MATH 241 — Fall 2024

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website:	`http://people.math.sc.edu/kustin/teaching/242/242.html`
Office Hours:	Monday and Wednesday from 5:20 PM to 6:30 PM (or by appointment as needed).
Text Book:	Thomas' Calculus: Early Transcendentals by George B. Thomas, Jr. Fifteenth Edition. The book was revised by Hass, Heil, Bogacki, and Weir.

The ISBN numbers on my copy are:
ISBN-10: 0-13-756014-1,
ISBN-13: 978-0-13-756014-1,
ISBN-10: 0-13-756015-X,
ISBN-13: 978-0-13-756015-8,
ISBN-10: 0-13-755989-5,
ISBN-13: 978-0-13-755989-3,
It is possible that other ISBN numbers work – I do not know.
You do **not** need **MyMathLab-Access** for my course.

Catalog Description

MATH 241 - Vector Calculus (3 Credits) Vector algebra, geometry of three-dimensional space; lines, planes, and curves in space; polar, cylindrical, and spherical coordinate systems; partial differentiation, max-min theory; multiple and iterated integration, line integrals, and Green's theorem in the plane. Prerequisites: C or better in MATH 142.

Learning Outcomes:

By the end of this course, students should be able to:

- give equations for surfaces and curves in three-space,

- make calculations involving partial derivatives and gradients,

- solve max-min problems of functions of several variables,

- compute double and triple integrals in polar, cylindrical, and spherical coordinates,

- compute line integrals directly and by using Green's theorem.

Attendance:

I plan to deliver a lecture in-person for each class. If you are healthy, please come.

When you miss a class, you miss an important learning opportunity. When you miss multiple classes, your success in this course becomes less likely.

Lecture Notes: I have posted typed lecture notes on my website for each class. I encourage you to study these notes. In particular, if you are not healthy or otherwise not able to come to class, then I strongly encourage you to study the lecture notes.

To succeed: I expect you to do the problems correctly and to do the homework.

As you do your homework, focus on getting the correct answer and knowing how to tell that your answer is correct.

There will be an opportunity to ask questions in every class. Ask about the things that bother you.

Mistakes: Treat mistakes as learning opportunities. A poor performance on a given quiz or hour exam does not doom you to a poor grade in the course. Figure out what you did wrong. Do not make those mistakes again. I will surely ask something similar later. Get it right the next time. (See "How your course grade will be calculated" at the end of the syllabus for many more details.)

Homework: The list of all homework questions for the semester may be found at my website. I will assign a few homework problems each class. Be sure to do these problems before the next class. **The quiz questions will be taken directly from the homework.** The homework questions are found **in the textbook**. If you are having trouble finding the homework problems, I can probably help, just ask.

After the quiz on a given problem set, I will post the complete solution of each problem from the problem set. I want you to master each problem. Of course, you can ask about the homework in class, or in my office, or by e-mail. But sometimes you will have "gotten" the answer at the back of the book, but you aren't confident in what you did. If you don't have time to ask about it before the quiz, you can compare your answer to mine after the quiz. If that settles the matter: great. Otherwise, you should talk to me about it.

Quizzes: We are scheduled to have 8 quizzes. These quizzes will be given on Wednesday Aug. 28, Monday Sept. 9, Wednesday Sept. 25, Wed. Oct. 2, Mon. Oct 21, Mon. Oct. 28, Wed. Nov. 13, and Wed. Nov. 20. Each quiz will be worth five points. **The quiz will consist of one problem from the assigned homework problems.** Quiz solutions are posted on my website shortly after the quiz is given.

If you are unable to take a quiz or an exam, do not worry about it. I will calculate your grade out of the quizzes and exams that you do take.

Hour Exams: There will be three hour exams. They will be given:
Monday, September 16,
Wednesday, October 9, and
Monday, November 4.
Each hour exam is worth 50 points. Exam solutions are posted on my website shortly after the exam is given.

If you are unable to take a quiz or an exam, do not worry about it. I will calculate your grade out of the quizzes and exams that you do take.

Final Exam: The final exam is worth 100 points.
The final is 12:30 – 3:00 on Friday, December 13.

Quality Work There is no bonus for turning the exams in quickly. Please, take your time; work carefully; clearly identify your answer; check your answer; make sure your answer answers the question.

Drop Date: The last day to drop without receiving a WF is Wednesday, November 6, 2024. You will have 3 exams and 6 quizzes before that day.

Manners: If you plan to leave before class is over, the correct procedure is to mention this to me before I start class.

Old Exams: The exams I gave the last few times I taught this course are available at my web site.

Prerequisites:	Qualification through placement or a grade of C or better in MATH 142.

Mid-semester Evaluation	About a third of the way through the course you will be asked how you feel things are going. Your responses will be anonymous; so please record your thoughts. Details will be forthcoming.

Academic Integrity	The first tenet of the Carolinian Creed is, "I will practice personal and academic integrity." Therefore, it is your responsibility and mine to uphold and maintain the academic standards and integrity of the University of South Carolina. Below are some websites for you to visit to learn more about University policies:

- Carolinian Creed

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  https://sc.edu/about/offices_and_divisions/
  student_affairs/our_initiatives/
  involvement_and_leadership/carolinian_creed/
  index.php
  ```

- Academic Responsibility

  ```
  https://www.sc.edu/policies/ppm/staf625.pdf
  ```

- Office of Student Conduct and Academic Integrity

  ```
  https://sc.edu/about/offices_and_divisions/
  student_conduct_and_academic_integrity/index.php
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How your course grade will be calculated.

It is important to me that you learn the material. It also is important to me that you receive a good grade in the course. I firmly believe that you should not be penalized for doing something incorrectly the first time you try it. Or phrased a different way, if you do good work at the end of the course, then your grade should be pretty good, independent of when you started to do good work. On the other hand, when necessary, I do have to convey "This is wrong. Please do it correctly the next time." Please, don't let such a warning alarm you; just fix whatever the problem is. Compare your answer to the answer sheet and find where and how you got off the right track or come talk to me if that will help.

All of the exams in the course are cumulative; they cover everything from the beginning up to wherever we are at the time of the exam; consequently, there is straightforward way for me to communicate to you that "I am pleased with your present work. Your earlier work, which was not as good, is not going to foul up your grade."

When I calculate your grade for the course I will use the following procedure: If you do better on an exam than you had done on some previous exams or quizzes, then I will ignore the weak previous exams or quizzes when I compute your grade, provided this works to your advantage.

After each exam, I will send you a little table of where you stand at that moment; I will also send you a key to remind you what the table means.

This is a little bit complicated; so I will show you a real life example. I will attach all four tables for one of my students. The student did not perform well on either of the first two tests; the student visited me often in my office and worked very hard. The student earned an "A" on exam 3, an "A" on the final exam, and an "A" for the course.

Here is the chart and key that I sent this student after Exam 1:

	Q1	Q2	E1	Q3	Q4	E2	Q5	Q6	E3	Q7	FE	Tot	Pos	Tot/Pos	**Course Grade**
maximum	5	5	50	5	5	50	5	5	50	5	100	285	285		
raw scores	5	5	26												
counted scores	5	5	26												
out of	5	5	50												

- **"Course Grade" is the grade that will appear on your report card.**

- "FE" is your score on the final exam.

- "E1", "E2", and "E3" are your scores on the three exams.

- "Q1", ..., "Q7" are your scores on the 7 quizzes.

- "Tot" is the total number of points you earned on the exams and quizzes that are counted for you. **(If you do better on an exam than you had done on some previous exams or quizzes, then I will ignore the weak previous exams or quizzes when I compute your grade, provided this works to your advantage.)**

- "Pos" is the maximum possible points on the exams and quizzes that are counted for you.

- Tot/Pos is Tot/Pos turned into a percentage. This is the number that I use to determine your final grade:

  - 90% guarantees an "A" (sometimes the actual cut off is a little lower),
  - 85% guarantees a "B+" (sometimes the actual cut off is a little lower),
  - 80% guarantees a "B" (sometimes the actual cut off is a little lower),
  - 75% guarantees a "C+" (sometimes the actual cut off is a little lower),
  - 70% guarantees a "C" (sometimes the actual cut off is a little lower),
  - I do not usually assign "D+". If someone would qualify for "D+", I usually assign "C", and
  - 60% guarantees a "D" (sometimes the actual cut off is a little lower).

- "x" indicates that I do not have a grade for you on this quiz or exam.

- "d" means that this information has been ignored.

- "maximum" is what the Exam or Quiz was worth.

- "raw scores" are your scores on the exams and quizzes.

- "counted scores" are the scores that I am counting for you.

- "out of" is the maximum possible score on the exams and quizzes that I am counting for you.

Here is the chart I sent after Exam 2:

	Q1	Q2	E1	Q3	Q4	E2	Q5	Q6	E3	Q7	FE	Tot	Pos	Tot/Pos	**Course Grade**
maximum	5	5	50	5	5	50	5	5	50	5	100	285	285		
raw scores	5	5	26	1	5	23									
counted scores	5	5	26	d	5	23									
out of	5	5	50	d	5	50									

Here is the chart I sent after Exam 3:

	Q1	Q2	E1	Q3	Q4	E2	Q5	Q6	E3	Q7	FE	Tot	Pos	Tot/Pos	**Course Grade**
maximum	5	5	50	5	5	50	5	5	50	5	100	285	285		
raw scores	5	5	26	1	5	23	5	5	45						
counted scores	5	5	dd	d	5	dd	5	5	45						
out of	5	5	dd	d	5	dd	5	5	50						

Here is the chart I sent after the final exam:

	Q1	Q2	E1	Q3	Q4	E2	Q5	Q6	E3	Q7	FE	Tot	Pos	Tot/Pos	**Course Grade**
maximum	5	5	50	5	5	50	5	5	50	5	100				
raw scores	5	5	26	1	5	23	5	5	45	1	92				
counted scores	5	5	dd	d	5	dd	5	5	45	d	92	162			
out of	5	5	dd	d	5	dd	5	5	50	d	100		175	93%	A

(I sent the key after all of the exams, I only included it once here.)

I will send you a partially completed version of the above chart-and-key pertaining to your grades after each test. You will have a decent idea of where you stand in the course all the time. (Your charts will have room for eight quizzes because we plan to have eight quizzes.)