

Math 5334: Differential Geometry; Spring 2013

Instructor: Dr. Gornet

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Office Hours: MWF 9a-10a, 3p-4p or by e-appointment (Subject to Change)

Instructor Website: <http://www.uta.edu/faculty/rgornet/>

Section Information: MATH 5334-001, Differential Geometry

Time and Place of Class Meetings: MWF, 2p-2:50p, Room PKH 302

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Students are expected to check their official e-mail account on a frequent and consistent basis to stay current with University communications. The university recommends checking e-mail daily in recognition that certain communications may be time-critical. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Course Content and Prerequisite: Differentiable manifolds, tangent bundle, cotangent bundle, Riemannian metric and curvature.

Required Textbook: *Introduction to Smooth Manifolds, 2nd edition* by John M. Lee (Springer)

Description of major assignments and expectations: There will be weekly quizzes (definitions, statements of theorems) worth half of your grade, and near-daily homework assignments worth half of your grade. The quizzes will be brief and minimalist in nature, and are designed to keep lectures relevant rather than to punish the student. Topics for quizzes are announced in advance and there will be no curving of individual quiz grades. Giving and receiving aid on a quiz is considered academic misconduct. There will not be a final exam, but save the final exam period.

Showing of work: Work must be shown on homework to receive credit. Quality of presentation is absolute. If I find a proof confusing or major steps missing, I will return your work for a rewrite. Cooperative work on developing solutions is allowed. Cooperative work on writing solutions is *absolutely not*.

Citing References: Your first resource should be the other students and your instructor. Seeking homework solutions from other textbooks and/or electronic resources is *strongly and emphatically* frowned upon without citation. If other resources are used, they *must* be cited.

Attendance: **Attendance is required.** You are responsible for any and all announcements made in class. You are responsible for any material missed during class.

Grading: The Grading Scale is 90-100 A ; 80-89 B ; 70-79 C ; 60-69 D ; 0-59 F. Quizzes: 50%; Homework 50%.

Expectations for Out-of-Class Study: Between lectures, you are expected to review your notes, go through the appropriate section(s) in the book, understand all relevant examples in the book, and attempt all homework problems assigned. Beyond the time required to attend each class meeting, students enrolled in this course who intend to earn a grade of 'B' or higher should expect to spend at least an additional 12 focused hours each week of their own time in course related activities, including reading required materials, completing assignments, and preparing for quizzes.

Exam and Quiz Make-up Policy: If you have a legitimate (funeral, severe illness, etc) conflict with a quiz, contact Dr. Gornet in advance and be prepared to provide documentation. Whether a make-up quiz will be provided will be decided on an individual basis.

Calculator Policy: You will not need a calculator, ever, in this class. Mathematica might be of interest, but will not be permitted without documentation.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising. Drops can continue through a point two-thirds of the way through the term or session. The last day this semester to drop a course is **Friday, 29 March 2013 at 5pm**. Any student who drops the course on or before this date will receive a W. **Students must consult with their major advisor to drop a course.** It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not automatically be dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/ses/fao>).

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the Americans with Disabilities Act (ADA). All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an

accommodation for this course must provide the instructor **in a timely manner** with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. This **must be done by the Census Date, 30 January 2013**. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817)272-3364.

Academic Integrity: All students enrolled in this course are expected to adhere to the UT Arlington Honor Code: *I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence. I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

At UT Arlington, academic dishonesty is completely unacceptable and will not be tolerated in any form, including (but not limited to) "cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts" (UT System Regents Rule 50101, §2.2). Suspected violations of academic integrity standards will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the students suspension or expulsion from the University.

Student Disruption: The University reserves the right to impose disciplinary action for an infraction of University policies. For example, engagement in conduct, alone or with others, intended to obstruct, disrupt, or interfere with, or which in fact obstructs, disrupts, or interferes with, any function or activity sponsored, authorized by or participated in by the University.

Cell Phone/Laptop Use: Cell phones are not allowed during class time; the only exception is those who are the primary contact for a child in daycare/school. If this is the case, notify Dr. Gornet by email by the census date. If you need to check your messages, you must do so on your own time, not class time. Using a laptop during class is a privilege, not a right. This privilege will be revoked for any students using the laptop for purposes other than Differential Geometry.

Grade Exclusion and Grade Replacement Policies: These policies are described in detail in the University catalog.

Drop for Non-Payment of Tuition: If you are dropped from this class for non-payment of tuition, you may secure an Enrollment Loan through the Bursar's Office.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete a Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems, or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are NOT required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Course Schedule: We will cover four chapters from the text, as yet to be determined.

"As instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. -Ruth Gornet"

Important Dates (2013):

- Mon, 21 Jan: MLK Holiday (no classes)
- Wed, 30 Jan: Deadline for all Disability Accommodation Requests
- Wed, 30 Jan: Census date
- 11-15 March: Spring Break
- Fri, 29 March, 5pm: Official last day to drop courses
- Fri, 3 May: Last day of classes
- Sat, 4 May, 12:30pm-3:00pm, FINAL EXAM