a few statistical tests or procedures that are not in the textbook but provide greater insight into some problems than those in the book. You are responsible for all topics covered in the assigned reading or in class. You will also learn how to use the SAS computer program to calculate the statistical tests and procedures discussed in class. This program is the most commonly used one in the business community.

COURSE PREREQUISITE(S)
To register for STAT 2112, you are required to have successfully completed at least one introductory statistics course (e.g., STAT 1051, STAT 1111) that covers basic concepts of statistics and probabilities and statistical inference and hypothesis testing. You are assumed to have basic understanding of these concepts. Two or three lectures will be devoted to a review of the prerequisite material, e.g. summarizing data, interpreting confidence intervals, p-values and calculating standard tests, e.g. the t-test using SAS.

TEXTS
Author J.T.McClave, P.G.Benson, T.Sincich
Title   Statistics for Business and Economics
LEARNING OUTCOMES:
By completing this course, students will be able to do the following tasks using SAS
1. Carry out hypothesis tests and calculate confidence intervals.
2. Carry out and interpret the results of Anova, simple linear regression and multiple
   regression analyses.
3. Perform several non-parametric tests and if time permits the chi-square test for
   categorical data.
   You will also learn the assumptions underlying the statistical procedures, so you will
know when each method is appropriate for the data set you need to analyze.

COMPUTER PROGRAM:
The course will use SAS. A brief handout will be distributed to assist students who are
not familiar with SAS. You should be able to obtain a copy of the program at Gelman
library. In any case, the program is on the computers in Gelman, the basement of the
Statistics Department and in the University housing.

GRADING
• Two in-class exams (20% x 2);
• Three or Four Pop Quizzes (15%) (the lowest one or the one you miss will be
  dropped);
• Final exam (35 %);
• Homework (10 %).

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. YOU SHOULD PLAN ON TAKING THE FINAL EXAM AT THE
TIME SCHEDULED BY THE UNIVERSITY SO PLEASE CHECK THAT
SCHEDULE BEFORE MAKING PLANS TO LEAVE AT THE END OF THE
SEMESTER.

Exam Dates:
Wednesday Feb. 16, 2011
Wednesday April 6, 2011

CLASS POLICIES
Late work: There will be homework assignments due almost every week during the
semester. Usually, the assignments will be handed in at the end of Wednesday’s class. If
you miss class, it is your responsibility to make sure that the TA receives the homework
before the deadline. It is best to deliver it to the TA during office hours, if you miss the
class when it is due. Please make sure to print your name and section number on every
assignment you hand in so you receive credit for it. You may submit two homework
assignments one week late. You need not request permission from the Prof. or TA for
those two “justifiably late” homework assignments. Just identify them carefully at the top
of the page. All other homework received after they are due but before the graded
homework is returned to the class (usually one week after it was due) will have 50 points
deducted on the basis of 100 points. No homework will be accepted after the graded work is returned and the answers posted on Blackboard.

**Make-up exams:** There will be no make-up exams. If one has a legitimate excuse, e.g. medical illness supported by a note from the doctor, your grade will be calculated on the basis of your other exams and pro-rated.

**Religious Holidays:** Students are allowed to take religious holidays off.

**Incomplete:** A grade of INCOMPLETE will ONLY be given to a student who is passing the course and cannot complete the course due to well documented circumstances beyond their control. University policies on teaching are available at http://www.gwu.edu/~academic/Teaching/main.htm

**e-mail:** The instructor and TAs will try to respond to emails sent during normal business hours on Monday-Thursday and by Friday within 24 hours. Email sent at night will be considered to have arrived the following morning and email sent over the weekend will be considered as arriving on Monday morning.

**ACADEMIC INTEGRITY**
You are expected to follow the code and on every exam sign the statement. 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.

ASSIGNED PROBLEMS:

Note: The problems identified with an * are to be handed in for grading. You are to do those without the help of anyone as they will be graded. The other problems are for practice and you can discuss them and work on them with other students. It is fine for you to work on problems similar to those with an * with others for practice. The due dates for the problems will be announced in class after the methods you need to solve them have been discussed in class.

To review the material you learned in your first statistics class, you should work on:
Ch. 2: 2.89, 2.95, 2.123 a&b (do by hand by SAS) 2.131 and 2.135* OR 2.143* (choose one of these two to hand in for grading).
Ch. 3: 3.91, 3.109, 3.110*
Ch.4: 4.87, 4.89, 4.175, 4.177.4.182*
Ch. 5 & 6: 5.12*, 5.15, 5.17, 6.37, 6.45, 6.92*, 6.116*
Ch. 7: 7.21, 7.29, 7.31, 7.12*, 7.30* Problems 7.75 and 7.77 (will be done in class), 7.81* (note the material on the confidence intervals and tests concerning variances may be new to some of you and we will discuss this in class).

Ch. 8: 8.5, 8.6, 8.8*, 8.20*, 8.21 (will be done in class), 8.30*, 8.39, 8.40*, 8.44*, 8.48, 8.51 (done in class), 8.53, 8.54*, (we will discuss the idea of interaction from Sec. 8.5 but will not work many problems in this section in detail).

Ch. 9: Categorical Data Analysis
9.1 (a in class, b, c for practice), 9.4*, 9.8*, 9.9 9.11
9.16 (b in class), 9.17, 9.19, 9.22 (in class), 9.21, 9.23, 9.26*, 9.28*
A test for trend will be discussed in class and illustrated on data from the Dukes v. Wal-mart discrimination case. The U.S. Supreme Court will decide whether that case can proceed as a class action or whether female employees need to sue individually or in small groups this spring.

Ch. 10: Simple Linear Regression & Correlation
10.1: b, c and related parts of 10.2.
10.3*, 10.7, 10.10*
10.16*, 10.17 (will go over in class but read it over) 10.21*
10.25, 10.26, 10.29 (in class), 10.32*
10.35 (a will be done in class), 10.40*, 10.41 (class), 10.46*
10.55, 10.57(class), 10.56*, 10.59, 10.62*
10.69 (class), 10.70*, 10.72(class), 10.74*
Ch. 11: Multiple Regression
1. We will go over the SAS program and output for example 11.1. Then you should use the template program to analyze example 11.3 in the book. In class we will go over problems 11.3 and 11.15. You should practice on 11.6, 11.7 and 11.9 and hand in 11.10, 11.18, 11.29 and your SAS analysis of example 11.3 in the book on Wednesday Nov. 10th.
2. We will go over 11.25 in class. Homework to be handed in 11.28 on Wed. Nov. 17th.
3. In Section 11.5, after discussing the ideas I will do 11.34 and 11.39 in class. Please look them over before class and think about how you would approach them. You should practice on 11.36 & 11.37 and hand in 11.40 and 11.43 (parts b and c) on Nov. 17th.
5. In Sec. 11.7, we will 11.62 and 11.69. Please practice on 11.61 and 11.65 and hand in 11.68.
6. In Sec. 11.8 we will go over 11.79. Then you should try 11.81 and hand in 11.78.
7. Then we will go to Sec. 11.11 & 11.12. In class we will discuss 11.100 and 11.101 and 11.106. You should try 11.106 before class. For homework hand in 11.104 and 105.