MATH 120A: DIFFERENTIAL GEOMETRY

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Lecture Time: MWF 11:00–11:50 in Geology 4645
TA Section Time: Th 11:00-11:50 in Geology 4645
Course Page on CCLE: https://ccle.ucla.edu/course/view/18W-MATH120A-1. You can find homework assignments, discussion forums, course announcements, instructor and TA information, and this syllabus on CCLE.


Supplementary Resource: Peter Petersen’s notes, can be found at https://www.math.ucla.edu/~petersen/DGnotes.pdf

Prerequisites: Math 32B, 33B, 115A, and 131A, or instructor approval if you’re missing one or more of these

Course Description:

This course is an introduction to the classical differential geometry of curves and surfaces. The main goal is to see how concepts from multivariable calculus and linear algebra fit together in the study of geometry. The main topics of study will be curves in \( \mathbb{R}^2 \), curves in \( \mathbb{R}^3 \), and surfaces in \( \mathbb{R}^3 \). I tentatively plan to cover Chapters 1-7 of Pressley’s book, although we will probably skip some sections.

Hopefully this should be an enjoyable course—I want to make sure you don’t get lost. Please speak up if you find something confusing. Feel free to ask questions at any point in lecture,
or email me if you’d rather ask privately. I also highly recommend using the discussion forums which can be found on CCLE; the link to the course page is above.

**Grading:** Your grade will be based on one of two grading schemes:

- 15% on homework, 20% on each midterm, and 45% on the final; or
- 15% homework, 30% on your best midterm exam, and 55% on the final (lowest midterm dropped).

I will use whichever scheme computes the higher score. If you miss a midterm, the second grading scheme will most likely prevent you from having an exam score of zero factored into your grade. Under either scheme, the lowest two HW scores will be dropped.

**Reading Assignments:** Besides the problem sets, your homework will include reading assignments from the textbook. These assignments are very important. Just as in the humanities, you should do the reading before coming to class. This will help you follow the lectures and give you the opportunity to ask questions at points that were confusing in the book.

**Problem Sets:** Late homework will not be accepted. However, the lowest two homework scores will be dropped from your grade. Homework is assigned weekly and due on Fridays in lecture. The first homework assignment is due on Friday, Jan 12. Some problems may ask you to write proofs; in general, be sure to focus on the logical structure, grammar, and clarity of your solutions as well as their correctness.

**Exams:** There are two midterm exams on Monday, Jan. 29 and Monday, Feb. 26 in class. The final exam is on Thursday, March 22, from 3:00 PM to 6:00 PM. The location will be announced in the ninth week of the term, on MyUCLA and the Schedule of Classes.

**Make-up Exam Policy:** There are no make-up exams for the midterms or the final. You must take the final exam to pass the course.

**Regrade Requests:** If you think a problem on a homework assignment or exam has been graded incorrectly, or that your score was not correctly recorded, you may submit a regrade request. You must do this within two weeks of the due date of the homework assignment or the date of the exam. Regrade requests after this time period will not be considered. *Warning:* it is possible for your score to go down after a regrade request; this only happens if we made a grading mistake and awarded more points than we should have.

**Technology:** Laptops and tablets are allowed in class, but only for the purpose of class-related activities (e.g. taking notes; no Facebook, etc.).

**Academic integrity:** Please review the student conduct guidelines concerning academic integrity at [http://www.deanofstudents.ucla.edu/Student-Conduct](http://www.deanofstudents.ucla.edu/Student-Conduct). On homework, you may consult with friends in general terms, but copying proofs or solutions to specific problems from other students or the Internet is not allowed. Everything you turn in must be your own work. For exams, no outside resources are allowed (notes, calculators, etc.). If you have a smartphone, you must leave it with the proctors before taking a bathroom break during an exam. Please bring your UCLA ID to the final exam.