

Spring 2012 - Math 437
Differential Forms and Their Applications

Lectures: TuTh..... 2:00pm- 3:15pm (MTH 0411)

Instructor: Prof. A. Mellet
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Office hours: TBA

Course web page: <http://www.math.umd.edu/~mellet/math437>

Textbook: *Differential Forms and Applications* by M. do Carmo (Springer).

Other references:

Calculus on Manifold by M. Spivak (Addison-Wesley)

Differential Geometry of Curves and Surfaces by M. do Carmo (Prentice-Hall)

Course description: This course is an introduction to differential forms and their applications. The exterior differential calculus of Elie Cartan is one of the most successful and illuminating techniques for calculations. The fundamental theorems of multivariable calculus are united in a general Stokes theorem which holds for smooth manifolds in any number of dimensions. This course develops this theory and technique to perform calculations in analysis and geometry.

Prerequisite: MATH241; and either MATH240 or MATH461.

Recommended: One of the following - MATH403, MATH405, MATH410, MATH432, MATH436.

Grading Scheme: Your final grade will be computed as follows (assuming that there will be a grader assigned to this course):

Homework	10%
Midterms	50% (25% each)
Final	40%

Exams: There will be two midterm exams and one final exam. The midterm exams will be held during the lecture sessions on the following dates:

Midterm 1: February 28th

Midterm 2: April 10th

The Final exam will take place on Wednesday, May 16, 10:30am-12:30pm

Exam Policy: There will be **no make-up exams** except in the following exceptional circumstances: (a) Absence due to religious observance (when the nature of the observance prevents the student from being present during the exam - if that is the case, the student should notify the instructor during the first week of class). (b) Participation in university activities at the request of university authorities. (c) Illness of the student (in which case the student should notify the instructor within 48 hours of the exam). It is the university policy that the student must provide documentation of illness indicating the dates the student was unable to meet academic responsibilities and **signed by a health care professional**.

Appeal: You may appeal the score you received on a midterm by submitting your exam together with a note stating which problems you wish to have regraded. I reserve the right to regrade other problems as well (since each problem will be very carefully reexamined, it is possible that you could actually end up losing points in the reevaluation process). For all midterms, an appeal must be made within two weeks of the day the midterm took place. No appeal will be considered after that deadline.

Homework: Homework assignments will be assigned regularly during the lectures. Once assigned, each homework must be turned in by the date specified. **LATE HOMEWORK WILL NOT BE ACCEPTED.** However, the lowest homework grade will be dropped.

You may consult other students regarding your homework, but the final write-up should be done on your own (in other words, no copying). Copying solutions from each other violates University of Maryland, College Park's Code of Academic Integrity and is strictly prohibited.

Email: When writing an email, you must include your course number and name in the message. Also, I may not have time to respond to some simple email questions whose answers can be found by other means (such as going to class or looking at the course web page). If you miss a class, you should get the notes from another student in the class. Of course, if you are missing class for an extended time (such as illness or other serious problem), you should contact me as soon as possible.

Academic Integrity: You are expected to read carefully and adhere to the following instruction provided by the Student Honor Council:

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <http://www.shc.umd.edu>. To further exhibit your commitment to academic integrity, remember to sign the Honor Pledge on all examinations: *I pledge on my honor that I have not given or received any unauthorized assistance on this examination (assignment).*

You will not be asked to sign such a pledge on homework assignments, but you are nevertheless expected to adhere to the principles of the pledge. The rationale for the pledge is available online at <http://www.umd.edu/honorpledge>.

All cases of academic dishonesty will be referred to the Dean of Students Office.

Students with disabilities: The University of Maryland provides upon request appropriate academic accommodations for qualified students with disabilities. Please see me immediately if you require such accommodations (do not wait until the day before the first exam).