MTH 1100-78935 COLLEGE MATHEMATICS Summer 2010: SYLLABUS

INSTRUCTOR: Steven Hundert

OFFICE: C-309

OFFICE HOURS By appointment.

PHONE: Office 240-725-5462  Home 301-475-9789

E–MAIL: stevenh@csmd.edu

TIMES: MTH-1100-80937 Mondays and Wednesdays 6:00 – 9:15 Room C-318


MyMathLab Student Access Kit

TI 83/84 Graphing Calculator

REQUERIED CALCULATOR: A graphics calculator is required and should be brought to every class. A TI-83Plus or TI-84 is recommended and will be used in all demonstrations.

PREREQUISITES: Math 1040 or Math 1080, or Appropriate Placement Test Score

CREDIT HOURS: 3 hours

IMPORTANT DATES: Wednesday June 16 is the last day to withdraw without a grade
I. BACKGROUND AND PURPOSE

This is a 3 semester-hour course in finite mathematics with emphasis on applications to business and social sciences. Topics addressed include linear models, matrix theory, linear programming, combinatorics, probability, mathematics of finance, and logic.

The primary skill addressed in the course is that of problem solving and building a mathematical model. Application Problems are designed to illustrate the model building process in real life situations.

II. OBJECTIVES OF THE COURSE BY UNIT

Unit 1

- Linear Equations and Straight Lines
- Matrices
- Linear Programming, A Geometric Approach

At the conclusion of this Unit, students should be able to…

Use traditional algebraic methods and a graphics calculator to…

- Graph linear equations and inequalities using traditional algebraic methods.
- Calculate the point of intersection of a system of equations (two variables).
- Write equations of lines from points.
- Solve problems involving supply and demand and profit, revenue and cost.
- Calculate slope of a line and apply it to the graphing of lines.
- Apply slope and equations of lines to problems involving depreciation.
- Apply the Method of Least Squares to writing equations of lines of best fit.
- Use equations to make predictions about future trends.
- Solve a basic system of equations with more than two variables.
- Solve a system of equations using a matrix/ inverse matrix approach.

- Apply the solution to a system of equations to the solution of word problems.
- Add, subtract, and multiply matrices.
- Solve application problems that utilize matrix computations.
- Set up and solve linear programming applications problems.

**Unit II**
- The Mathematics of Finance
- Mathematical Models and Recursive Formulas

At the conclusion of this Unit, students should be able to…
- Calculate interest and future values for savings accounts and annuities.
- Calculate loan payments and create amortization tables.
- Utilize the sequence capability of a graphing calculator to create finance tables.
- Apply recursive methods to the solution of problems involving personal finance.

**Unit III**
- Logic
- Sets and Counting
- Introduction to Probability

At the conclusion of this Unit, students should be able to…
- Determine the truth of a statement using the standard rules of logic.
- Set up and apply truth tables to determine the validity of a statement.
- Recognize appropriate implications of a statement or series of statements.
- Perform operations on sets.
- Draw Venn Diagrams and use them to sort and organize data.
- Apply Principles of Counting to application problems.
- Use the Multiplicative Principle of Counting, Permutation and Combinations.
- Calculate the probabilities of various outcomes of an experiment and use.
III. GENERAL EDUCATION

Math 1100 meets the requirements for general studies (see page 57 of the 2006-2008 catalog). The Mathematics Skills and Categories of Knowledge #15 to #19 listed on page 55 of the catalog are emphasized in this course. Many other objectives such as #52, 53, 54, and 57 are also met in this course.

- Perform mathematical operations accurately.
- Make mathematical estimates and approximations to judge the reasonableness of results.
- Interpret graphs, tables and charts.
- Understand Mathematical information and relationships stated in words.
- Utilize appropriate mathematical models to solve problems while recognizing the assumptions and limitations of the models.
- Apply appropriate theories to solve problems.
- Draw reasonable conclusions from information found in various sources.
- Identify, define, evaluate, and solve problems.

IV. COLLEGE POLICIES

- Any student caught cheating, or is guilty of any other form of academic dishonesty, will be dealt with by following the established policy published in the Student Handbook. As a minimum penalty a grade of zero is recommended on the entire document involved. Serious cases will involve more severe penalties.
- Students who need special accommodations such as seating, larger print, or others, may contact Glennis Daniels-Bacchus x7614 (La Pl), Regina Bowman-Goldring at 240-725-5321(LEON) or Jennifer Van Cory at 443-550-6009 (PRIN) to better ensure that such accommodations are implemented in a timely fashion.
- The College is emphasizing a policy prohibiting students from bringing guests (children) to class. This policy will be strictly followed because of insurance and liability issues.
- The College is a Drug-Free Zone. No trafficking or use of drugs or alcohol will be tolerated. Provisions of the Student Code of Conduct in the Student Handbook will be followed.
- The last day to withdraw from class is Wednesday June 16. It is your responsibility to initiate the paperwork. Students who abandon the course without withdrawing will receive a grade of “F”.
- Students switching their class status between credit and audit must have a conference with the instructor prior to the withdrawal date and complete the
appropriate form for making the change. If the student does not fulfill the requirements outlined on the form, a grade of W will be recorded for the course. Students requesting and applying for an audit will have an individualized contract written for them at the time of the request. The terms will be influenced by the student’s previous attendance and history in the class prior to the request.

V. ATTENDANCE

Attendance is not part of your grade.

MYMATHLAB Website  
http://www.mymathlab.com or  
http://www.coursecompass.com

MyMathLab is a powerful online, homework, tutorial and assessment system that accompanies your textbook. Instructors can create, edit, and add online homework and quizzes using algorithmically-generated exercises correlated to the objectives in the textbook. Student work is tracked in an online grade book. Students can take practice chapter tests and receive personalized study plans based on their results. The study plan diagnoses weaknesses and links students to tutorial exercises for objectives they need to study. In many cases, students can also access video clips from selected exercises.

MyMathLab will be utilized in the following manner for this section:

Online Quizzes. There will be both in-class and online quizzes given during this semester.

- Practice Tests. At the end of each chapter, there are practice tests. While these practice tests are not graded, they will give you the opportunity to see which skills need more practice. After each practice test, you receive a personalized study plan with tutorials designed to strengthen your skills.

MyMathLab is NOT a program operated by CSM!! If you are experiencing technical difficulties then you should call the MyMathLab support number given below. DO NOT CALL THE CSM HELP DESK!!

Toll Free: 1-888-695-6577

Hours: Monday-Thursday, 9AM-10PM  
Friday, 9AM-5PM  
Sunday, 5PM-10PM
VI. REQUIREMENTS AND GRADING

<table>
<thead>
<tr>
<th>Item</th>
<th>Points</th>
<th>%</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Tests 3 @ 200</td>
<td>300</td>
<td>60%</td>
<td>Summative assessments (3) of an entire unit of study.</td>
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<tr>
<td>Quizzes Best 5 out of 6 @ 20 pts each</td>
<td>100</td>
<td>20%</td>
<td>Three of these will be in MML and three will be done near the beginning or near the end of selected classes. They are formative assessments similar to practice problems.</td>
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<td>Applications Problems Best 5 out of 7</td>
<td>100</td>
<td>20%</td>
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Grading Scale
90 -100  A
80 – 89  B
70 – 79  C
60 – 69  D
0 – 59  F

Course Lecture Schedule for Summer 2010

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>1</td>
<td>1.1 Slopes and Equations of Lines</td>
<td>P. 15-17: 1,7,9,11,15,23,27,39,41,45,49,53,55,65,69</td>
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<tr>
<td></td>
<td>1.2 Linear Functions and Applications</td>
<td>P. 28-29: 1,5,7,9,11,13,15,17,21,25,29,31,35,39,43</td>
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<td></td>
<td>1.3 The Least Squares Line</td>
<td>P. 41-47: 1,3,9,11,15</td>
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<td></td>
<td>Application Problems #1 handed out</td>
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<tr>
<td>2</td>
<td>2.2 Solutions of linear Systems By Gauss-Jordan Method</td>
<td>P. 80 – 81 3,5,19,27,31</td>
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<td></td>
<td>2.3 Addition and Subtraction of Matrices</td>
<td>P. 91-95: 1,3,5,7,9,11,15,17,21,25,27,43,45</td>
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<td></td>
<td>2.4 Multiplication of Matrices</td>
<td>P. 103-107: 3,5,9,11,13,15,19,21,31,33,37,45,51</td>
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<td></td>
<td></td>
<td>Application problems #2 handed out</td>
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<tr>
<td>Session</td>
<td>Topic</td>
<td>Assignment</td>
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<td>3</td>
<td>2.5 Matrix Inverses</td>
<td>P. 116-118: 3,7,13,21,25,29,33,37,39,59,63,65</td>
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<td></td>
<td>3.1 Graphing Linear Inequalities</td>
<td>P. 145-147: 5,15,23,29,39,43</td>
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<td>3.2 Solving Linear Programming Problems Graphically</td>
<td>P. 160-163: 1,3,5,7,13</td>
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<td>3.3 Applications of Linear Programming</td>
<td>P. 152-154: 3,5,7,11,15</td>
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<td>4</td>
<td>Review Test 1 Linear Functions, Matrix Algebra, and Linear Programming</td>
<td>TEST I: Linear Functions, Matrix Algebra, and Linear Programming</td>
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<tr>
<td>5</td>
<td>5.1 Simple and Compound Interest</td>
<td>P. 232-235: 1-35,odd 37,41,43-59,odd</td>
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<td>5.2 Future Value of an Annuity</td>
<td>P. 243-245: 1,5,9,13,17,19,23,25,29,33,37,39,41,43,47,49,55,59,61,67</td>
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<td>5.3 Present Value of an Annuity</td>
<td>P. 252-256: 1,5,7,9,13,17,19,23,25,31,33,39,41,45,47,51,53</td>
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<td>6.2 Truth Tables and Equivalent Statements</td>
<td>P. 283-285: 1,3,9,15,17,19,25,27,33,47</td>
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<td>6.3 The Conditional and Circuits</td>
<td>P. 295-298: 1-33 eoo, 39,41,47,53,55,63,69,73,75,83</td>
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<tr>
<td>Session</td>
<td>Topic</td>
<td>Assignment</td>
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| 7       | Review Test 2  
Chapter 5 - Mathematics of Finance  
Chapter 6 - Logic  
**TEST II: Chapter 5-Mathematics of Finance and Chapter 6-Logic** |            |
| 8       | 7.1 Sets  
7.2 Application of Venn Diagrams  
7.3 Introduction to Probability | P. 349-352: 1-53 odd, 55, 57, 67, 69, 71  
P. 360-364: 1, 5, 9, 13, 17, 21, 23, 25, 29, 31, 33, 35, 37, 41, 43, 45  
P. 371-375: 1-37odd, 45, 47, 51 |
| 9       | 7.4 Basic Concepts of Probability  
7.5 Conditional Probability  
8.1 The Multiplication Principle | P. 382-390: 3, 5, 9, 11, 13, 15, 19, 21, 25, 27, 31, 33, 35, 37, 39, 47, 55, 63, 69, 73  
P. 401-408: 1, 5, 9, 13, 17, 21, 33, 45, 47, 71, 79  
P. 439-442: 1, 7, 13, 15, 21, 23, 29, 33, 35, 39, 43, 47, 49 |
| 10      | 8.2 Combinations  
8.3 Probability Applications of Counting Principles  
8.4 Binomial Probability (Examples 1 – 5)  
8.5 Probability Distributions Expected Value | P. 449-452: 3, 5, 11, 17, 19, 21, 31, 33, 39, 41, 45, 53  
P. 463-466: 1-15 odd, 19, 25, 27, 37, 39, 41, 43, 45, 55  
P. 472-477: 1-17 odd, 29, 31, 37, 39  
P. 485-491: 1, 3, 7, 9, 13, 19, 23, 31, 39, 47 |
| 11      | Review Test 3 & Test  
Chapter 7 - Sets and Probability  
Chapter 8 – Counting Principle Further Probability |            |