

Syllabus for MATH 227
Vector Analysis
Fall 2009

Course:

Lectures: Monday 10:30-11:20, JEFF 128
Wednesday 9:30-10:20, JEFF 128
Friday 8:30-9:20, JEFF 128

Lecturer: Wesley Burr

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Office Hours: By appointment Monday - Friday

Prerequisites: APSC 171, APSC 172, APSC 174.

Text: *Calculus Early Transcendentals*, James Stewart, Sixth Edition, ISBN 13 978-0-495-01166-8 . **IMPORTANT:** Be sure you get the sixth edition.

Material to be Covered: This is a second-year course in vector calculus. We expect that students have completed a full year of calculus such as would be covered in APSC 171 and 172, or in the Arts & Science equivalent courses MATH 120 or MATH 121. It is a single semester course, and intended primarily for students enrolled in the Applied Science disciplines of *Engineering Physics* and *Geological Engineering* (Geophysical Option).

We will review multiple integrals, and study the following topics.

Differentiation and integration of vectors; line, surface and volume integrals; gradient, divergence and curl; conservative fields and potential. Spherical and cylindrical coordinates, solid angle. Green's and Stokes' theorems, the divergence theorem. If time allows, a brief examination of Maxwell's Equations will terminate the course.

Homework and Quizzes: Homework will be assigned weekly, with due date of Wednesday of each week, beginning in the second week of term. Late homework will not be accepted without authorized medical documentation. There will be no quizzes.

Exams: There will be two midterm examinations and a final examination. The first of the midterm examinations will occur between the fourth and fifth week of term, and will be primarily review and *introductory* material. This midterm will be take-home, and equivalent to a long-ish (and challenging) assignment. The second midterm will be two hours in length and scheduled for the eighth week of term, in the evening.

Final Exam: To be determined; check with the registrar after October 9th, 2009 for scheduling details.

Grading:

Homework	15%
Midterm 1	15%
Midterm 2	20%
Final	50 %
Total	100%

Academic Integrity: It is the obligation of each student to understand your Faculty's and University's policies regarding academic honesty and to uphold these standards. Students are encouraged to talk about the problems, but should write up the solutions individually. Students should acknowledge the assistance of any books, software, students or professors.

To be perfectly clear, we strongly encourage all students in the course to collaborate on assigned (non-examination) work. However, you must hand in work that reflects what you have done. For instance the following are examples of violations of academic integrity rules (but not exhaustively so):

- You should not hand in work that has been copied from another student.
- You should not allow your work to be copied by another student.
- You should never have in your possession someone else's work, or copies thereof.

- You should never hand over possession of your work (or copies) to someone else.
- At no point should you possess or even look for homework solutions, whether from previous years or from the wonderful world of Google.

The marker for the course will be keeping an eye open for violations of academic integrity rules. Minimum penalties for violations of academic integrity are:

- First offence: The final homework score received for the course will be multiplied by 0.5.
- Second offence: Failing grade for the course.

More serious offences may receive more serious penalties.

We are perfectly happy to receive assignments from students who have worked together on the deliberation portion of the process. All we expect is that you each individually go apart and write up a personal solution for hand-in (and marking). Having someone explain a concept to you (or even give you a hint on a problem) is not academic dishonesty, nor will we ever penalize you for it. If you have any concerns about this policy, please come talk to the instructor as soon as possible.

Calculator: Students may use a non-graphing **Gold Sticker** calculator on any and all work in this course.