INSTRUCTOR: Professor Karl Heinz Dovermann
OFFICE: Keller Hall, Rm 405  TEL: 956-4654
E-MAIL: heiner@math.hawaii.edu
HOMEPAGE: http://www.math.hawaii.edu/~heiner/
OFFICE HOURS: MWRF 9:30–10:15. Other hours are available by appointment.

Course Description: Multiple integrals; line integrals and Green’s Theorem, surface integrals, Stokes’ and Gauss’ Theorems

Prerequisite: A grade of C or better in Math 243 or consent.


Approximate Timeline:

Multiple Integrals (7 weeks). Double and iterated integrals over rectangles (14.1), double integrals over general regions (14.2), area by double integrations (14.3), double integrals in polar form (14.4), triple integrals in rectangular coordinates (14.5), moments and centers of mass (14.6), triple integrals in cylindrical and spherical coordinates (14.7), and substitutions in multiple integrals (14.8).

Integration in Vector Fields (7 weeks). Line integrals (15.1), vector fields, work, circulation and flux (15.2), path independence, potential functions, and conservative fields (15.3), Green’s Theorem in the plane (15.4), surfaces and area (15.5), surface integrals and flux (15.6), Stokes’ Theorem (15.7), and the Divergence Theorem and a unified theory (15.8).

COURSE OBJECTIVES: Upon successful completion of Math 244 the student will have an understanding of the above listed topics, be able to solve routine problems, and be able to apply the ideas.

PROGRAM OBJECTIVES: This is the fourth and last course of our calculus sequence for STEM (Science, Technology, Engineering, Mathematics) majors. As the sequence is introductory, the approach is more computational than theoretical. Mathematics is the basic language for STEM fields. Understanding the language, the basic ideas and results, and the computational techniques of calculus is prerequisite to advanced learning in any STEM field.
EXAMS: There will be two midterms (the dates will be announced in class) and a final exam during the official final’s time. Make-up exams will be given only under excruciating circumstances such as serious illness or family emergencies. Proof may be required. If you are a student athlete, or you need to travel for academic reason, then you must make arrangements in advance to take tests at an alternate time, possibly early.

HOMEWORK: I will assign homework every lecture. It is due during the next lecture. Some problems will be graded. Homework should be cleanly written, and you may have to revise it before it is in an acceptable form. Your solutions should show the steps of your solution in a logical order and end with a proper formulation of the final answer.

GRADING: Your grade will be determined by the scores on the midterm exams (100 points each), homework (150 points throughout the semester), and the final exam (150 points).

ABSENSES: It is expected that you attend every lecture. If you are absent, then you are responsible for the material covered. Arrange to copy another student’s notes and be informed of any announcements.

ACADEMIC EXPECTATIONS: Please read the statement about the academic expectations on the Mathematics Department webpage. Go to http://www.math.hawaii.edu, pick ‘Undergraduate’ and click on Academic Expectations.

CALCULATORS: Use of calculators will not be permitted on exams.

ACADEMIC HONESTY: No student shall claim or submit the work of another as one’s own. No dishonesty will be tolerated.

IMPORTANT DATES: It is your responsibility to know about the important dates, such as deadlines to drop or withdraw from a course, holidays, final exam, etc.

---

1If you have to miss class, then you may hand in homework early. No late homework will be accepted.