Math 405 Sections 1 & 2 - Fall 2009  
Advanced Calculus for Engineers and Scientists I  

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Web page: www.math.psu.edu/mazzucat/math405/ (course web page)  
Office hours: Wednesday 6 - 7:30 PM  
Thursday 5:05 - 6:35 PM

Section 1 meets M W F 1:25 - 2:15 PM in 107 Business (Sched # 269659).  
Section 2 meets M W F 12:20 - 1:10 PM in 216 Thomas (Sched # 269662).

COURSE DESCRIPTION: Vector calculus, linear algebra, ordinary and partial differential equations.

PREREQUISITES: You MUST have completed Math 231, Math 250 or 251 to register. Students who have passed MATH 411 or 412 may not take this course for credit.


TOPICS. The aim of the course is to introduce you to the mathematics of Physics and Engineering, especially how to study and solve differential equations, which model physical systems varying in space (partial differential equations) and/or time (ordinary differential equations). Vector calculus will be a primary tool to study these equations. We will cover selected topics from Chapters 4, 5, 7 - 12 of the textbook. We will begin with a review of linear ordinary differential equations. A more detailed overview of the lectures will be available on line.

COMMENTS: The course is challenging and you MUST devote to it adequate time and attention, by coming to class regularly, keeping up with reading and homework assignments, taking advantage of office hours. I expect every student to come to each class period. If you cannot come to class, you are responsible for the material covered in class and any course assignment. If you fall behind, DO NOT WAIT. Come to office hours immediately. Consistency in course work will pay off. I expect that you read the textbook carefully after each class periods. In fact, it is best to read the book before coming to class. I welcome questions both during and outside class. ALL questions are very useful to both the instructor and the students. I also welcome general feedback about the course. An anonymous feedback form is available on the course web page. You are responsible for reading and understanding this syllabus. Changes to the syllabus will be announced in class and/or posted on ANGEL and the course web page. There will occasionally be changes in office hours due to travel, announced in class.
ASSIGNMENTS: There will be weekly homework, consisting of problems usually taken from the textbook. I will assign the homework throughout the week and collect it the following FRIDAY. The homework is due IN PERSON, IN CLASS. Your two lowest homework scores will be dropped. NO LATE HOMEWORK will be accepted. There will be two in-class midterms, and a comprehensive final exam. I will administer make-up exams ONLY for valid excuses, such as documented illness or University-sponsored activities. There will be no make-up exams unless the exam is arranged IN ADVANCE with the instructor. Assignments, solutions and any additional course material will be posted on ANGEL.

The midterm exams are tentatively set for Friday September 25 and Friday October 30.

GRADING: The grade for the course is based on a total of 450 points, as follows:

- Midterms: 100 points each
- Final Exam: 150 pts
- Homework: 100 pts.

Your grade will be based EXCLUSIVELY on the midterm examinations, homework, and final examination. There is no extra-credit work.

Final grades will be assigned on a 10-point scale (for example, %90 =A, %80=B)

POLICIES: Collaborations on homework problems is allowed and encouraged, but you must turn in INDIVIDUALLY written solutions. Solutions to homework that are nearly identical will receive no credit. NO collaboration, as well as personal notes or the textbook are allowed during quizzes and exams. It will NOT BE TOLERATED that students arrive late, leave class early, or disrupt class in any way. I will make all efforts to start and finish class on time. Please, discuss any logistic problem with me. Cell Phones must be TURNED OFF at all times.

Academic Integrity: "Academic dishonesty includes, but is no limited to, cheating, plagiarizing, ... facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with academic work of other students. ... A student charged with academic dishonesty will be given oral or written notice of the charge by the instructor. If students believe that they have been falsely accused, they should seek redress through informal discussions with the instructor, the department head, dean or campus executive officer. If the instructor believes that the infraction is sufficiently serious to warrant the referral of the case to Judicial Affairs, or if the instructor will award a final grade of F in the course because of the infraction, the student and instructor will be afforded formal due process procedures.” From Policies and Rules, Student Guide to the University Policy 49-20. Based on the University’s Faculty Senate Policy 49-20, a range of academic sanctions may be taken against a student who engages in academic dishonesty.