

BUSINESS ADMINISTRATION: MANAGEMENT SCIENCE 330
DECISION SCIENCES: STATISTICAL TECHNIQUES
Autumn 2009

INSTRUCTOR	Mrs. Bonnie Schroeder
OFFICE	330 Fisher Hall
OFFICE HOURS	<i>Scheduled office hours are first-come, first served</i> M/W 10:00 – 12:00 and R 4:00 – 5:00 Please come organized and prepared for office hours. Office hours are not for “camping” to do homework and/or to study in my office
VOICE MAIL	(614) 688 - 8062
E-MAIL ADDRESS	schroeder.1@osu.edu Note: All communications to me must identify your recitation time and indicate BM330 in the subject. I will not open the message otherwise. Generally, you should expect a response by the next business day .
Carmen	carmen.osu.edu
Course Web Address	http://fisher.osu.edu/departments/management-sciences/courses/BM330 At the course web site you will find all materials and information that is generic across all sections of the course, including your StatTools assignment instructions, the recitation syllabus, and the weekly recitation problem sets.
COURSE TEXT (required)	Moore, McCabe, Duckworth, Alwan <i>The Practice of Business Statistics Using Data for Decisions</i> (2 nd edition) W. H. Freeman and Co. (Chapters 1 – 14) ISBN: 1-4292-2150-X
PREREQUISITE COURSES	Statistics 133 and CS&E 200. Note: I am not able to waive prerequisites for this class.

GRADUATE TEACHING ASSISTANTS:

GTA	OFFICE	OFFICE HOURS		e - MAIL
		Day	Time	
Claire Senot				ms330ta@fisher.osu.edu
Bernard Baah	Gerlach 015			ms330ta@fisher.osu.edu

COURSE OBJECTIVES:

A. Vast amounts of data are collected in today's global business and economic environment. The most successful decision-makers and managers are those individuals/groups that can put this information to work effectively to guide their decision process. Accountants routinely conduct audits for their clients using statistical sampling procedures that allow them to draw a conclusion about the accuracy of the accounts receivable amount shown on a balance sheet based on the information obtained from the carefully validated sample. Financial advisors use a variety of statistical information to measure the risk associated with investments. A variety of statistical information is used in production processes to monitor the quality of the output of that process. Electronic scanners used at retail checkout counters gather data used in establishing future marketing strategies. These are but a few examples of the uses of information generated through statistical analysis of data. The primary objective of the course is to familiarize you with the use of some common statistical procedures and tools used for generating decision-making information from data. This includes:

1. Problem identification and formulation. A formal statement indicating the need for statistical information must be made. In other words, what question needs to be answered? You will learn to formulate statements that are amenable to statistical analysis.
2. Model selection and use. The Normal and Binomial models will be stressed because of their general applicability. You will learn to assess the probability of specified events, determining confidence interval estimates, and conducting hypothesis tests using these models.
3. Interpretation of the results of a statistical analysis. Proper selection of the model, accurate measurement, and a correct analysis are necessary but not sufficient for the solution of management problems. The final, and most important, part is the interpretation of the results of the analysis. What should the manager do given the statistical results? What kinds of mistakes might result from this course of action? You will learn to communicate the results of a statistical analysis to a business audience.

B. Professional conduct, effective communication, self-motivation, and team-work are as vital for ensuring success in the business environment as are strong technical skills. Inattentiveness during meetings, talking or "text-messaging" while others are speaking, and arriving late to appointments are unacceptable behaviors in the business arena. Preparing incomplete, sloppy, and/or illegible projects will limit your promotion possibilities. Missing project deadlines will compromise your employment status. A secondary goal of the course, then, will be to promote the development of work habits consistent with expectations in the business environment.

PROCEDURES: The following procedures will be followed to achieve these objectives:

1. Lectures:

- Format – Discussion will generally follow the course outline and the text. Complete the assigned reading listed on the syllabus before each class session. Having done so, you will have some familiarity with the daily discussion material allowing us to focus on the more difficult course material in class.
- Attendance – Failure to attend lectures on a regular basis will harm your course grade.
 - Experience has shown that failure to attend classes and recitations will result in decreased understanding of the course material and a lower course grade. Experience has also shown that being present but disengaged will result in decreased understanding of the course material and a lower course grade.
 - You are responsible for all announcements made during lecture.
 - Five percent of your course grade is derived from points earned during class from attendance, group exercises, pop quizzes, assigned work, and/or participation. These points can only be earned by those who are in class. NO make-up opportunities will be available for any reason. Each activity will have small point value, so missing one graded activity due to illness or emergency is unlikely to have an impact on your grade. Missing multiple activities due to failure to attend class on a regular basis, however, will likely harm your course grade.
- Appropriate materials – You should come to each class with the scheduled set of lecture notes, the probability tables, and the course formula page packet (all of which are found on Carmen), as well as a calculator, extra paper, and any work specifically assigned for in-class use.

2. Recitations:

- Format – A recitation session each week will allow for repetition of the techniques covered in class and discussion of the computer-assisted assignments, as well as enrichment of the lecture material through demonstrations and applications of the material. It provides an opportunity for you to ask any questions regarding the course that you may have. Since experience has shown that few students are willing to ask questions, a set of potential discussion problems will be provided each week, and can be found posted on the course web site.
- Attendance – Recitation attendance is required and accounts for 5% of your course grade.
- Appropriate materials – You should come to each recitation with the week's set of discussion problems, probability tables, the course formula page packet, and a calculator.
- See the recitation syllabus posted on the course web site for more details.

3. *Practice*: Repetition is essential in learning the material covered in this course. You cannot learn to swim without getting into the water; you cannot learn to cook well by watching “Good Eats;” you cannot learn statistics without putting pencil to paper – a lot! Opportunities for practice include

- Practice problems found at the ends of lecture note packets.
- Suggested practice problems from the text.
- Recitation problem sets.
- Sample quizzes/exams.
- Assignments

4. *Computer-Assisted Graded Assignments*: Learning theory and techniques are necessary but not sufficient for statistical analysis in today’s business world. Statistical analysis in support of business decisions requires the manager to understand statistical software and interpret statistical results. Whether you are charged with performing the statistical analysis or not, you must be able to determine if presented statistical results make sense and are reasonable.

- Excel and the *StatTools* statistical package will be used to develop these skills in the course. *StatTools* is available in the labs housed in the basement of Mason Hall. In addition, the program files are made available to each of you on Carmen. You may use the software on any computer that can run Windows with Microsoft Office Excel.
- Five assignments will be offered during the quarter that will require the use of Excel and/or *StatTools*. Four assignment grades will be used in the calculation of your course grade.
- Each assignment will allow you to practice and improve not only your statistical skills, but also your written communication skills, as you will be required to provide concise but complete and grammatically correct analyses for your results.
- Note that since only four of the assignment grades will count, you can miss one assignment and still achieve 100% of the allotted homework points. **This policy is in place to accommodate illnesses, emergencies, forgotten papers, etc., not to inflate grades.**
- Assignment “rules”- **These rules are concrete. DO NOT ASK TO BE TREATED DIFFERENTLY THAN YOUR PEER GROUP.**

➤ You may work in groups on these assignments, and group work is **STRONGLY** encouraged. Group work has the following guidelines/restrictions:

1. The group size is limited to 3 – **NO EXCEPTIONS.**
2. All members of the group will receive the same grade.
3. All members of the group must sign the honor pledge on the assignment before submission in order to receive credit.
4. All members of the group must have the same lecture instructor.
5. You do not have to work with the same group on all assignments.
6. Your instructor will not mediate group disputes. If a group member does not contribute in any way, do not allow that individual to sign the honor pledge. Choose not to work with that individual on future assignments.

➤ **Assignments are due** at the beginning of class **on the date indicated on your course schedule**. Late assignments will not be accepted.

➤ No “pre-grading” of assignments will be done. We will not “look it over to see if you’re on the right track.”

➤ **You may NOT submit assignments electronically. You may NOT slide assignments under your instructor’s office door. You may NOT leave assignments in your instructor’s mailbox.**

➤ A GENERAL INSTRUCTIONS DOCUMENT has been posted on the course web page with the *StatTools* Assignment resource. Read this document carefully before beginning the first *StatTools* assignment.

5. Examinations/Quizzes: The majority of your course grade will be derived from two quizzes and two exams.

- All quizzes and exams are closed-book.
- The course formula-page packet and probability tables will be provided with your quiz or exam paper.
- You must bring a functioning **calculator** to each exam. No replacement will be provided, nor will students be allowed to share calculators during exams.
- You are **NOT permitted** to use **PDA’s or cell phones** for any purpose during exams.
- Bring a **valid ID** to each exam.
- **MAKEUP EXAMS AND INCOMPLETE GRADES WILL BE GIVEN ONLY UNDER OSU-MANDATED CIRCUMSTANCES.** Plan to be available to take all exams at the scheduled time, including the final. If you cannot attend lectures and take the exams as scheduled, drop the course and schedule it when you have more flexibility.

6. *Grade Determination*

Component:	Points Each	Total Points	Course Percentage
Recitation Attendance	n/a	20	5
In-Class Points*	variable	20	5
3 Midterm Exams (N)	50	150	37.5
Comprehensive Final Exam (N)	130	130	32.5
<i>StatTools</i> assignments Best 4 out of 5 (G)	20	80	20
Total		400	100

These percentages may vary slightly with any additional assignments made by your instructor.
(N): No collaboration of any kind is allowed.

(G): Collaboration only with your own group members is allowed.

* In-class points may be derived from activities that will be (N) or (G) as announced by your instructor at the time.

ACADEMIC MISCONDUCT

All material submitted for course grade credit **must** be your own work. Your instructor will report any suspected case to the University Academic Misconduct Committee for investigation. Past cases submitted to this group have typically resulted in the assignment of grade of E for the course plus disciplinary probation. A second offense may result in dismissal from the University. **Academic misconduct is a serious threat to the integrity and value of your diploma.** Such behavior is intolerable. For more information see the (revised) Code of Student Conduct, 3335-23-04 Prohibited Conduct, Part A. Academic Misconduct and Code of Student Conduct, Judicial Procedures, 3335-23-05 through 3335-23-13.

ASSIGNMENT OF COURSE GRADES:

GRADE DETERMINATION

I do not “curve” individual graded items such as exams. If needed, the course grade distribution will be adjusted at the end of the quarter.

I will assign final course grades according to the following scale*:

RANK	GRADE
TOP 15%	A, A-
NEXT 35%	B+, B, B-
NEXT 40%	C+, C, C-
NEXT 5%	D+, D
LOWEST 5%	E

* Note that these percentages are approximate and could vary by a few percentage points in either direction in any given quarter.

GRADE APPEAL POLICY

Although we make every effort to grade in a consistent and fair manner, occasionally an error has been made or students feel that an error has been made.

- All questions or problems with grading of assignments or exams must be **submitted, in writing, within one week** after the graded papers have been distributed in class. If you are not in class to retrieve the paper, you are responsible for getting the paper back. Instructors will not carry graded papers to every class meeting.
- The appeal should include a description/list of the question(s) that need to be re-examined, as well as an explanation of why you believe the original grade was incorrect, written in cohesive and grammatically correct sentences.
- We reserve the right to re-grade the assignment or exam in its entirety which could result in the score being adjusted up or down as appropriate.
- There will be absolutely no grade changes involving partial credit allocation after the one week deadline has passed.

COMMUNICATIONS REGARDING GRADES

Due to increased security concerns by the University regarding “sensitive” information, **ABSOLUTELY NO** student grade information will be shared via e-mail.

DISABILITY ACCOMMODATION

If you are entitled to an accommodation based on the impact of a disability, arrange an appointment with your instructor as soon as possible to initiate the process. Understand that without prior arrangement, special accommodation will not be given.

GRADUATING SENIORS

Graduating seniors must make their status known to their instructor at the beginning of the quarter and follow up with a reminder during the last week of classes.

TIPS FOR SUCCESS IN THIS COURSE

1. Attend all classes and recitations with a positive attitude. The material in this course is not beyond the capability of those who have mastered the prerequisites, and has very real and interesting applications to whatever major you choose.
2. Read the assigned pages in the text prior to each class meeting.
3. Pay attention and be respectful of your instructor and your peers during lectures and recitations. **Please do not talk among yourselves during the lecture. This behavior is rude, and considered a bad habit in business. More importantly, it is unfair to other students because it reduces the value they receive for their tuition money.**
4. Participate in any open discussions and don't be afraid to ask questions.
5. Take effective notes. Often times your instructor's comments are more important than what is already printed in the lecture notes. Make note of any items that you know need clarification, and seek clarification at an appropriate time.
6. Review notes after each class.
7. Form study groups. Studying with other students is definitely encouraged. Articulating the material in your own words is helpful in reviewing the lecture material, as is testing each other on content. **Be advised though, the graded assignments must not be discussed in any way prior to submission.** Anyone caught asking or answering questions with regard to the assignments prior to submission will receive a zero for that assignment and may face academic misconduct charges.
8. Practice as many problems as time will allow.
9. Communicate any problems you are having or emergencies that arise to your instructor or TA immediately. We can be of most help when asked or notified early on.

Tentative Course Schedule – T/R Autumn 2009

Day/Date	Lecture	Topic	Reading Assignment	Homework Due
R, 9/24	0	Course Introduction StatTools preview, Review		
T, 9/29	1	Sampling Distributions	Chapters 3, 4	
R, 10/1	2	Estimation of μ (σ known)	6.1	
T, 10/6	3	Hypothesis Testing of μ (σ known)	6.2, 6.3	Assignment #1 (G)
R, 10/8	4	Type I and II errors, Power	6.4	
T, 10/13		Exam I		
R, 10/15	5	Inference about μ (σ not known) Matched Samples	7.1	
T, 10/20	6	Comparing 2 Populations with respect to mean –Independent Samples	7.2	
R, 10/22	7	Sampling Distributions: \hat{p} and $\hat{p}_1 - \hat{p}_2$ Inference about p and $p_1 - p_2$	8.1, 8.2	Assignment #2 (G)
T, 10/27	8	Marginal, Joint, Conditional Distributions Contingency Tables	2.5, 5.4 Chapter 9	
R, 10/29		Exam II		
T, 11/3	9	One-way ANOVA	14.1, 14.2	
R, 11/5	10	One-way ANOVA	14.1, 14.2	
T, 11/10	11	Simple Linear Regression	2.2, 2.3, 2.4 Chapter 10	Assignment #3 (G)
R, 11/12	12	Simple Regression	Chapter 10	
T, 11/17		Exam III		
R, 11/19	13	Multiple Regression	Chapter 11	
T, 11/24	13/14 15	Multiple Regression Forecasting with Time Series Data	Chapter 11 Chapter 13	Assignment #4 (G)
R, 11/26		Thanksgiving – No class		
T, 12/1	15	Forecasting with Time Series Data	Chapter 13	
R, 12/3		Two-Factor ANOVA or Instructor Discretion		Assignment #5 (G)
FinalExam (N)	For Lecture Meeting T/R @ 10:30 in SB105 – Monday, 12/7@ 9:30 – 11:18 in SB105 For Lecture Meeting T/R @1:30 in SB230 – Thursday, 12/10 @ 1:30 – 3:18 in SB230			

We will make every effort to adhere to this schedule, but adjustments are sometimes necessary.