

MATH 4540 Spring 2023

Lecture: TR 9:40-10:55 MLT 207

Instructor: Tim Healey, tjh10

Office hours: TR 11:40 - 12:30, 523 MLT

Teaching Assistant: Mauro Camargo, mcc326

Office hours: T 16:00 - 18:00, 218 MLT

Text: *Elementary Differential Geometry*, 2nd Ed. (EDG). Pressley, Springer 2010 (corrected printing 2012).

Course Overview: This course offers a systematic study of curves and surfaces in 3-dimensional Euclidean space (for the most part). Differential geometry is of basic importance for all mathematicians, regardless of specialization. It also furnishes essential ideas and tools needed in physics and engineering. Last but not least, it is a beautiful subject.

Prerequisites: Math 2210 & Math 2220 or equivalent.

Course Topics: Most of Chpts.1-10 of EDG – perhaps a bit more, depending on time.

Homework: Assigned regularly – always due by 9pm 7 days later via Gradescope. Some of the problems will be taken from EDG. Since solutions to all problem are provided there, *they are not to be submitted*. Of course, you will be responsible for the material gleaned from them. The rest of the assigned problems (outside the text) are to be turned in, some of which will be graded carefully with the others possibly spot checked. Solutions for the outside problems will be posted. *No late homework will be accepted, but your lowest HW grade will be dropped*. Honest collaboration on HW is fine. But all HW solutions should be written up individually, viz., identical HW solutions from two or more students are *not acceptable and will not receive credit - for all those involved*.

Exams/Grading: There will be an in-class midterm (date TBD) and a comprehensive final exam (date TBD). The grading for the course will be determined as follows: HW = 20%, midterm = 35%, final exam = 45%

Academic Integrity: Each student is expected to abide by the [Cornell University Code for academic integrity](#). In particular, students should not seek solutions to HW online, and the use of AI is not allowed in this course.