Math 254 Calculus IV Fall 2017

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Course Description

Topics include functions of several variables, tangent planes, partial differentiation, the chain rule, Lagrange multipliers, double and triple integrals, vector fields, line and surface integrals. Culminates in the theorems of Green and Stokes, along with the Divergence Theorem. Prerequisite: Math 153 with a grade of "C" or better.

Text: Calculus Early Transcendentals 5th ed., Stewart ISBN 0-534-39321-7
Math 254 covers selected sections from chapters 14, 15, and 16.

Calculator: A graphing calculator is recommended for this class, but not required. The math department rents the TI-84 for $20 per quarter. Please see me if you are interested in renting a calculator.

A simple scientific calculator is **required** and will be the only calculator allowed on most quizzes. Don't spend more than $20.

We will also use *Mathematica* throughout the course. A home use copy of Mathematica can be downloaded off of the students app drive after logging into a campus computer using your MySVC account.

Course Objectives: After completing this course, the student will be able to:
1. Understand and use the chain rule properly.
2. Understand and use Directional Derivatives and Gradient Vectors.
3. Find Maximum and Minimum values of a multivariable function.
4. Properly use Lagrange Multipliers in applied problems.
5. Work with double integrals over regions using both Rectangular and Polar coordinates.
6. Finding applications of Double integrals, and find surface area.
7. Work with Triple Integrals using both Cylindrical and Spherical Coordinates.
8. Properly use the change of variables technique in Multiple Integrals.
9. Understand Vector Fields and Line Integrals.
10. Become comfortable with Green's Theorem and Stokes' Theorem and understand how to use them.
11. Find the Curl and Divergence.
12. Understand and use the Divergence Theorem.
13. Work with functions of several variables.
14. Find tangent planes.
15. Work with partial derivatives.

Grading

Attendance: Although regular classroom attendance will not figure into your grade in a tangible way, I strongly encourage your regular attendance in this class. It should be obvious that attending all classes is extremely beneficial to you. Seeing the material presented in a lecture is extremely helpful as the presentation will often be different than the text in order to clarify and enhance the reading assignments. Having questions answered in class (as well as hearing other students' questions) is also a benefit. Material not in the text may be presented in class; you will be held accountable for this material on quizzes and exams.

Exams: There are six 50-point tests scheduled throughout the quarter. Tests must be taken on the scheduled dates unless pre-arranged with me at least one week prior to the exam. Make-up Tests are NOT given except for exceptional circumstances. Any person found cheating on an exam automatically gets a 0 for that exam. Found cheating a second time the student will receive an F for the course.

Anyone found cheating on a test will receive a 0 for that test; found cheating a second time will result in failing the course.

Projects/Worksheets There will be several projects/worksheets throughout the quarter often requiring the use of *Mathematica*.

Final Exam At the end of the course there is an optional comprehensive final exam. Your Final Exam score can be used to replace your lowest test score.

Grading Scale Letter grades are determined by the following scale:

	B+ 87%	C+ 77%	D+ 63%
A 93%	B 83%	C 70%	D 60%
A- 90%	B- 80%	C- 67%	E < 60%

Other Information

- Arrive to class on time. Arriving consistently late is an inconsiderate disruption to the entire class.
- Turn off AND put away all cell phones. You should be able to concentrate for 50 minutes without glancing at text messages.
- Please do not eat meals in class. Drinks are okay.
- Keep up on your homework DAILY. Math is exactly like music, sports, cooking, learning a foreign language, etc.; to be good you need to practice, practice, practice.
- Read the text. Actually, read the text a few times. And work the examples with paper and pencil. Most concepts you may have questions on from the homework probably have examples in the text to help explain the concept.
- Take good in-class notes and review those notes immediately after class as well as that evening. Fine-tune them when necessary.

Daily Schedule (Very Tentative)

Monday	Tuesday	Wednesday	Thursday	Friday
9/18 Intro	9/19 14.1	9/20 14.2	9/21 14.3	9/22 14.4
9/25 Computer Lab	9/26	9/27	9/28 **Exam 2**	9/29 14.5
10/2 14.6	10/3 14.7	10/4	10/5 14.8	10/6
10/9	10/10 **Exam 2**	10/11 15.1	10/12 15.2	10/13 15.3
10/16 15.4	10/17 15.5	10/18	10/19 **Exam 3**	10/20
10/23 15.6	10/24 15.7	10/25 15.8	10/26 **NO CLASS**	10/27
10/30 15.9	10/31	11/1 **Exam 4**	11/2 16.1	11/3 16.2
11/6 16.3	11/7 16.4	11/8	11/9 16.4	11/10 **Veteran's Day**
11/13 16.5	11/14	11/15 **Exam 5**	11/16 16.6	11/17 16.7
11/20 16.8	11/21 16.9	11/22 16.10	11/23 **Thanksgiving Break**	11/24
11/27	11/28 **Exam 6**	11/29 Review	11/30 Review	12/1 Review
12/4 **Finals** 7:30, 10:30	12/5 **Finals** 8:30, 11:30	12/6 **Finals** 9:30, 12:30	12/7	12/8