The University of Iowa
The College of Liberal Arts and Sciences
Spring 2024

Title of Course: Introduction to Smooth Manifolds; MATH 5410
https://myui.uiowa.edu/my-ui/courses/details.page?ci=152999&id=1015570

Course meeting time and place: 10:30A - 11:20P MWF 113 MLH

Department of Mathematics: https://math.uiowa.edu

Course ICON site: To access the course site, log into Iowa Courses Online (ICON) https://icon.uiowa.edu/index.shtml using your Hawk ID and password.

Course Home

For Graduate Courses: The College of Liberal Arts and Sciences (CLAS) is the home of this course, and CLAS governs the policies and procedures for its courses. Graduate students, however, must adhere to the academic deadlines set by the Graduate College.

Instructor: Mohammad F. Tehrani
Office location: B1E MLH

Student drop-in hours: M/W 12:30PM - 1:30 PM and Th 1:00-2:00 PM

You would be able to find me in my office at other times as well; stop by or email.

E-mail: mohammad-tehrani@uiowa.edu
DEO: Professor Ryan D. Kinser, 14A MLH (ryan-kinser@uiowa.edu)

Description of Course
The Course will cover elementary topics in the theory of manifolds and vector bundles.

Learning Objectives
The course aims to foster a comprehensive understanding of manifolds by exploring diverse perspectives and mastering the transition from global calculations to localized calculus on charts. Students are expected to acquire knowledge of pivotal examples of manifolds and vector bundles, delve into tensors, inverse and implicit function theorems, submersions, immersions, multilinear algebra, differential forms, and Stokes' theorem. By the end of the

course, participants will feel adept at navigating the intricacies of these mathematical concepts, laying a strong foundation for advanced studies in geometry and mathematical physics.

Textbook/Materials
The suggested textbook(s) for this course are:

- Title: An Introductory Course on Differentiable Manifolds
- ISBN-13: 978-0486807065
- Author: S. Shahshahani
- Publisher: Dover Publications

We plan to cover the entire book (with variable pace)

Grading System and the Use of +/-
I will use the plus/minus for grades. Cutoffs for letter grades, based on the overall sum of the individual grades (HW, Mid , Final) explained below, are tentatively as follows

A range	90+
B range	75-89
C range	60-74
D	50-59
F	0-49

You should not view this as a fixed predetermined grade scale, but rather as a guaranteed *minimum scale* (e.g. the cutoff line for A- may end up being 86 instead of 90 but it will not be increased).

Course Grades
Final course grades will be assessed based on your performance in the following activities:

(i) Homework 20% (weekly, feedback will be provided),
(ii) One midterm 30% (time/date will be put to vote)
(iii) Final 50%

Academic Honesty and Misconduct
All students in CLAS courses are expected to abide by the CLAS Code of Academic Honesty. Undergraduate academic misconduct must be reported by instructors to CLAS according to these procedures. Graduate academic misconduct must be reported to the Graduate College according to Section F of the Graduate College Manual.

You are encouraged to collaborate with other classmates on homework assignments but you are required to present your own conclusions/writing.

Student Complaints
Students with a complaint about a grade or a related matter should first discuss the situation with the instructor and/or the course supervisor (if applicable), and finally with the Director or Chair of the school, department, or program offering the course.

Undergraduate students should contact CLAS Undergraduate Programs for support when the matter is not resolved at the previous level. Graduate students should contact the CLAS Associate Dean for Graduate Education and Outreach and Engagement when additional support is needed.

Drop Deadline for this Course
You may drop an individual course before the deadline; after this deadline you will need collegiate approval. You can look up the drop deadline for this course here. When you drop a course, a "W" will appear on your transcript. The mark of "W" is a neutral mark that does not affect your GPA. Directions for adding or dropping a course and other registration changes can be found on the Registrar's website. Undergraduate students can find policies on dropping and withdrawing here. Graduate students should adhere to the academic deadlines and policies set by the Graduate College.

Calendar of Course Assignments and Exams
Homework assignments will be uploaded to ICON as a PDF file.

College of Liberal Arts and Sciences (CLAS) Course Policies
Attendance and Absences
You are required to attend the class regularly.

Exam Policies

Communication: UI Email
Students are responsible for all official correspondences sent to their UI email address (uiowa.edu) and must use this address for any communication with instructors or staff in the UI community.

Where to Get Help
You are encouraged to talk to me, DGS, or your mentor if you need help with anything.

University Policies
Accommodations for Students with Disabilities
Basic Needs and Support for Students
Classroom Expectations

Exam Make-up Owing to Absence
Free Speech and Expression
Mental Health
Military Service Obligations
Non-discrimination
Religious Holy Days
Sexual Harassment/Misconduct and Supportive Measures
Sharing of Class Recordings