

GOVERNORS STATE UNIVERSITY
College of Business and Public Administration

Course Title:	STAT 362: Statistics for Management II (Section B, Reference # 210663)
Session:	Winter 1999
Time:	6:00-8:50 Friday
Instructor:	Dr. David A. Parmenter
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Office Hours:	2:00 – 3:00 MW, 5:00-6:00 F, 12:00-1:00 S and by appointment
Catalog Description:	A continuation of STAT 361. Topics covered include analysis of variance, regression, correlation, time series, indexing, nonparametric statistics, bivariate distributions, and chi-square tests. Students make extensive use of a statistical computer package in the analysis of data and application of statistical tests as they apply in business situations.
Prerequisites:	STAT 361 or its equivalent
Textbooks:	<u>Statistics for Business and Economics (7th)</u> by Anderson, Sweeney and Williams <u>Data Analysis in Plain English with Microsoft Excel</u> by Brightman <u>Workbook for Statistics for Business and Economics</u> by Ahmadi (optional)

GSU ARCHIVES
 STAT 362
 W 199

OVERVIEW:

Including a substantial review of STAT 361, this course will cover most of the standard techniques available for statistical inference. Techniques covered will include confidence intervals and hypothesis testing for both means and proportions, simple and multiple regression, analysis of variance, Chi-square and nonparametric tests. Students should have successfully completed STAT 361 or the equivalent prior to enrolling in this course.

In theory, as undergraduate students in a business program, you are being trained to be entry level managers. As such you need to know how to interpret data for decision-making purposes. The purpose of this class is not as much to turn you into statisticians as it is to turn you into intelligent consumers of statistics.

Most of the class meetings will be held at least partially in the assigned classroom. These class meetings will be conducted using a standard lecture format. In order to get the most out of these classes you should read the assigned chapter before the lecture and ASK QUESTIONS. Although it sounds corny, there really is no such thing as a stupid question. If you are confused by a particular topic it's very likely that many of the other students are confused as well.

During the second half of the course we will meet frequently in the computer lab where we will use the software package Excel to solve a variety of problems which are too complex to do by hand. Some of the homework assigned during this portion of the course will require you to use Excel. The second and third midterm exams and the final exam will require you to interpret Excel output in order to answer a variety of questions.

I didn't select Excel as the software for this class because it is the best statistical package available – it's not. I selected Excel because it's so commonly available, i.e. most of you have access to it either at home or at work and use it fairly frequently. I'm hoping that using Excel, rather than a more sophisticated but less readily available statistical package, will have two benefits. First, it should be more convenient for you to do your homework because you won't necessarily have to do it in the GSU computer lab (like students in previous trimesters when I assigned Minitab or SPSS). And secondly, and more importantly, learning how to do statistics with a software package that you already use anyway makes it more likely that you will continue to make use of your statistical expertise long after this class is over.

COMPETENCIES:

After completing this course you should be familiar with the use of the statistical techniques mentioned above. You should be able to determine the appropriate technique to use on a particular problem. You should understand the

assumptions and logic behind each method and should be able to perform the appropriate calculations (by hand for some methods and via the computer for others). You should be able to analyze the results of these calculations and make intelligent managerial decisions based on the data. You will also have become reasonably familiar with the statistical capabilities of the software package Excel.

EVALUATION:

Your grade in this course will be based on the following assignments.

Homework	20%
Midterm 1	20%
Midterm 2	20%
Midterm 3	20%
Final Exam	20%

Although the final results will be curved if necessary, you should expect a curve that follows the standard 90-80-70-60 format.

HOMEWORK:

Homework problems will be assigned weekly. There is simply no way to learn this subject well without practicing it. Homework problems will be selected carefully so as to test your knowledge of the important concepts and formulas. Since the same person (me) is both selecting the homework problems and writing the test questions, it would suggest that the homework problems and test questions will be similar. Thus homework is doubly important. It counts for a full 20% of your final grade and also provides practice for the tests.

In the second half of the trimester, when the problems become too complex to do by hand, some of the homework will involve the use of the statistical computer package Excel. Instruction in the use of Excel will be given at the appropriate time in the trimester.

Your homework must be well organized and legible. Show your work on problems involving complex calculations. Your job when doing the homework is to convince the grader (once again, me) that you know what you are doing. Writing down the correct answer without showing how you got that answer will not receive full credit. Late homework will be accepted but will be penalized by losing 25% credit for each class period that it is late.

The homework assignments using problems from the textbook are shown on the last page of this syllabus. Problems from the Excel book may be added later. Handouts on these Excel assignments will be distributed at the appropriate time.

EXAMS:

There will be three midterm exams, each of which will cover one third of the course. The third midterm will be given late enough in the trimester so that no new material will be covered between the third midterm and the final exam. The final exam will be cumulative. It will consist of three parts, one part for each third of the trimester. The final exam can have a very large impact on your grade. The overall score counts for 20% of your grade. In addition, you will be able to replace any one of your midterm scores with the score that you receive on the corresponding portion of the final exam. For instance, if you receive a 62 on the second midterm but score an 87 on the second part of the final, your midterm grade of 62 could be replaced with a score of 87. The midterm grade to be replaced, if any, will be chosen so as to provide you with the greatest benefit.

To help you prepare for the tests I will be handing out copies of last year's exams. The exams given during this trimester should be "fairly similar" to those given previously.

For each exam you will be allowed to use a one-page "cheat sheet." This means that you should not waste any mental energy trying to memorize formulas (save your brain cells for trying to understand the concepts). You may include anything you want to include on your cheat sheet, e.g. formulas, definitions, example problems, prayer, etc. The only rule is that everything put on the sheet must be created by you. This means no photocopying. I allow a

cheat sheet rather than giving an open book exam because the act of putting the sheet together should force you to organize things in your mind. Most of the students who have taken this class from me would tell you that the effort put into creating a very thorough and well-organized cheat sheet is well rewarded. You will do much better on the exams.

STATISTICS TUTORING:

The Center for Learning Assistance in the Office of Student Development provides tutors free of charge to GSU students. This trimester the available tutors are only covering statistics on a part-time basis. Thus there won't be many appointments available for statistics students. Call early to make appointments before they get completely booked up. The tutors can be found in Student Development in room B1215 and can be reached at 534-4508 or 534-5719.

SYLLABUS STATEMENT FOR PERSONS WITH DISABILITIES:

It is the intention of the institution to support full participation of all students, regardless of physical ability level. Therefore, if any student needs consideration of his/her physical abilities in order to complete the course, please notify the instructor as soon as possible.

SCHEDULE:

The schedule below includes chapter assignments from both the Anderson, Sweeney and Williams (ASW) text and the Excel book. The text is the book that we will truly be "following" for the course. However, you may find that the Excel book is a little more "user-friendly" for some topics. Thus I have included Excel reading assignments below as well. Note that you should always read the introduction to the chapter in the ASW text. For instance, in chapter 10 you are only assigned sections 10.2 and 10.3 in ASW. This means that you may skip section 10.1. Don't also skip the two or three introductory pages at the beginning of the chapter that precede section 10.1.

DATE	TOPIC	CHAPTERS
1/15	Introduction and Review	ASW: 3, 5, 6, 7
1/22	Confidence Intervals	ASW: 8 EXCEL: 5
1/29	Confidence Intervals/Hypothesis Testing	ASW: 8, 9 EXCEL: 6
2/5	Hypothesis Testing	ASW: 9
2/12	Lincoln's Birthday	
2/19	Midterm 1	ASW: 8, 9
2/26	Two Population Tests and Chi-Square Tests	ASW: 10 (10.2-10.3 only), 12 (12.1-12.2 only) EXCEL: 9
3/5	Analysis of Variance	ASW: 13 (13.1-13.3 only) EXCEL: 12
3/12	Midterm 2	ASW: 10, 12, 13
3/19	Simple Linear Regression and Correlation	ASW: 14 EXCEL: 9
3/26	Multiple Regression	ASW: 15
4/2	Multiple Regression	ASW: 16
4/9	Nonparametric Tests	ASW: 19 (19.4 only)
4/16	Midterm 3	ASW: 14, 15, 16, 19
4/23	Final Exam	Cumulative

NOTE: THE WITHDRAWAL DEADLINE IS MONDAY MARCH 22nd.

HOMEWORK LIST:

Homework is due on Friday. Late homework will be accepted through the following Tuesday at noon without penalty. After that it will lose 25% and will continue to lose 25% per week for each additional week that it is late. Try to do your homework on time. The homework should help you to understand what you heard in the lecture. Therefore, if you do the homework on time (before the next lecture) you should be more comfortable with one chapter before we move on to the next chapter. Students who habitually hand in their homework late tend to do poorly in the course.

If necessary you can mail homework to me at Dr. David Parmenter, College of Business, Governors State University, University Park, IL, 60466 or fax it to me at (708) 534-8457. If you use the fax make sure that the writing on your original copy is very dark.

Answers to the even numbered questions can be found in Appendix D on page A-41. (Note: showing nothing more than the answer on your homework will generally not get you full credit). Answers to the self-test exercises can be found in Appendix E on page A-59. Homework assignments that are due the day of an exam will include primarily even-numbered or self-test exercises so that you can check your work prior to taking the test.

NOTE: THE LIST BELOW INCLUDES ONLY ASSIGNMENTS FROM THE TEXT. ADDITIONAL PROBLEMS FROM THE EXCEL BOOK MAY BE ADDED LATER.

HW#	DUE	CHAPTER	PROBLEMS	SPECIAL INSTRUCTIONS
1	1/22	3, 5, 6, 7	Ch. 3: 61ad Ch. 5: 36ab Ch. 6: 19 Ch. 7: 37, 49	Don't forget to show your work on even numbered problems like #36ab (the answer is in the back of the book in Appendix D)
2	1/29	8	7, 16ab, 21ab, 51	
3	2/5	8, 9	Ch. 8: 57 Ch. 9: 1a, 2a, 3a, 7, 10	On #7bc give the "real world" consequences of making Type I or Type II errors.
4	2/19	9	20, 38, 52, 58abc, 69	Note: the correct answer to #69 is $n = 76$. Don't forget to show your work.
5	3/5	10, 12	Ch. 10: 19, 29 Ch. 12: 3, 31	Don't forget to show your work on self-test problems like #3 (the answer is in the back of the book in Appendix E) Do #31 by hand and then use EXCEL to determine the P-Value.
6	3/12	13	10, 18	Use EXCEL on #10. Specify the hypotheses, the decision rule, the observed value and the conclusion. Use the LSD procedure from the text on #18.
7	3/26	14	21, 29, 38, 65abc	Use EXCEL on #65. In part b specify the hypotheses, the decision rule, the observed value and the conclusion.
8	4/2	15	7, 35, 36, 50abcf,	Use EXCEL on all. As usual, specify hypotheses, decision rule, observed value and conclusion whenever performing hypothesis tests. On #36c explain why 36c results differ from those of 35d.
9	4/9	16	6, 18b	Use EXCEL on all. On #18b use the backward elimination method (using $\alpha = .05$) from the text.
10	4/16	19	30	Specify the hypotheses, the decision rule, the observed value and the conclusion.