

## MA 110, Multivariable Calculus – Syllabus

### I) Course Information

MA 110

CRN : 30166 (9:30-10:45) and 30167 (11-12:15)

Survey of College Math

Room : SE209

Time : 9:30-10:45 AM and 11-12:15 PM

Days : Tuesdays and Thursdays

Prerequisite: A grade of C or better in MA 101 or MA103, or an appropriate score on the placement test. EN101 Assessment Level.

### II) Instructor Information

Name : Dr. Ben Nicholson

Phone : 240-567-5222

Office: 25 Science West

Email: [ben.nicholson@montgomerycollege.edu](mailto:ben.nicholson@montgomerycollege.edu)

Office Hours: Mondays 10-11 AM, Tuesdays, 1-2 P.M., Wednesdays 10:00-11:00 AM or by appointment.

Website : <http://www.montgomerycollege.edu/~bnichols/>

### III) Course Description

A general college mathematics course whose topics include linear equations, matrix algebra, linear programming, probability, Markov chains, and mathematics of finance. The applications are primarily from business, economics, and the life sciences. Emphasis is on developing, analyzing, and interpreting mathematical models.

### IV) Course Outcomes

Upon completion of this course, a student will be able to:

1. interpret quantitative information from selected real-world word problems so that data can be encapsulated into suitable mathematical models.
2. write interpretive results in clear, concise English sentences tailored to meet the needs of the target audience.
3. demonstrate the ability to develop and use mathematical models for predictive purposes, by using linear and quadratic functions to solve application problems from fields such as business, economics, the life sciences, and the social sciences.
4. determine the regression line model for a set of data points, interpret the model in context, and use the model for extrapolation and/or interpolation
5. design, categorize, and solve linear systems of inequalities in two variables for the purposes of resource allocation in fields such as manufacturing, nutrition and agriculture. (linear programming)
6. calculate and interpret probabilities for discrete variables in contexts such as games of chance, stochastic processes, and product screening.
7. solve finance problems involving simple interest, compound interest, annual percentage yield, future value of an ordinary annuity, present value of an ordinary annuity, loans, and mortgages.
8. use computer software such as Excel and /or use calculator software such as the TVM Solver, Equation Solver, and/or matrix menus when appropriate.
9. solve linear systems by the Gauss-Jordan augmented matrix method and/or by using the inverse of the coefficient matrix, when applicable.
10. do basic operations with matrices that include addition, subtraction, scalar multiplication, and multiplication.
11. apply transition matrices to kth-state probability matrices and calculate stationary matrices in Markov chain problems

## V) Texts and Supplies

Finite Mathematics For Business, Economics, Life Sciences, and Social Sciences with Math XL, 11th ed., by Barnett, Ziegler and Byleen; Pearson/Prentice Hall Publishers. The book will be used extensively for homework and readings.

## VI) Required Supplies

New editions of the book come packaged with MathXL. We will be using MathXL for homework this semester. You can also purchase access codes through the bookstore or directly through [www.mathxl.com](http://www.mathxl.com).

## VII) Calculator Policy

We will be using a TI-83/84 calculator this semester for various aspects of the course, it is required that you have one.

## VIII) Course Requirements

Grades will be composed of 3 parts: homework, exams and projects.

### Homework

1. Homework will be assigned on a daily basis in MathXL with a due date of the next class period.

### Exams

1. There will be 3 exams plus a final exam.
2. Each exam will be worth 100 points, and the final will be worth 200 points.
3. The final exam will replace your lowest exam grade if it is higher.

### Projects

1. There will be two projects this semester, one on finance and the other on probability. Each will be worth 30 points.

## IX) Grading Policy and Criteria\

Final grades will be a percentage of points earned versus points possible.

90 – 100%	A
80 – 89%	B
70 – 79%	C
60 – 69%	D
Below 60%	F

## X) Make-Up Policy

If you must miss an exam you must let me know **BEFORE** class by either sending me an email or calling or leaving a message on my voice mail and make arrangements to take the exam by the next class period. There will be no makeup quizzes or late projects accepted.

## XI) Attendance Policy

You are expected to be in class on time every time. It is imperative that we be ready to begin on time every day.

## XII) Important Dates

Last Date to Drop with a Refund : February 1

Last Date to Drop without a W : February 15

Last Date to Drop with a W: April 19

No class: March 15 through 20<sup>th</sup>, Spring Break

Final Exam: Thursday May 13<sup>th</sup>, 8-10 AM and 10:15-12:15 PM

**XIII) Email**

MC student e-mail is an official means of communication for Montgomery College. Students are responsible for information and announcements sent via MC e-mail, and it is expected that students check their student e-mail regularly. When e-mailing an instructor, it is expected that students use their MC student e-mail account.

**XIV) Website**

The instructor maintains a website where all course related materials and assignments are posted. You may access this website through the instructor's website, through the MyCourses tab on MyMC, or directly at <http://www.montgomerycollege.edu/~bnichols/ma110.html>

**XV) Math/Science Center**

**Rockville Campus**, Math/Science Center, Macklin Tower 02, 240-567-5200,  
Hours: Mon. – Thurs. 8am – 8pm, Fri. 8am – 4pm, Sat. 10am – 3pm  
<http://www.montgomerycollege.edu/Departments/mathscr/>

**XVI) Academic Regulations & Student Code of Conduct**

All MC students are expected to follow “Academic Regulations” & “Student Code of Conduct” as described in the MC Student Handbook. These regulations and guidelines can be found at: [www.montgomerycollege.edu/departments/academicvp/Student\\_PandP.htm](http://www.montgomerycollege.edu/departments/academicvp/Student_PandP.htm)

Cheating and plagiarism in any form will not be tolerated. At a minimum, it will earn you a zero on the assignment or exam and could lead to disciplinary action from the college. It is encouraged and expected that students will work together to complete assignments. There is a difference however between working together and copying someone else's paper.

**XVII) Accommodations for Students with Disabilities Statement:**

Disability Support Services (240-567-5058)

Any student who may need an accommodation due to a disability, please make an appointment to see me during my office hour. A letter from Disability Support Services (CB122) authorizing your accommodations will be needed. Any student who may need assistance in the event of an emergency evacuation must identify to the Disability Support Services Office; guidelines for emergency evacuations for individuals with disabilities are found at:

[www.montgomerycollege.edu/dss/evacprocedures.htm](http://www.montgomerycollege.edu/dss/evacprocedures.htm)

**XVIII) Inclement Weather**

If inclement weather forces the College or any campus or College facility to suspend classes or close, public service announcements will be provided to local radio and television stations as early as possible. You may also call MC at 240-567-5000 or check the college website [www.montgomerycollege.edu](http://www.montgomerycollege.edu) to verify MC school closings. Any exams planned on days classes are suspended will be administered at the first class meeting once classes resume. Note that the Montgomery County Public Schools (MCPS) and Montgomery College do not follow the same school closing procedures.