

MARTIN COMMUNITY COLLEGE
COURSE SYLLABUS
Semester/Year: SPRING 2011

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|-------------------------------------------------------------------------|-------------------------------------------------------|
| COURSE NUMBER: Mat 115 (5W2) | INSTRUCTOR: Joshua Noonan |
| COURSE TITLE: Mathematical Models | OFFICE NO: Building 4, Room 23A |
| CREDIT HOURS: 3 | OFFICE/VIRTUAL HOURS: Mon - Thurs 12 – 1 pm |
| CONTACT HRS/WK: 4 (4 class, 0 lab) | PHONE NO: (252)789-0299 |
| PREREQUISITES: MAT 070 or appropriate score on placement test | FAX: (252)792-0826 |
| COREQUISITES: None | E-MAIL: jnoonan@martincc.edu |

COURSE DESCRIPTION: This course develops the ability to utilize mathematical skills and technology to solve problems at a level found in non-mathematical-intensive programs. Topics include application to percent, ratio and proportion, formulas, statistics, function notation, linear functions, probability, sampling techniques, scatter plots, and modeling. Upon completion, students should be able to solve practical problems, reason and communicate with mathematics, and work confidently, collaboratively, and independently.

PROGRAM LEARNING OUTCOMES:

1. Demonstrate appropriate mathematical skills required for academic and work-related tasks.
2. Apply principles of sound critical thinking to analyze and solve problems and make logical decisions.
3. Demonstrate effective speaking, writing, and reading skills.
4. Demonstrate appropriate technology skills required for academic and work-related tasks.

COURSE LEARNING OUTCOMES:

1. Apply a simple model of organized strategies to solve problems. Read a problem and decide what is given and what is to be found. Develop a plan for solving the problem. Check the answer and decide if it is reasonable.
2. Solve ratio, proportion, and percent problems and apply the concepts to solve financial management problems such as installment loans, credit cards, home mortgages, and annuities.
3. Solve linear equations in any form, by formulating linear equations given the requisite data, graphing the resulting equations, interpreting the resulting graph and rearranging the parts of the equation.
4. Construct frequency polygons, histograms, and circle graphs and compute basic statistics, including the mean, median, mode, variance, standard deviation, probability of an independent/dependent event, odds of an event and the use of fundamental counting principle.

OTHER OBJECTIVES:

The student will be able to:

1. Do critical thinking by looking at deceptive arguments, or fallacies.
2. Define logic.
3. Analyze basic components of logic and logic connectors.
4. Understand set theory.
5. Analyze and draw Venn diagrams.
6. Analyze information in everyday life.

7. Work with units and check answers.
8. Work with standardized units (US & metric).
9. Use problem solving techniques.
10. Define ratios and proportions.
11. Use percents.
12. Compare numbers and what they mean.
13. Compute simple interest and different types of compound interest.
14. Explain and compute loan payments.
15. Explain and compute credit cards payments.
16. Explain the different types of loans and their payments.
17. Graph a line.
18. Make a prediction.
19. Define function notation.
20. Define statistics.
21. Define sampling.
22. Define and analyze statistical tables.
23. Analyze different type of graphs and which type to use.
24. Define correlation.
25. Determine whether the correlation is a result of causality.
26. Calculate the central tendency.
27. Define probability.
28. Add and multiply probabilities.
29. Define the law of large numbers.
30. Calculate permutations and combinations.

REQUIRED TEXTBOOKS: Angel, Allen R., Abbott, Christine D. and Runde, Dennis C. (2009). *Survey of mathematics with applications*, (8th). Boston, MA: Pearson, Addison Wesley. ISBN: 0-321-501312-2.

SUPPLEMENTAL RESOURCES: Calculator - TI-84 plus edition graphing calculator preferred

LEARNING/TEACHING METHODS: Lecture, handouts for clarification of information, supervised practice, computer-assisted practice, outside reading assignments.

ASSESSMENTS/METHODS OF EVALUATION:

1. Final Exam 20%
2. Average of Test Scores 60%
3. Average of Quizzes/Homework 15%
4. Outside Reading Assignments 5%

GRADING POLICY:

A = 100 – 93 %
 B = 92 – 85 %
 C = 84 – 77 %
 D = 76 - 70%
 F = below 70%

COURSE OUTLINE:

THIS IS A GUIDE AND IS SUBJECT TO CHANGE! KEEPING UP WITH CHANGES IS YOUR RESPONSIBILITY.

| CHAPTER | TOPIC | WEEK |
|------------------------|-------------------------------|-------|
| Chapter 1 and handouts | Logic and Problem Solving | 1 |
| Chapter 2 and handouts | Approaches to Problem Solving | 1-2 |
| Chapter 3 and handouts | Numbers in the Real World | 2 |
| Chapter 4 and handouts | Financial Management | 4-6 |
| Handouts | Graphing and Functions | 7-9 |
| Chapter 5 and handouts | Statistical Reasoning | 10-13 |
| Chapter 6 and handouts | Probability: Living with Odds | 14-15 |
| | Review & Exam | 16 |

STUDENT ATTENDANCE POLICY: The Martin Community College Attendance Policy is in effect, as well as the administrative withdrawal policy. Students must attend at least once within the first 10% of the scheduled hours of the class in order to be enrolled, or their names will be removed from the attendance roster. Students missing more than 6 (six) contiguous contact hours without contacting, and speaking to the instructor or more than 10% of the total contact hours may be administratively withdrawn from class, and in that case will receive a “WF” which counts as an “F” as their final grade. Students may only be readmitted to class with the written approval of the instructor, as the instructor must file a form with the registrar in order to readmit the student. Students who have been administratively withdrawn from a class will not be allowed in the welding shop for liability reasons. The student is responsible for all material covered, including any announcements, such as test dates made while he/she was out. A student may remove the “WF” grade by submitting appropriate paperwork for an official withdrawal by the last day to officially withdraw without receiving an “F” during the semester to the Registrar’s office. The last day to officially withdraw from this class is March 31.

REQUEST FOR EXCUSED ABSENCES FOR RELIGIOUS OBSERVANCES*

***In compliance with G.S. 115D-5, MCC policy permits a student to be excused, with the opportunity to make-up any test or other missed work, a minimum of two excused absences per academic year for religious observances required by the student’s faith. The policy limits the excused absences to a maximum of two days per academic year.**

Students who wish to be excused for a Religious Observance required by their faith must complete and submit a request form to the instructor(s) prior to the census date of each class. The *Request for Excused Absences for Religious Observances* form can be picked up from Student Services. This does not supersede the college-wide attendance policy as outlined in the college catalog or syllabus, with the exception of a reasonable accommodation for the make-up of missed course work.

COURSE POLICIES:

Assignment Due Dates:

All assignments are due at the beginning of a class period. If a student is absent when an assignment is due it is their responsibility to see that the instructor receives that assignment the next time the student is in class. If this happens frequently a student’s grade for that work may be lowered 10 points each day that it is late.

Make-up Policy:

If a student is absent when graded work is done in class, he/she will receive a grade of “0” for that work. In computing the quiz average the lowest grade for each student will be dropped before averaging. Test can be made up only in cases of legitimate verifiable absences and must be made up with in three days.

Cellular Phones and Pagers

Cell phones and pagers should be set to silent mode before entering class.

Academic Integrity Statement

The President or any other authorized college official may dismiss, suspend, or expel any student who disrupts the legal mission, educational processes or function of the college, (see Student Governance and Conduct Code). Deliberately cheating or knowingly and intentionally engaging in acts of plagiarism is a violation of the Student Governance and Conduct Code (see Student governance and Conduct page 47). Cheating will result in a failing grade for the course and possible expulsion.

Open Door Policy

Martin Community College is an equal opportunity institution and maintains an “open door policy” for eligible applicants and serves all students regardless of race, color, creed, sex, age, handicap, religion, or national origin.

Contact Person

If you cannot reach your instructor, you may contact Dr. Phyllis Broughton, Dean of Academic Affairs and Student Services at (252) 789-0246 or (252)789-0247 by phone, pbroughton@martincc.edu by e-mail, or in person at her office in Building 2, Room 33.

Accessing the MCC Career Catalog

To access the Martin Community College Career Catalog for policies and curriculum requirements, please go online to www.martincc.edu.

Disability Statement

Martin Community College Supports the Americans with Disabilities Act and is sensitive to the needs of applicants with documented disabilities. If you have a need for a disability-related accommodation, please notify the Student Services Counselor at (252) 789-0293.