

MONTGOMERY COUNTY COMMUNITY COLLEGE

Spring, 2007

School Cancellation Code: 320
Learning Assistance Lab: CH 307

Course Title: Math Applications

Course Number and Section: MAT 106
YO1 and YO2

Prerequisite: Math placement test recommendation "UND116" (under MAT 116) or "ABV 100" (above MAT 100) or MAT 011 with a minimum grade of "C."

Course Catalogue Description:

This course is designed for liberal arts, social science, humanities, secondary education, and communications majors. It stresses mathematical applications from linear programming, probability and statistics, and at least one of the following topics: matrix algebra, game theory, graph theory, mathematics of finance, and the computer with applications. A calculator is required for this course. This course does not satisfy the MAT 100 prerequisite requirement for MAT 125, MAT 131, MAT 140 or MAT 161.

Instructor's Name: Aileen Conway Office Location: Parkhouse 152 Office Phone: (215) 641-6399

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Textbook: *A Survey of Mathematics with Applications*, Special Edition for Montgomery County Community College, Angel, Abbott, and Runde, Addison-Wesley Pub., 2005.

Required Materials: A calculator is required. A scientific calculator similar to the TI-Explorer Plus (TI-30X IIS) is recommended. A graphing calculator such as the TI-83+ may also be used. For the online course, availability of a computer and a fax machine are also required.

Methods of Evaluation:

During the course, you will be expected to take four tests and complete three projects. Each test is worth 15% of your final grade and each project is worth 10% of your final grade. In addition, the best ten of eleven quizzes will be worth 10% of your final grade.

The first and fourth tests are supervised exams. They must be taken in person at the Blue Bell or West campus of MCCC or with an approved proctor. It is your responsibility to schedule the times for the test, and to find and pay the proctor if you take the exam somewhere other than MCCC. No late tests will be given under any circumstances. Tests #2 and #3, all projects, and all quizzes must be emailed or faxed to the instructor by the deadlines given on the course outlines.

Withdrawal Policy: Students may withdraw from the course until the last day of class.

Criteria for Evaluation: Final grades will be given according to this scale:

A	90 - 100
B	80 - 89
C	70 - 79
D	60 - 69
F	Less than 60

Learning Objectives:

Upon completing this course, students should have the following knowledge and skills.

1. graph straight lines and systems of equations.
2. graph linear inequalities.
3. solve linear programming problems.
4. solve problems involving permutations and combinations.
5. solve probability problems dealing with probability experiments, sample spaces and expected values.
6. work with frequency distributions and their graphs.
7. find measures of central tendency and measures of dispersion.
8. work with the normal curves.
9. solve consumer math problems involving ratios, proportions, interest both simple and compound, installment buying and mortgages.

SEQUENCE OF TOPICS

	<u>Text Sections</u>	<u>Topics</u>
Week 1	6.1, 6.2, 6.3	Order of Operations, Linear Equations in One Variable, Formulas
Week 2	6.4, 6.6, 6.7, 6.8	Applications, Linear Inequalities, Linear Equations (Plotting Points and Using Intercepts - Not Slope) Linear Inequalities in Two Variables
Week 3	7.1, 7.2, 7.5	Systems of Equations, Substitution and Addition Methods, Systems of Linear Inequalities
Week 4	7.6 6.1 – 6.4, 6.6 – 6.8, 7.1, 7.2, 7.5, 7.6	Linear Programming Review – Chapters 6 and 7
Week 5	6.1 – 6.4, 6.6 – 6.8, 7.1, 7.2, 7.5, 7.6 11.1	Test #1 – Chapters 6 and 7 Percent
Week 6	11.2, 11.3	Personal Loans and Simple Interest, Compound Interest
Week 7	11.4, 11.5	Installment Buying (Omit Actuarial Method, Rule of 78's, and Unpaid Balance Method), Buying a House with a Mortgage
Week 8	11.1 – 11.5	Review – Chapter 11 Test #2 – Chapter 11
Week 9	12.1, 12.2, 12.3	The Nature of Probability, Theoretical Probability, Odds
Week 10	12.4, 12.5, 12.6	Expectation, Tree Diagrams, "Or" and "And" Problems,
Week 11	12.8, 12.9 12.1 – 12.9	The Counting Principle and Permutations, Combinations Review – Chapter 12
Week 12	12.1 – 12.9 13.1, 13.2	Test #3 – Chapter 12 Sampling Techniques, Misuses of Statistics
Week 13	13.3, 13.4, 13.5, 13.6	Frequency Distributions, Statistical Graphs, Measures of Central Tendency, Measures of Dispersion
Week 14	13.7 13.1 – 13.7	The Normal Curve Review – Chapter 13
Week 15	13.1 – 13.7	Test #4 – Ch. 13

MAT 106 – Mathematical Applications - Assignment Sheet – Fall, 2005

Textbook: *A Survey of Mathematics with Applications*, Special Edition for MCCC Angel and Porter, Addison-Wesley Pub., 2001.

Section	Problems
6.1	17-37 odd
6.2	15-23 odd, 39-45 odd, 49, 55, 57
6.3	5-15 odd, 39-47 odd
6.4	3-25 odd
6.6	1-6 all, 7-23 odd
6.7	7-21 odd, 41-63 odd (no slope)
6.8	1-19 odd
7.1	9, 11, 13, 17, 27
7.2	1-4 all, 5-37 odd
7.5	1-17 odd
7.6	1-4 all, 5-17 odd
Test 1	Chapters 6, 7
11.1	1-6 all, 7-63 odd
11.2	1-8 all, 9-49 odd
11.3	1-5 all, 7-39 odd
11.4	1-5 all, 9-15, 33,35
11.5	1-7 all, 11-21 odd
Test 2	Chapter 11
12.1	1-11 all, 13-29 odd, 28
12.2	1-5 all, 7-67 odd
12.3	1-7 all, 9-35 odd
12.4	1-3 all, 9-25 odd
12.5	1-6 all, 7-19 odd, 20, 21
12.6	1-11 all, 13-80 odd
12.8	1-25 odd
12.9	1-23 odd
Test 3	Chapter 12
13.1	1-8 all
13.2	1-19 odd
13.3	1-6 all, 7-25 odd
13.4	1-5 all, 7-23 odd
13.5	1-8 all, 11-47 odd
13.6	1-10 all, 13-21 odd
13.7	21-42 odd, 47-71 odd
Test 4	Chapter 13