

MATH 313
Analytic Geometry and Calculus III
Fall 2017, Section 001

Instructor : David Singman

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E-mail, telephone, and my web page: dsingman@gmu.edu, (703)-993-1476. I don't check my voice-mail messages from home, so if you wish to get in touch with me it's much better to send me an e-mail as I check my e-mail seven days a week. My web page is at <http://math.gmu.edu/~dsingman/>

Office hours: TTh, 10:30am-11:45am

Text: *Advanced Engineering Mathematics, 10th edition*, by Erwin Kreyszig, Published by Wiley.

Web site: A web site has been set up for the course. You will find a link to it at the bottom of my web page (indicated above). You are responsible for checking the homepage of the site for updates each day. On it I will post material relevant to the course, such as Lecture Outlines, Class Lecture Notes, Graded Homework Problems, Practice Problems from the text, announcements concerning tests, etc.

Prerequisites: A grade of C or better in Math 213 is required.

Course: The course will cover the topics of vector calculus and complex analysis. We will begin with Chapter 9 (vector differential calculus: vectors and their products, curves, gradient, divergence, curl) and then Chapter 10 (vector integral calculus: line integrals, independence of path, exactness, volume and surface integrals, Green's Theorem, the Divergence Theorem and Stokes's theorem) as well as a few applications to potential theory. I hope to supplement this material with a description of a differential forms approach to these vector integral theorems, as described in the text "Vector Calculus, Linear Algebra, and Differential Forms-A Unified Approach", by Hubbard and Hubbard, Pub. Matrix Editions. The balance of the course will be complex analysis. We will discuss complex numbers, functions of a complex variable, complex integration, complex power series, Laurent series and the residue theory, applications of complex analysis to Potential theory (chapters 13-18 with many omissions).

Practice Problems: These are problems that I will post on the website for you to do in order to keep up with the material. I will continue to update the list as the semester progresses. The practice problems will not be for credit. The homework problems to be done for credit will also be posted on the website.

Grading: The grade will be based on graded homework (30%), two class tests (40%), and a final exam (30%). The graded homework is considered to be an essential part of the

course as students will have the time to work problems that cannot be asked on tests. As they count for such a great part of your grade, they are to be done without any collaboration with anyone else.

Academic Integrity: GMU is an Honor Code university; please see the University Catalog for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. In particular, as the graded homework assignments count so heavily in the course grade, they must be done without consultation with anyone else in the class. If you do have questions about the homework, feel free to ask them of me.

Date of Class Tests: There will be two tests given in class as follows:

- Test 1: Thursday, October 19
- Test 2: Thursday, November 16

Final exam: The final exam will be held on **Tuesday, December 19**, 1:30pm-4:15pm. Don't make plans to leave the area at a time which includes that date.

Scale: **A⁻, A, A⁺**: 90-92, 93-95, 96-100; **B⁻, B, B⁺** : 80-82, 83-85, 86-89 ; **C, C⁺** : 70 - 75, 76-79; **D** : 60 - 69; **F** : 0 - 59.