SOUTHERN ILLINOIS UNIVERSITY EDWARDSVILLE

SCHOOL OF BUSINESS

Management Science 250: Mathematical Methods for Business Analysis
Three Semester Hours

Dr. Laura Swanson
Office: FH, Rm. 3121
Homepage: http://www.siue.edu/~lswanso

Office telephone: (618) 650-2710
e-mail: lswanso@siue.edu

Course Catalog Description: Mathematical tools required for business analysis; Business applications of functions, graphing, solving systems of equations, matrix algebra, counting rules, differentiation and integration. Prerequisites: College Algebra (MATH 120) with a grade of 'C,' or better and Principles of Microeconomics (ECON 112) (or concurrent enrollment).

Course Objectives: Students successfully completing this course will acquire the mathematical skills needed to progress through the School of Business core curriculum.

- Students will become familiar with professional standards in presenting quantitative analysis and communicating results. To this end, all assignments must meet minimal standards to be acceptable. These standards address format, notation, and interpretation.

- Students will become familiar with the problem-solving process, including, identification of the problem, identification of the proper information and method to be used in the analysis, analysis of the problem, and explanation of the result.

- Students will also understand the usefulness of mathematical tools for business applications. By the end of the course you should be able to do the following:
  - Solve problems that lead to linear or quadratic equations or equations involving radicals, absolute values or rational expressions.
  - Add, subtract, multiply, divide and compose functions.
  - Solve problems that lead to systems of linear or quadratic equations and inequalities.
  - Solve problems involving exponents and logarithms.
  - Apply matrices and determinants to economic problems.
  - Gain an understanding of the derivatives of functions.

Required Text: Haeussler, Jr. Ernest, Richard S. Paul and Richard Wood, *Introductory Mathematical Analysis for Business, Economics, and the Life and Social Sciences*, 11th Edition, Prentice Hall, 2005.

Recommended Text: *Student Solutions Manual* to accompany Haeussler, Jr. Ernest, Richard S. Paul and Richard Wood, *Introductory Mathematical Analysis for Business, Economics, and the Life and Social Sciences*, 11th Edition, Prentice Hall, 2005.

Grades: Course grades will be based on examinations, quizzes, homework, and class attendance and participation. Examination scores will determine 60% of the final course grade. Class preparation and participation (including memos and homework problems) will determine 40% of the final course grade. There will be two mid-term exams and a comprehensive final. The course grade breakdown is as follows:

Exams (3)	60%
Memos	24%
Homework Problems	6%
Attendance	5%
Mathematical Autobiography	5%
Total	100 %

Exams: The purpose of exams is to give you the opportunity to demonstrate the knowledge and skills you have developed through the course.

There will be three examinations held during the semester. The exams will include problems and short answer questions designed to assess your knowledge of course topics and your ability to apply the quantitative methods covered in the course.

On exam days, if you may not wear a baseball-type cap to class; if you do wear one, you will be asked to remove it. On exams where a calculator is required, you may only use calculators. You may not use cell phones or any other electronic device to perform calculations and you may not share calculators. You are finished with the exam when you leave the room. You may <u>not</u> leave the room and come back in during the exam.

It will only be possible to make up exams if you make arrangements for the make up *prior* to the time of the exam.

Homework: The purpose of homework is to allow you to practice what you have learned and to develop skills in the sequence of problem solving, including identifying the question to be answered, the information used, and the results of the analysis.

Several homework assignments will be assigned over the course of the term. Most assignments will be completed in class, while others may be completed outside of class. If you are absent from class on a day that an assignment is completed in class, you will receive a zero for that assignment.

Assignments to be completed outside of class will be announced in class. These assignments will be collected at the beginning of class on the assigned date. Homework may also be turned in to my mailbox prior to the start of class. Late assignments will receive a maximum grade of 50%. However, once an individual hands in several late assignments, no more assignments will be accepted.

EDWARDSVILLE
SCHOOL OF BUSINESS

In preparing your homework for submission, you <u>must</u> follow the homework format described on a separate handout. <u>Illegible, unintelligible and unstapled homework will not be graded and will receive a grade of zero.</u>

Memos: The purpose of the memo assignments is to help you become comfortable with reporting quantitative information and analysis using written communications. Up until now, most of your mathematical training has been based more on mathematics than application. In this class you will learn how to use mathematical analysis to help in making business decisions and in providing conclusions and recommendations based on your analysis.

Information on memo assignments will be provided in separate handouts. Memos will be due at the beginning of class on the assigned dates. Memos may also be turned in to my mailbox prior to the start of class. A memo will be late if it is not turned in at the beginning of class and will receive an immediate one letter grade deduction. After that point, late memos will receive a one letter grade deduction for each day late.

Attendance: The purpose of taking attendance is to encourage your involvement in and preparation for the course. Each class period is important to your understanding of the course material. If you miss a class or come to class unprepared, you miss the opportunity to learn. You are expected to be in class on time and prepared each day.

Attendance will be taken each class period. You will receive 1 point when you come to class prepared. In order to receive credit for attendance, you must arrive <u>on time</u> with the assigned preparation work in hand and <u>stay for the entire class</u> unless you notify me ahead of time. If you come to class unprepared, you will receive a 0 for that class period. Coming to class late or leaving early is disruptive and may be treated as an absence. If you miss class, you will receive a -1 for that class period. You can have the -1 changed to a 0 by submitting the preparation work for the class period you missed by the beginning of the next class period. I will take attendance by checking to see if you have the assigned work completed at the beginning of class.

Mathematical Autobiography: The purpose of the mathematical autobiography is to help you reflect on your past experiences with math and think about how those past experiences affect your current attitudes toward math. The assignment also gives you a chance to experience how the School of Business Fatal Error Policy (http://www.siue.edu/BUSINESS/forms.html#fep) provides a standard for evaluating writing assignments.

Information on this assignment will be provided in a separate handout.

Code of Professional Conduct: The School of Business maintains a code of professional conduct describing the expectations for the behavior of students, faculty and staff. I will strive to uphold these expectations throughout the term. I expect you to do the same.

EDWARDSVILLE
SCHOOL OF BUSINESS

Southern Illinois University Edwardsville
School of Business
Code of Conduct
(What We Expect of Each Other)

Faculty, staff and students in the School of Business at Southern Illinois University Edwardsville are expected to contribute to a culture of integrity and professionalism. Our School's culture encourages behaviors associated with educated and self-disciplined individuals. Those behaviors include:

- being honest;
- being reliable and prepared;
- being responsible for one's own actions and decisions; and
- being respectful of all individuals.

Special Needs:

If you have special physical or educational needs that require accommodation or auxiliary aids and services, I am ready to accommodate you. You will need to do the following:

A. Speak with me during the first week of class.
B. Provide documentation of your need.
C. If you have not done so already, please contact or visit Disability Support Services located in Rendleman Hall, Room 1218, or call the office at 650-3726 or email jfloydh@siue.edu. They will assist in the planning of necessary accommodations.

If you have an emergency during the course of the semester that requires you to miss an extended number of classes, you will need to do the following:

A. Contact me as soon as possible.
B. Provide documentation of your problem.
C. Contact the Dean of Students office located in Rendleman Hall, Room 2306, or call the office at 650-2020. The Dean of Students office will assist in you in contacting your instructors concerning your emergency.

Academic Dishonesty: Academic misconduct includes cheating, plagiarism, falsification of records, unauthorized possession of examinations, intimidation, and any other action that may improperly affect the evaluation of your performance. Academic misconduct also includes assisting others in any such acts. Penalties for academic misconduct may range from grade penalties (including a zero for an assignment or examination, or failing a student for the course) to official disciplinary action including notification of the Provost's office. For more information see the Student Academic Code (http://www.siue.edu/policies/3c2.shtml) and the university policy on plagiarism (http://www.siue.edu/policies/1i6.shtml).

Calculator: You will need a calculator to use in classes during in-class exercises, as well as exams. In addition to standard functions, your calculator must have functions for general exponents, logs and the exponential. <u>Make sure you know how to use the calculator for these functions before exam time</u>. More sophisticated calculators, such as graphing calculators, may be useful. You may <u>not</u> share calculators during exams.

EDWARDSVILLE
SCHOOL OF BUSINESS

MS 250 Blackboard Site: Blackboard is a web-based course management system. It provides valuable tools for communication and information sharing. In the Blackboard site, you will be able to download lecture notes and other information. The private e-mail on Blackboard will allow you to directly contact your classmates and me with questions about the course.

You may access Blackboard by going to: http://bb.siue.edu/. To log onto Blackboard, you must have an active SIUE e-mail account. If you do not have an SIUE e-mail account, the Office of Information Technology provides e-mail accounts (https://oitam.isg.siue.edu/~eid/cgi-bin/e-ID). Your initial Blackboard login will be your SIUE e-mail identifier. For example, mine is lswanso. Your password is your SIUE e-mail password.

Supplemental Instruction: Supplemental Instruction will be available for this course. A student who recently successfully completed MS 250 will sit in on MS 250 this semester and will have scheduled help session times to answer questions that you may have regarding the material covered in the course.

The following information is from the Supplemental Instruction webpage (http://www.siue.edu/IS/SI/).

The Supplemental Instruction (SI) program at Southern Illinois University Edwardsville (SIUE) is a non-remedial, institution-wide approach to retention developed by Deanna C. Martin, Ph.D. at the University of Missouri-Kansas City. Supplemental Instruction (SI) is an academic assistance program that increases student performance and retention. The SI program targets traditionally difficult academic courses--those that have a high percentage rate of D or F grades and withdrawals--and provides regularly scheduled, out-of-class, peer facilitated sessions. SI does not identify high-risk students, but rather identifies high risk courses.

Key Elements of the program:

** SI identifies high-risk courses instead of high-risk students.

** SI provides a vehicle for developing essential academic skills in regular credit-bearing courses.

** SI participation is voluntary and open to all students in the targeted course.

** SI leaders attend all the lectures for the targeted course.

** SI is supervised by a trained professional staff member.

** SI is offered only in classes where faculty members support SI.

** SI assistance begins during the first week of the term.

** SI leaders have usually taken the designated course with the faculty member who is currently teaching the course.

** SI leaders work to facilitate group interaction and provide study strategies for success rather than lecture.

Secrets for Success in MS 250:
1. Don't give up!

EDWARDSVILLE
SCHOOL OF BUSINESS

2. Budget sufficient time for studying and preparing for class
   a. "With some exceptions, undergraduate students are expected to spend at least two hours in preparation for every hour in class." SIUE Policies and Procedures Chapter 1, Section I, item 4 (http://www.siue.edu/POLICIES/1i4.html)
3. Attend every class; arrive on time.
4. Read the textbook <u>before</u> we cover the material in class. Review it again after class.
5. Keep up; review notes after class
6. Complete the practice problems, but that should not be your <u>only</u> goal. <u>Strive for understanding.</u>
7. Rework problems that you had trouble with in class.
   a. Correcting problems will help you gain the understanding necessary to complete the next assignment.
   b. This needs to be done well in advance of the exam.
8. Get all of your questions answered.
   a. Math is cumulative so any gap that you have early will create larger gaps later on.
9. <u>Take advantage of supplemental instruction.</u>
10. <u>Take advantage of my office hours.</u>
    a. This is where you can ask all of those questions that you avoided in class.
    b. If you do not ask questions in class or come by my office for help, I will assume that you fully understand the material.
    c. But come to my office prepared!

Tentative Course Outline

Note: This schedule is subject to change at the discretion of the instructor. All changes will be announced in class and on the course web page.

Session	Topic:	Chapter
1	Introduction Overview of Course Introduction to Problem Solving Format Significant Digits Review	 Website
2	Significant Digits Review	Website
3	Functions and Graphing Functions	2.1, 2.3, 2.4, 0.6, 0.7
4	Functions and Graphing Functions	2.1, 2.3, 2.4, 0.6, 0.7
5	Algebra Review	
6	Linear Functions and Graphing Linear Functions	2.5, 3.1, 3.2
7	Linear Functions and Graphing Linear Functions	2.5, 3.1, 3.2
8	Quadratic Functions and Graphing Quadratic Functions	0.5, 0.6, 3.3
9	Quadratic Functions and Graphing Quadratic Functions	0.5, 0.6, 3.3
10	Review and Catch-up	
11	**Exam #1**	
12	Other Functions	4
13	Other Functions	4
14	Mathematical Modeling	1.1
15	Systems of Linear Equations	3.4
16	Systems of Linear Equations	3.4
17	Systems of Non-linear Equations	3.5, 3.6
18	Matrix Algebra	6.1-6.3, 6.6
19	Matrix Algebra	6.1-6.3, 6.6
20	Review and Catch-up	
21	**Exam #2**	10.1, 10.2
22	Limits and Continuity	10.1, 10.2, 10.4
23	Differentiation	0.3, 11
24	Differentiation	11
25	Differentiation	11
26	Additional Differentiation Topics	12
27	Additional Differentiation Topics	12
28	Applied Differentiation	13
29	Applied Differentiation	13
30	Review and Catch-up	
31	**Final Exam 8:30-10:10pm**	

EDWARDSVILLE
SCHOOL OF BUSINESS