

**WESTERN CAROLINA UNIVERSITY**  
**COLLEGE OF BUSINESS**  
**MANAGEMENT 606.XX: QUANTITATIVE METHODS**  
**FALL Y2K+6 (1800-2050 R FORSYTH 116)**

**Instructor:** George Mechling, Professor  
**Office/Home Phone:** 828/227-3600/293-xxxx  
**e-mail:** [gmechling@email.wcu.edu](mailto:gmechling@email.wcu.edu)

**Office:** B-3C Forsyth  
**Office Hours:** T R 0900-1200  
or by appointment

**Required Text and Software:**

**TEXT**--*Applied Management Science*, Lawrence, J. and B. Pasternak, John Wiley & Sons, 2002 (2<sup>nd</sup> Edition); **SOFTWARE**--  
\**WinOSB* (version 2.0), Chang, Y., John Wiley & Sons, 2003; \*DS 2.1 for Windows or QM 2.1or2 for Windows; \**Microsoft EXCEL (Office 97 or 7.0)*; \**OR/MS Queuing Add-ins for Microsoft Excel*, P. Jensen, University of Texas, 1999;  
\**Micromanager 2.0*, S. Lee and J. Shim, Allyn and Bacon, 1990—NOTE: \*on classroom computers, †personal copy also.

**Course Objectives:**

**MGT606** is designed to achieve the following objectives: 1) You will be able to formulate and build business decision-support models using various selected methodologies from the field of quantitative methods. Time will not permit us to survey all the methodologies presented in this text. We will, however, examine those that are foundational to other methodologies, applied prevalently, and of practical use and benefit to you the student in understanding the general topic of quantitative methods and its application to the world of work; 2) You will be able to derive these models from these methodologies in an application-oriented context by translating verbal descriptions of decision problems into their equivalent mathematical forms; 3) You will be able to program the models you derive using EXCEL or the other spreadsheet software packages employed in this course as well as correctly interpret the output the computer generates using these models; 4) Using the spreadsheet format you will exploit the sensitivity of the various models you and perform “what-if” analyses in order to support and inform your decisions concerning courses of action to follow and 5) You will become informed of some specific applications of these methodologies in an operations management (OM) environment and the world of work.

**Course Performance Measures:**

In order to determine the extent to which you have achieved the course objectives, your performance will be evaluated by use of the following measures:

- A mid-term examination and an end-of-term (non-cumulative) final examination counting for a total of 90% of your course grade. During the time you write your examinations you may make use of one 8.5” x 11” crib sheet that you have prepared to assist you. For the most part, all the examinations will be written in a computer environment
- One written exercise **applying** a methodology selected from those studied in class to real world situations counting toward a total of 10% of your course grade. Details are published in a separate class document, “Instructions and Grading Rubrics for Applied Exercises.” **Be sure to read this document** to well inform yourself of its requirements.

Students may instead, elect to do an **applied** paper on an OR/MS methodology **NOT** covered in class. Such an undertaking must be approved by the instructor before the Fall Break (no exceptions) and will count for 12% of your course grade (exam grades therefore count for 88% of your final grade). For details see the Addendum to “Instructions and Grading Rubrics for Applied Exercises.” **Be sure to read this document** to be well informed of its requirements.

- Your course grade will awarded on the basis of a weighted average of your two exam scores, your written applied exercise, class participation, and your extra credit project if applicable. The grading scale is;  $85\% \leq A \leq 100\%$ ,  $70\% \leq B < 85\%$ ,  $55\% \leq C < 70\%$ , etc. I reserve the right to assign higher course grades to students at the margins.

**Instructional Strategy:**

It is my intention to conduct this class as informally as is possible. You are encouraged to ask questions during the presentation of material and engage in open discussions of it. I plan to allow time in class for practicums and coordination of case assignments as occur. Generally, we will begin each class with recitation over homework assigned in the preceding class meeting. By spending some time clarifying issues and answering questions concerning the assignment due, everyone should achieve a better understanding of the course subject matter. Following recitation, additional or new material will be presented.

Instruction must take four quite different forms in a course like this. One form is *group instruction* that is offered in class and is more formal in nature. The second is *individual instruction* that is generally provided in my office, is more informal in nature, and supplements/compliments group instruction. Problems that you encounter with this course’s *group instruction* may stem from your background preparation. For some of you, group instruction will be more than sufficient. For others of you, it will not and *individual instruction* may thus prove to be both necessary for and of great value to you. The third form is *collaborative instruction*. You are encouraged to work together outside of class. Quite often this can be the most effective and efficient way to achieve mastery of the material assigned to you. The fourth form is *self instruction* and it is absolutely necessary for you to do if you intend to perform well in this class. You must be willing to the expend effort to cultivate your mathematical imagination and intuition in “figuring” out this material for yourself. I can help but I cannot learn it for you. You have to do that on your own.

**Course Decorum:**

- 1) I assume that you are in conceptual and practical control of that portion of the CBK relevant to this course.
- 2) You should notify me by the 2<sup>nd</sup> class meeting of any disability you have that qualifies you for special consideration in my evaluation of your performance in this course.
- 3) Only **ENGLISH** will be spoken during the time class is being held. Failure to comply will result in dismissal from the class for the remainder of the class period in which the non-compliance occurred.
- 4) Disruptive conversations between students or other disruptive behaviors will not be tolerated. Once warned, repetition of such behaviors will result in dismissal from the class for the remainder of the class period in which the behavior occurred.
- 5) Students dismissed from a class period for the reasons listed in caveats 2 and 3 will forfeit all constructive class participation points and can be dropped from the course altogether if fitting.

**CAVEAT :** Western Carolina University is committed to providing equal educational opportunities for students with documented disabilities. Students who require disability services or reasonable accommodations must identify themselves as having a disability and provide current diagnostic documentation to Disability Services. All information is confidential. Please contact Kimberly Marcus for more information. Phone: (828) 227-7234; E-mail: [kmarcus@email.wcu.edu](mailto:kmarcus@email.wcu.edu).

**Instructor Availability:**



I will post conflicts with my office hours as soon as I become aware of them so you can more effectively plan your time. I will also make appointments as is necessary if you cannot see me during scheduled office hours. Please feel free to contact me by phone (my phone accepts voice-mail) or e-mail me. The Management Department secretary (227-3547) will contact me if for some reason the other means of contacting me prove ineffective.

**The Text:**

The text is a reasonably comprehensive text in its treatment of various Management Science methodologies. The text contains a CD with an immense amount of supporting and supplemental material (more than what we can possibly use in the course and probably more than any of us would want). Some of this material, however, we will more than likely make use of during the semester. A good many of the examples in the book are illustrated using Excel add-ins for computation purposes. We will however, make use of *WinQSB* which is near commercial grade stand-alone software that also happens to be reasonably compatible with the text.

--Schedule of Study Topics--

**CLASS ASSIGNMENTS:****WEEK OF    WEEK**

24 AUG	I	Introduction to the Course—Chapter 1. Housekeeping Activities. PERT/CPM (Project Management)—Chapter 5. Homework Assignment.
		<b>Labor Day Holiday</b> (impacts section 01 only)
31 AUG	II	PERT/CPM (Project Management)—Chapter 5. Homework Recitation/Assignment.
7 SEP	III	PERT/CPM (Project Management)—Chapter 5. Homework Recitation/Assignment.
		Forecasting—Chapter 7. Homework Assignment.
14 SEP	IV	Forecasting—Chapter 7. Homework Recitation/Assignment.
21 SEP	V	Forecasting—Chapter 7. Homework Recitation/Assignment.
		LINEAR Programming—Chapters 2 & 3. Homework Assignment.
28 SEP	VI	LINEAR Programming—Chapters 2 & 3. Homework Recitation/Assignment.
5 OCT	VII	LINEAR Programming—Chapters 2 & 3. Homework Recitation/Assignment.
12 OCT	VIII	 <b>Mid Term Examination</b>
		<b>Fall Holiday</b> (impacts section 70 only)
26 OCT	IX	GOAL Programming—Chapter 13, CD—158-169. Homework Recitation/Assignment.
2 NOV	X	GOAL Programming—Chapter 13, CD—158-169. Homework Recitation/Assignment.
		Deterministic/Non-deterministic Inventory Models—Chapter 8. Homework Assignment.
9 NOV	XI	Deterministic/Non-deterministic Inventory Models—Chapter 8. Homework Recitation/Assignment.
16 NOV	XII	Deterministic/Non-deterministic Inventory Models—Chapter 8. Homework Recitation/Assignment.
		Queueing Models—Chapter 9. Homework Assignment.
		<b>Thanksgiving Day Holiday</b> (impacts section 70 only)
30 NOV	XIII	Queueing Models—Chapter 9. Homework Recitation/Assignment
7 DEC	XIV	Queueing Models—Chapter 9. Homework Recitation.
14 DEC	XV	 <b>FINAL Examination</b> 