

GEORGIA PERIMETER COLLEGE

MATHEMATICS ACADEMIC GROUP

TEACHING GUIDE - MATH 1101

I. Course Title: Introduction to Mathematical Modeling

II. Prerequisite: Placement into college-level mathematics

III. Text: Mathematical Modeling with Applications for the Managerial, Life, and Social Sciences, 2<sup>nd</sup> Edition, by Harshbarger and Yocco, Pearson Custom Publishing, 2007

IV. Catalog Description:

This course uses graphical, numerical, symbolic, and verbal techniques to describe and explore real-world data and phenomena. Emphasis is on the use of elementary functions (linear, quadratic, exponential, and logarithmic) to investigate and analyze applied problems and questions, supported by the use of appropriate technology, and on the effective communication of quantitative concepts and results. Functions introduced through applications are the main focus of the course. This course is intended for non-science majors.

V. Course Objective:

To provide the non-mathematics, non-science major with an understanding of the role of mathematics in today's society.

General Notes:

This course has a primary responsibility for exposing students to group work. You will find two suggestions for group projects at the end of each chapter in the textbook or for other suggestions go to <http://www.gpc.edu/~mcse/CourseDocs/Math1101Projects/Math1101Projects-Fall2004.htm>. Include at least one of these activities or its equivalent in your course. Group projects may be graded or ungraded, worked on in class or out of class but they must be done by a group of two or more students.

This text is a custom published textbook.

Bundle: Mathematical Modeling VP-0536461899 consisting of:  
0536439931 GPC Mathematical Modeling with Applications  
0321288866 AWBC TI Rebate Coupon 0321199901 AWBC  
MML Adhoc Access code 0201758180 Math MYMTHLB  
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Students who buy a used book will need to make sure that their textbook has an ISBN number of 0-536-43993-1.

C. Sections 1.6, 2.4, and 3.4 are where the real modeling is done. These sections should be given special emphasis and time and are in bold type on the homework list.

D. Technology, especially the TI-84+ graphing calculator, is an integral part of this course.

E. Appendix A – C are “Algebra Toolboxes” with examples and exercises for the algebra behind the applications in each chapter and can be referred to as needed by the instructor/students.

VII. Course Outline: Suggested homework problems for each section are included. The focus of this course is applications; problems requiring interpretation and explanation are necessarily a major component of each assignment. Bold type sections should be given special emphasis.

Chapter 1

Section	Skills Check	Select from the Following Exercises (Emphasize this type of item for testing purposes)
1.1	1-23 odd	29 – 55 odd
1.2	11 – 29 odd	27 – 49 odd
1.3	1-6 all, 7, 9-14 all, 15,17,19,21,22,23,25	31 – 59 odd
1.4	15, 22, 25 , 27, 35	37 – 67 odd
1.5	13, 15, 35, 37	39 – 65 odd
<b>1.6</b>	<b>1-19 odd</b>	<b>21 – 43 odd</b>
1.7	1, 23 – 31 odd	33 – 57 odd
Chapter group activities on pages 117 & 118		

Chapter 2

Section	Skills Check	Select from the Following Exercises (Emphasize for Testing Purposes)
2.1	1 – 37 odd	39 – 65 odd
2.2	11 – 15 odd, 35 – 39 odd	49 – 73 odd
2.3	11, 23, 25, 33	47 – 50 all
2.4	<b>1, 3, 10</b>	<b>13, 15, 17, 25</b>
Chapter group activities on pages 185 & 186		

### Chapter 3

Section	Skills Check	Exercises (Emphasize for Testing Purposes)
3.1	1, 21	23 – 37 odd
3.2	1 – 13, 39, 41	43 – 57 odd
3.3	1 – 9 odd, 31 – 37 odd	47 – 75 odd
<b>3.4</b>	<b>1 – 11 odd</b>	<b>15 – 25 odd</b>
3.5	1-11 odd	15 – 35 odd
3.6	1 – 5 odd	7 – 23 odd
Chapter group activities on pages 258 & 259		

#### VIII. Evaluation Methods:

The course grade will be determined by the individual instructor using a variety of evaluation methods. A portion of the course grade will be determined through the use of frequent assessment using such means as tests, quizzes, projects, or homework as developed by the instructor. Some of these methods will require the student to demonstrate ability in problem solving and critical thinking as evidenced by explaining and interpreting solutions. A portion of the evaluation process will require the student to demonstrate skill in writing both correct prose and correct mathematics.

A comprehensive final examination is required. The final examination must count at least one-fifth and no more than one-third of the course grade. The final examination should include items which require the student to demonstrate problem solving and critical thinking.

IX. Effective Date: May 2009

Approved Date: January 2009