

UPDATED GENERAL INFORMATION — DECEMBER 3, 2008

A final file of links for Chapter 4 is posted as `weblinks4.pdf` in the course directory.

Comments regarding Examination 3

About 65 per cent of the examination will cover new material beginning with Section 3.3 and continuing through Section 4.3, and the remainder will cover topics from earlier in the course (but as usual in mathematics courses, some old material will be implicit in much of the new material). Topics from earlier sections which were not covered on the previous exams are particularly likely to appear on this one. However, there will be no questions dealing directly and exclusively with the material in Chapter 1, although the concepts may be part of problems on subsequent material.

Regarding new material, it is important to know the definition of a vector field, but the physical interpretations of constructions like the gradient, divergence and curl will not be tested. On the other hand, there will very likely be problems which involve computing these constructions for specific examples. There will be no questions dealing directly with Taylor polynomials in one variable, but there may be something about second order Taylor polynomial approximations to functions in several variables. Knowledge of the concept of a critical point, and the second derivative test for determining the basic type of a critical point for 2 or 3 variables (relative maximum, relative minimum, saddle point, degenerate critical point) will be required. There may be problems on maximizing and minimizing functions over sets like the disk $x^2 + y^2 \leq 1$ or the solid rectangular region $0 \leq x, y, \leq 1$ or the solid triangular region defined by $x, y \geq 0$ and $x + y \leq 1$. Remember that such problems have two parts, one of which is finding the critical points and the other of which is to look at the function on the boundary points. As indicated before, there will be a problem on Lagrange multipliers taken from the problems in the tenth assignment.

There will be no proof-like derivations on this exam, but a few simple derivations of equations can be expected (similar to the second exam).

No electronic computing devices will be necessary, and none will be permitted.