

Math 241H - Calculus III, Honors: Syllabus
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
Fall 2020

Instructor:	Aron Heleodoro
Office:	Altgeld 165
e-mail:	aronah@illinois.edu
Lecture:	MWF 12:00-12:50 pm
Discussion sections:	TR 11:00-3:00 pm
Teaching Assistants:	Dara Zirlin (HD1/2) & Ravi Donepudi (HD3/4)
Office Hours:	TBD

Learning Goals:

- develop core skills in the use of multi-variable Calculus;
- obtain some understanding of the mathematical theory behind these skills;
- explore different applications of multi-variable Calculus, both as a way of solidifying computational skills and as a way to better understand the underlying theoretical background.

Objectives: The main goal of this course is to master the main concepts and develop computational skills pertaining to multi-variable Calculus. While the bulk of the material will be similar to that of Calculus III, as an Honors class, we will get a chance to delve deeper into some of the concepts covered, as well as explore additional topics not studied in the textbook. This approach will hopefully help you get a more solid understanding of the material, both in terms of theoretical concepts and the practical implications.

The course will be split into five parts (Modules):

- 1) multi-variable functions and their limits and derivatives;
- 2) applications of multi-variable derivatives and line integrals;
- 3) double and triple integrals;
- 4) Green's, divergence and Stoke's theorem;
- 5) differential forms and generalized Stokes theorem.

Structure:

This is an online class. The class schedule and all material will be conveyed via [Moodle](#). The class will have new material every Monday, Wednesday and Friday which will be made available at least 2 days before. The material will consist of a mix of reading assignments, videos, discussion posts, and homework assignments. In addition there will be two discussion sections a week, with smaller classes where the students will have a chance to work with peers and talk with the Teaching Assistants about the material.

Textbook: *Calculus: Early Transcendentals - Eighth Edition*, James Stewart

The textbook can be obtained [here](#), note we will be using WebAssign for some assessments, so students should acquire a copy of the textbook to have access to those assignments.

Communication:

- *Math questions:* outside of office hours and discussion sections, if you have questions about course material or the assignments, please use [Piazza](#) (the access code can be found in the Moodle page).
- *WebAssign:* for questions concerning WebAssign access or technical issues, the students should first consult the webpages of [WebAssign](#) and [Calculus textbook page](#).
- *Grades:* all questions and concerns regarding grades should be directed towards the TA for your registered section. They will contact the instructor if necessary.
- *Accommodations and logistics:* for any questions about the syllabus or class logistics, as well as requests for accommodations, you should e-mail the instructor directly.

Assessments:

- **WebAssign. (15 %)** *Weekly online homework.* The assignments will be available weekly at , and closely follow the material covered.
 - **Quizzes. (5 %)** *Weekly questions about the class.* These will be available through Moodle and will work as “checkpoints”, to make sure that you are keeping up with watching the videos and reading the course material.
 - **Worksheets. (20 %)** *Each module will have 3 problem sets.* Usually a problem set will cover one week’s worth of material. All three problem sets must be submitted by the end of each module, but the students can (and are encouraged to) submit one set at the end of every week to get feedback the following week. Turning in the worksheets on a weekly basis will also give you an opportunity to correct problems you didn’t get quite right, turn them in with the next week’s set and improve your grade. More details about the process will be given during the course.
 - **Honors homework. (15 %)** *Once per module, can be completed in groups of up to 3 people.* Every module the students will have a longer homework that discusses the extra Honors material covered in the class. These should be submitted in a clearly written form at the end of each module.
 - **Midterms. (25 = 5 * 5 %)** *There will be five midterms, one for each module.* They will be available online through Moodle. You will have a 24-hour window to start the test, and once you are logged in you will have one-hour to solve and submit your work.
- Mark your calendars for the following dates: **Sep. 14, Oct. 5, Oct. 26, Nov. 16 and Dec. 7.**
- **Final. (20 %)** *This is a two-hour exam, which covers the material of the whole course.* Mark your calendar: **Dec. 17.**

No make-up exams. Rubrics for the specific assignments will be presented later.

Participation:

As this is an online course, and we are trying to make it through a worldwide pandemic, we might struggle to bridge the physical distance between us all. Nevertheless, let us attempt to build personal connections and try to create a sense of community in our course. Here are the ways we will do this:

1) *Weekly live Zoom check-ins with the TA from your assigned discussion section.* During these sessions you are encouraged to work on the weekly problem sets and ask any questions regarding the course material. Each student is required to attend at least one of the two discussion sections with their TA each week. Unsatisfactory attendance will lower your course grade, so please make sure you attend at least one session per week. If you are not able to attend due to emergency, health or tech reasons, please let your TA know as soon as possible.

2) *Instructor office hours.* At least once during the semester you need to attend an office hour with the instructor (Aron Heleodoro). The first time you "come", please let me know your name so I can note that you have satisfied this requirement. If at some point during the semester a good portion of students have not yet stopped by to say hi, I will schedule time slots that you can sign up for. Failure to do so will lower your course grade, so please make sure you attend at least one.

Class Policy:

- Zoom etiquette is important when you attend discussion sections, meetings and office hours. Please be respectful of everyone present. Muting your audio when not talking can be a good way to minimize noise, when a lot of people are in the meeting. We understand that you might have privacy concerns regarding video on Zoom, so we encourage you to explore Zoom backgrounds and/or profile pictures for your account. This helps your instructor, TAs and fellow classmates a bit, as it can be very hard conversing with empty squares on a screen.
- You are expected to turn in all the assignments. Late submission will affect the grade, unless it is justified.
- If you require accommodations, please don't hesitate and reach out as soon as possible, so we can make sure the course works for everyone from day one! For more information see the University Policy below.
- Communication is key. The world has been feeling overwhelming and scary lately, and we understand it. If you are struggling, please communicate with your TA and instructor. We want you to succeed, but we can do that only if you let us know. We are a team, so please don't be afraid to reach out!

University Policy:

- This class is subject to all the rules specified in the university policy and in particular to the Mathematics department policies. You can find the relevant information in the following link:
<https://math.illinois.edu/resources/department-resources/teaching-policies>.
- Students that need special accommodations need to have a letter from the Disabilities Resources and Educational Services. For more information see the website:
<http://www.disability.illinois.edu>.
- Students are required to abide by the University of Illinois's academic integrity policy, which can be found at:
<http://studentcode.illinois.edu/>.
Suspected violations of academic integrity will be reported to the Dean's Office and will likely result in a failing grade in the class and a note in your academic record.
- As any other university obligation this class does not take precedent over the students well-being and health. The university has great resources for anyone in need, more information can be found on:
<http://odos.illinois.edu/community-of-care/>.