List of topics for Exam #2

Topics: The list of topics for Exam #2 includes Chapter 11 and Chapter 12, in other words every section that we covered from the beginning of the course up to section 12.8 included. However, the focus of the test will be on Chapter 12.

Chapter 11: Vectors and Vector-Valued Functions

You should quickly review Chapter 11, at least go through your lecture notes carefully. For details on what to review for this chapter, refer to the list of topics for Exam #1. You should also review your Exam #1.

Chapter 12: Functions of several variables

Review all covered sections of Chapter 12 in depth:

> **12.1** Planes, equations of planes, properties of planes. Surfaces, trace. Quadrics.

> **12.2** Functions of two variables. Domain of definition. Graph. Contour curves and level curves.

> **12.4** First order partial derivatives, second order partial derivatives, properties.

> **12.6** Directional derivatives and the gradient. Interpretation of the gradient. Gradient and level curves.

> **12.8** Maximum/Minimum problems. Local and global extrema. Critical points. Second derivative test.

Review material:

> **Lecture notes** and supporting **textbook**.

> **Homework problems:** Refer to the online course schedule for the homework assignments corresponding to the topics in the list of topics.

> **Quizzes:** Quizzes 5, 6.

Advice

- Your lecture notes from class should be your primary (if not only) source of information. You are expected to know all the material in your lecture notes, and no other (unless you are told otherwise occasionally). Review your lecture notes regularly and thoroughly.

- Remember that all past quizzes, tests and homework exercises sheets are available on the course web page. Make sure you go over all of them (or as many as you can).

- I am happy to answer your questions, as long as: 1. They are math questions, and 2. You have made a genuine effort to think about your question before contacting me.

- The best way to prepare for the exams is to work regularly, make sure you understand all the material as it is being taught, do all the homework exercises, etc. Don't wait until the last moment to prepare. Don't try to guess what will be on the test, your time is best spent preparing for every possibility.

- Do not expect the test to be solely a direct application of the material you reviewed. It will require you to be capable of original thinking.

- Calculators will not be allowed.