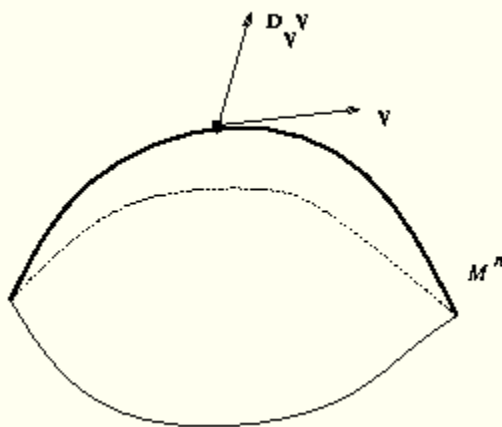


# Syllabus and course information

## Curves and Surfaces in $\mathbb{R}^3$ : An Introduction to Differential Geometry

MAT 4930, Section 3F84 (17710), Spring 2019

MWF 7th period, LIT 217



[Link to class home page](#)

**Syllabus (course content):** For geometric objects in  $\mathbb{R}^3$  it's "intuitively obvious" what words like *curved*, *straight*, and *flat* mean. But as soon as you try to nail down these notions, you find some obvious questions, such as the ones [here \(course announcement\)](#), that you (probably) don't know how to answer. This course will be an introduction to these questions and their answers. Topics will include the Frenet formulas; covariant derivatives; principal curvatures; Gaussian curvature and mean curvature; geodesics; holonomy around a closed curve; and (time permitting) the Gauss-Bonnet Theorem.

**Prerequisites:** MAC 2313, MAC 3474, or the equivalent (Calculus 3), and MAS 4105 (Linear Algebra). These must be completed successfully *before* taking this course. **Note:** MAS 3114 (Computational Linear Algebra) does not meet the linear-algebra prerequisite.

**Text:** Barrett O'Neill, *Elementary Differential Geometry*, revised 2nd edition (2006).

**Warning:** The *revised* 2nd edition, which is the book we'll be using, is not the same as the original 2nd edition (1997).

**Instructor :** [Dr. David Groisser](#)

I receive a ton of email, so please be aware that:

- I won't answer math questions by email.
- Please include your full name and an *informative* subject line in all email correspondence with me.
- In general I answer students' emails **only on days that I normally have office hours, and only at certain times**. On office-hour days, I will generally respond to emails that arrive before the halfway mark of my office hour (or that arrived earlier, some time after my previous office-hour). For these emails, I will generally respond *during* my office hour if I have time left after I'm done seeing students, or *after* my office hour otherwise. *Exception*: I generally do not wait till the next office hour to respond to emails inquiring about (possible) typos in a homework assignment, or informing me of some problem with one of my course webpages.
- I never provide any grade information by email.

**Office Hours:** Tentatively Tuesday 6th period (12:50–1:40), Wednesday 8th period (3:00–3:50), and Friday 8th period (3:00–3:50). My office is Little Hall 308. Please come early in the period or let me know to expect you later; otherwise I may not stay in my office for the whole period. See [my schedule](#) for updates. Students who can't make scheduled office hours may see me by appointment on most weekdays (but *never on a Thursday*). **If you have the flu or similar contagious disease, or think you might, please do not come to my office.**

### Components of your course grade:

- Homework
- One mid-term exam. The format (in-class, extended sit-down, or take-home) is TBD. My *rough estimate* for the date of the midterm is Wednesday, Feb. 27. *This date is subject to change*, but I will give you at least a week's notice before the exam.
- Final exam. The format (two-hour exam at the time set by the registrar– Wednesday, April 30, starting at 10:00 a.m.– or take-home) is TBD.

For the weights of these grade-components, see "[Grading system](#)" below.

**Homework:** will assigned almost daily, and selected problems will be collected periodically for grading (probably at intervals of 2–3 weeks). It is critical that you keep up with the homework, which will be posted on the [homework page](#), even if I fall behind on the grading. Some of my lectures will assume that you have already done the previously assigned homework.

**Grading system:** The system I will use in this class is as follows:

1. After each homework or exam, I decide a grade-scale for that item according to the philosophy A = excellent, B = good, C = satisfactory, D = unsatisfactory but passing". In setting these scales, I don't have a predetermined grade curve or predetermined percentages for letter grades.
2. At the end of the semester, I compute a numerical raw score" for each student according to the following two weighting-schemes:

- 30% homework, 30% midterm, 40% final exam.
  - 50% homework, 20% midterm, 30% final exam.
3. By applying the weighting-schemes above to the cutoffs for exams and homework, I construct two different sets of raw-score grade-cutoffs. The homework assignments do not all count equally; longer assignments count more than shorter assignments.
  4. Using these data, I obtain two letter grades for each student. The final grade I assign is the higher of the two.

**Attendance policy.** Students are expected to attend every lecture, barring such things as illness, weddings, funerals, family emergencies, team activities, and religious holidays of which I am informed in advance. Students who *choose* (for other reasons) not to attend class regularly should not expect the same consideration in office hours that students with good attendance will receive. Also be aware that the [University of Florida Attendance Policies](#) contain the following paragraph:

*The university recognizes the right of the individual professor to make attendance mandatory. After due warning, professors may prohibit further attendance and subsequently assign a failing grade for excessive absences.*

Students with a lot of unexcused absences may find themselves dropped from the class with a failing grade.

I expect students to arrive *on time* and to pay attention for all 50 minutes of the period. Coming late to class is disruptive to both your instructor and your classmates. If a non-optional time commitment (e.g. a class the previous period in a distant location) will force you to be late on a regular basis, let me know at the start of the semester.

**Students with a contagious illness are asked to exercise good judgment and to be considerate of their classmates and instructor when deciding whether to come to class. Coughing and sneezing in an enclosed space like a classroom or office is a wonderful way to spread germs.**

#### **Classroom decorum:**

- Cell-phone ringers, audible text-message alerts, etc., should be turned off while you are in class. Please also avoid other disruptive or distracting noises, such as the tapping of pencils or feet, or the zipping and unzipping of backpacks several minutes before the end of class.
- Do not use your personal computer in class without express prior permission from me. Ditto for your cellphone, except to receive emergency alerts from UF. In particular, **do not read or write text-messages in class.**
- Do not read, do the crossword puzzle, etc., while you are in class. If you're too bored to pay attention, do homework.

**Students with a contagious illness are asked to exercise good judgment and to be**

considerate of their classmates and instructor when deciding whether to come to class. Coughing and sneezing in an enclosed space like a classroom or office is a wonderful way to spread germs.

## Additional Information

**What if you miss an exam?** If you miss an exam for a valid reason, and supply me with satisfactory documentation by your next day back in class, I will work out with you some way that is as fair as is feasible for you to make up the missing grade-component. Except in very large classes (which I don't teach) with cookie-cutter exams (which I don't give), there is no such thing as a fair make-up exam. Thus, the way I have you make up the missing grade-component may or may not be via an exam. If you miss an exam for a reason that I do not consider valid (consistent with UF policy on which absences should be excused), or do not supply me with satisfactory documentation by your next day back in class, you should expect to receive a zero for that exam. If extenuating circumstances cause a reasonable delay in your providing me with satisfactory documentation, I may treat your exam-absence as valid and documented. (However, I will be the sole judge of what is "satisfactory", "extenuating", and "reasonable".)

If you are too ill to take an exam, please notify me by phone or email before the exam starts (if possible), even if it's just a few minutes before.

**Student Honor Code.** UF students are bound by The Honor Pledge, which states:

We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

The Student Honor Code (which can be found [here](#)) specifies a number of behaviors that are in violation of this code, and the possible sanctions. Furthermore, students are obligated to report to appropriate personnel any condition that facilitates academic misconduct. If you have any questions or concerns about student conduct, please consult your instructor.

**Religious Holidays.** The following is part of the [University of Florida Policy on Religious Holidays](#). "Students, **upon prior notification of their instructors**, shall be excused from class or other scheduled academic activity to observe a religious holy day of their faith."

**Tentative, approximate weekly schedule of lectures:** Click [here](#). You are expected to read the relevant material in the appropriate chapter-section of the textbook no later than the day after we cover that material in class. Preferably, do the reading earlier than that.

**Accommodations for students with disabilities.** Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

**Teaching-evaluations.** Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

**U Matter, We Care initiative:** Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 911.

**Contact information for the Counseling and Wellness Center:**

<http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575. For emergencies, call the University Police Department (392-1111) or 911.

**Goals of course:** For the student to master the course-content.