

**MATHEMATICS 110**  
**MATHEMATICAL REASONING**  
**FALL 2008**

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**About the Course**

This is an introduction to quantitative reasoning, with the aim of developing the capacity to comprehend and analyze the quantitative information that is prevalent in modern society. Topics include mathematical modeling, basic probability and statistics, and practical applications. Prerequisite: Placement or at least a C in Math 098 or Math 098B, or any of Math 104, Math 105, Math 107, Math 109, Math 112 or Math 120.

General Education Rationale:

This course will provide students with ways to approach the quantitative information that they are certain to encounter in later coursework at Eastern Michigan University, throughout their careers, and in daily life. The emphasis is on learning methods for comprehending, analyzing and using quantitative information and on techniques for using data to inform decisions about real-world events and problems. For these reasons, MATH 110 will count for the Quantitative Reasoning requirement in the General Education program Education for Participation in the Global Community.

Very important notice:

This course should NOT be taken by a student who intends to major in Elementary Education or in Special EducationElementary. If you are not certain whether you should be taking this course, talk to an advisor.

**Text:**

*Quantitative Reasoning in Mathematics: A Modeling Approach*, Ahlbrandt, Calin, Curran, Gardiner and Ross, (coursepack) 2008.

**Calculator:**

The TI 83 graphing calculator is required.

### Class Organization and Policies

Your final grade in this course will be based on two scores: your *worksheet* score (75 percent) and your final (25 percent). Work-sheets are my name for all work other than the final that is evaluated by me. Thus, **assignments, quizzes and tests** are all work-sheets. It is important to realize that, as far as the cumulative worksheet score is concerned, a point scored on an assignment worksheet is just as significant as a point scored on an test worksheet. You will have *at least* one worksheet per week.

There will be two hourly tests (each worth 100 points) included among the work-sheets. Quizzes will be both of the announced and unannounced variety.

*Late assignments will not be accepted and make-up tests are not administered as a rule. Such action will not even be considered on my part unless adequate documentation of an emergency situation is provided on a timely basis.*

The URL for my web page is posted at the beginning of this syllabus. Among other things, you will find there all the work-sheets in pdf format and a listing of your current worksheet score (by a PIN number). To read a pdf document you will need to get Adobe Reader. This is available for free from Adobe's web site ([www.adobe.com](http://www.adobe.com)). Actually, many computer systems come factory packaged with Adobe Reader.

### Topic Outline

- A. Mathematical Modeling (Chap. 1)
- B. Direct Proportion Models (Chap. 2)
- C. Nonlinear Models (Chap. 4)
- D. Probability Models (Chap. 5)

### Free Advice

*from your professor*

Here are some miscellaneous musings on maximizing your performance in this course.

There will be frequent reading assignments and drill problems. Drill problems are problems, usually from the book, that are not picked up but are never-the-less your responsibility. Both reading assignments and drill problems are central to the course but tend to get overlooked in the heat of battle.

Successful students tend to network a great deal. Study groups are good.

One learns by *doing*. In mathematics that means problems, problems and yet more problems... Vary the difficulty. Routine and challenging problems are important. In particular, always attempt the extra credit worksheet problems.

**ALWAYS TURN IN YOUR SECOND DRAFT.** Present solutions not just final answers.