

Mesa Community College

Department of Mathematics

Mat 241 –Analytic Geometry/Calculus 3- Instructor: Michael Santilli

Course Number: MAT 241
Section Number: 29986
Instructor: Michael Santilli
text: Calculus Early Transcendentals 6th ed
Prerequisites: MAT 231
Class web page: tillitoughlove.blogspot.com

Course title: Analytic Geometry/Calculus 3
Days/time: M,W 7:10 – 8:50 PM
Office: MC 118 after class by appointment only
Author: James Stewart
Office Hours: Call (785) 371-5000
E-mail: tveg@basicisp.net

Course Description:

The following is the school's course description. This will be the MINIMUM amount of material that we will cover in this class. Be prepared to have additional topics included in the course, as I deem necessary. You will be responsible to master ALL the material in the course.

Calculus with Analytic Geometry III

Multivariate calculus including vectors, vector-valued functions, partial differentiation, multiple integration and an introduction to vector fields. Prerequisites: Grade of "C" or better in MAT230 or MAT231. **Course Note:** Student may receive credit for only one of the following: MAT240 or MAT241.

MCCCD Official Course Competencies:

1. Solve geometry and physics problems using vectors. (I)
2. Analyze the motion of an object using vector-valued functions. (II)
3. Classify and analyze the behavior of functions of several variables. (III)
4. Interpret the geometry of rectangular, polar, cylindrical and spherical coordinate systems. (I, II, III, IV)
5. Solve optimization and other applied problems using partial derivatives. (III)
6. Set up and compute double and triple integrals in any order of integration using rectangular, polar, cylindrical, and spherical coordinates. (IV)
7. Solve physical problems using line integrals and vector fields. (V)
8. Compare alternate solution strategies, including technology. (I, II, III, IV, V)
9. Communicate process and results in written and verbal formats. (I, II, III, IV, V)

MCCCD Official Course Outline:

- I. Vectors
 - A. Definitions
 - B. Operations and their properties
 - C. Representations of lines and planes
 - D. Applications
- II. Vector-Valued Functions
 - A. Definitions and representations
 - B. Limits
 - C. Derivatives
 - D. Integrals
 - E. Applications
- III. Functions of Several Variables
 - A. Representation of surfaces by
 1. Contour diagrams (family of level curves)
 2. Graphs in three dimensions
 3. Appropriate technology
 - B. Limits and continuity
 - C. Partial Derivatives and Their Applications
 - D. Optimization problems
- IV. Multiple Integrals
 - A. Visualizing the domain of integration
 - B. Order of integration
 - C. Change of variables
 1. Cartesian coordinates
 2. Polar coordinates
 3. Cylindrical coordinates
 4. Spherical coordinates
 - D. Applications
- V. Vector Fields and Line Integrals
 - A. Definitions
 - B. Properties
 - C. Applications
 - D. Surface integrals

REMEMBER: This will be the MINIMUM amount of covered topics in this course.

Attendance:

Every student is expected to be at every class. Any student who misses five or more classes may be withdrawn from the class and will earn a grade of W, Y, or F from the college. All absences must be excused. Please contact me before class if you are not planning to come.

Homework:

Homework assignments are given every class period. A general homework format will be implemented and you are expected to follow it. Any homework that does not follow this format will be returned to the student and will not be accepted until the aforementioned format is met. This format is outlined in this syllabus. There will also be additional problems assigned as extra credit. The credit will be applied as disclosed by instructor. Please download the homework/ class schedule under the class web page's homework link.

Testing:

There will be 2 chapter exams during this grading period. There are no make-ups for exams. Instead, your lowest exam grade will be replaced by the Final Exam grade if higher. All exams are to be completed in an official examination booklet (Blue books). In addition, there will be a comprehensive final exam. The final exam will not be given early and may not be made up. Approximately every class, you will have a Toughlove quiz. These "Tilli's Toughloves" will cover the most fundamental concepts that the student must grasp in order to succeed in this class. I will disclose the majority, if not all, of the tough Love Q&A in advance during lecture. I will explain the grading procedure of these quizzes on the first day of class. There will also be a Toughlove midterm and a final.

Dishonesty:

If it is determined that you did not do your own work on an exam you will receive an F as your grade for the exam. NO exceptions, NO SECOND CHANCES!

Calculators:

Students are recommended to possess and be able to use a scientific calculator and graphing calculator. You will be using them in class and on homework and exams.

Grades:

Class grade will be based on a point scale. A (900-1025 points), B (800-899 points), C (700-799 points), D (600-699 points), F (0-599 points) the grading point structure for the class is as follows:

Homework and Notes -	100 points
Toughlove quizzes -	50 points
Midterm Toughlove -	100 points
Final Toughlove -	150 points
2 semester exams (200 points each) -	400 points
Final exam-	200 points
Total -	1000 points

Disabilities:

If you have any disabilities which may hinder your learning the material presented in this class please inform student services and complete the appropriate forms as soon as possible. I will do everything reasonably possible to help you be successful in learning the material in this class.

MCC Early Alert Program (EARS):

Mesa Community College is committed to the success of all our students. Numerous campus support services are available throughout your academic journey to assist you in achieving your educational goals. MCC has adopted an Early Alert Referral System (EARS) as a part of a student success initiative to aid students in their educational pursuits. Faculty and Staff participate by alerting and referring students to campus services for added support. Students may receive a follow up call from various campus services as a result of being referred to EARS. Students are encouraged to participate, but these services are optional. Early Alert Web Page with Campus Resource Information can be located at <http://www.mesacc.edu/students/ears>.

General Remarks:

It is the responsibility of each student to prepare for each class period - attempt all homework problems, read the text, if needed, study, and get extra help when necessary. As a general rule, students should expect to **spend 4-6 hours preparing for each class period - come prepared to learn new material**. Your work, whether on homework or exams, should be neat and easily followed, and your solutions should be clearly stated. You must follow the adopted procedures, guidelines, and format of the class. Beepers and cell phones must be turned off during class. Use of recording devices must have prior approval by the instructor. Course schedules, assignments, and exam dates are subject to change as circumstances dictate. Instructor has the right to change any part of the class, as he deems necessary.

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A. CLASS SUPPLIES NEEDED:

1. 3 ring binder (2" or larger preferred)
2. 5 dividers
 - a. Section one- Instructor Handouts
 - b. Section two- Class notes
 - c. Section three- Homework
 - d. Section four- Quizzes
 - e. Section five- Exams
3. Pencil pouch for binder
4. Mechanical pencil with **LEAD** and **MANY** erasers (5-7 mm lead preferred)
5. **RED** Pen
6. **YELLOW** Highlighter
7. Scientific Graphing Calculator
8. 10 (minimum) Examination Books (BLUE BOOKS)
9. Lined notebook paper for note taking (college rule preferred)
10. Graph paper (1/4" or 1/5" grid)
11. 12" notebook ruler
12. tot stapler with staples

- B. Please set up your notebook with ample amount of notebook paper in Sections 2 and 3. This handout along with the class syllabus goes in Section 1. Ruler snaps into the binder. All of the other class supplies go into the binder pencil pouch. It is your responsibility to make sure your supplies are readily available!

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Sample test and homework format:

C. Homework format:

**Staple Each Section Together
NO LOOSE PAGES!!**

**On top of EVERY PAGE
State Class/section**

**On the top of EVERY PAGE
State Homework Section /page/problem**

**On the top of EVERY PAGE
State Full Name**

	MCC MATH 220 Section 8044	SECTION: 1.1 Page 22 #1-63	JOHNNYBOY
0			
28/4	3x + 2y = 14 6x - 5y = 6 etc... etc. etc.	←	Copy Down Problem Then SHOW ALL WORK! Every step must be shown to get credit for doing the homework.
←	<div style="border: 2px solid black; padding: 5px; display: inline-block;">X = 5 and Y = 4</div>	←	Box and Highlight Answer
0			
28/5	2x + 8y = 55 7x - 6y = 12 etc., etc., etc.	←	Skip at Least ONE Space Before Starting the Next Problem
←	<div style="border: 2px solid black; padding: 5px; display: inline-block;">X = 2 and Y = 7</div>		

Left of Margin, State Problem Page/Number

Repeat the Above Process

1. This format must be followed for HOMEWORK, QUIZZES, AND EXAMS when applicable.
2. Backsides of paper can be used but the format must be the same.
3. **Important:** Always start new homework sections on the front of a new sheet of paper! Staple each section on homework separately.
4. Using student solution manuals are allowed but not recommended unless used as a last resort. Contact your instructor in class, by phone, or email to seek additional help.

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Study habits, note taking and exam taking strategies:

A. Study habits:

It is imperative that you are prepared each day for new material. You will not pass the class if you expect to do all of the work solely over the weekends. To succeed in this class, you will need to do the homework and review all of the class notes before the next class. All questions you may have or areas in your notes that need clarification must be addressed immediately, i.e., the following class period. Download the class notes, if available, that are on the web and incorporate them into your notes. Do not use the web notes as your primary source of class notes. You will need to take your own notes. We will be covering an extremely large amount of information, probably more than you have ever experienced before. You will not have much time to digest this information. Therefore it is a matter of survival to review and complete your homework before every class period. Study groups are another great idea. I give extra credit for students that work in groups. Getting help from a math tutor is also considered working in a group. Check out the web site for recommended tutors. Make sure you have all of your supplies and text in each class.

B. Note taking:

I am going to let you in on a great Tilli Tidbit secret. How would you like to never have to study the night before an exam? How would you like to have a greater understanding of all of the material covered in class? How would you like to learn calculus faster and perform better than you ever thought possible? There is only one way to do this. After every class period, you need to RECOPY your class notes with multiple color pens. Pretend you are writing a math book and your class notes are your source of information. Restructure your notes. Highlight pertinent information. Break up your text with multi-colored paragraphs and/or use your colors as an indexing system. For an example, red ink for quiz questions, blue ink for definitions, and black ink for titles. Breaking up your notes into multiple colors will allow you to differentiate between topics and ideas. Also, by rewriting your notes immediately after each class will reinforce the subject matter while insuring that there are no gaps in your information. If you do this after each class, you will reap the benefits mentioned above. Digesting this material at lightning speed is not only possible but also probable.

C. Test taking:

This topic is the least understood by students. There is a BETTER way to take an exam. I will post on the web an outline of each exam I plan to give you. I will state the type of problem, the number of points the problem is worth, and the order the problems will be stated on the exam. You will write out a schedule prior to taking the exam. You will allocate a certain amount of time for each problem then stick to that schedule while taking the exam. You should not be in a mindset of trying to get an A on the exam but instead trying to get the maximum number of points possible. You will do better in this class with that kind of mindset. More on this subject later during the exam reviews.

Good luck and have a great semester!