

Math 2210-060, Calculus III

Spring 2021. MWF 9:40-10:30. IVC

Instructor: Hannah Hoganson (she/her/hers)

Email: hoganson@math.utah.edu

Office Hours: Tuesday 9:30-10:30 and TBD. Other times by appointment. (Held via Zoom)

Office: JWB 307

Text: Calculus, with Differential Equations, by Varberg, Purcell and Rigdon, 9th edition. (Any 9th edition book is fine.) ISBN-10: 0132306336 ISBN-13: 9780132306331

For ordering information visit: <http://www.math.utah.edu/schedule/bookInfo/>

Course Information and Description: Math 2210 Calculus III is a 3 credit course. Vectors in the plane and in 3-space, differential calculus in several variables, integration and its applications in several variables, vector fields and line, surface, and volume integrals. Green's and Stokes' theorems.

Prerequisites: "C" or better in (MATH 1220 or MATH 1250 or MATH 1320) or AP Calculus BC score of at least 4.

Canvas: We will be using the Canvas page for this course to post course materials, homework, grades, and announcements. Links to zoom lectures and recordings will also be available through Canvas. Students should check their current Canvas notification settings to ensure they stay up to date. You can access Canvas through CIS or by logging in at utah.instructure.com

Expectations: It is expected that students attend and engage in lecture whenever possible. This includes, but is not limited to, paying attention, asking questions, and participating in activities and group work. Calculators may be used on homework but will not be allowed during exams. Zoom lectures, discussion threads, email and canvas are all considered classroom settings so student behavior in those should be in line with the student code. Students are encouraged to maintain communication with their instructor; I can not help you if I do not know that there is a problem.

About Grading and Assessments:

Grade Breakdown:

	Percentage of Final Grade
Homework	25%
Discussion Posts	10%
Learning Objectives Mastery	65%

Grade Scale: The base grade scale is below. These thresholds may be lowered at the end of the semester, but will not be raised.

	+		-
A	98-100	92-98	90-92
B	88-90	82-88	80-82
C	78-80	72-78	70-72
D	68-70	62-68	58-62
E		0-58	

Homework: One homework problem will be assigned per topic; approximately one per section of the text book, due each Wednesday at the end of the day. These problems will be posted on Canvas in a pdf. Your solution and write up of the problem are just as important as your answer. Homework can be handwritten or typed but is expected to be neatly written and organized, easy to read and understand, with explanations and complete sentences. "Warm up" homework problems from the text book will also be assigned but not collected and are highly recommended. The purpose of warm up homework is for students to practice computational skills and to familiarize themselves with various concept applications. Homework assignments are designed to improve students' technical writing and ability to communicate mathematics, and to assess a students current understanding of course content. Students are encouraged to work together on homework, but should turn in their own write up of the problems.

Discussion Posts: There will be weekly discussion questions for the course. Each week, you are required to complete one post in response to the prompt or post your own question. You may ask about the warm-up homework problems but not the graded ones, and in your post, you should indicate what you tried or where you got stuck. You are also required to respond to at least one other students' post. Discussion questions will be posted each week on Mondays. Your post must be completed by Friday at noon, and your responses must be completed by Monday at midnight. For every discussion prompt, you have the option to upload a photo or video with your question and/or answer, if you prefer not to type your response. Each weekly discussion will be worth 3 points: 2 points for your post and 1 point for your response. In order to receive full credit, your posts must be thoughtful and respectful. For example, a response of "yes" will not receive full credit.

Exams: There will be four exams given during the semester on the following Fridays during the scheduled class period: February 12, March 12, April 2, and April 23. The final exam period is scheduled by the University for Monday, May 3, 8:00-10:00 am. All exams will be proctored via zoom at the normal class link. Exams are written to assess current knowledge and understanding of course content. We will use a mastery grading system where students are assessed by learning objective and have the opportunity to improve these scores throughout the semester. A full explanation of mastery grading can be found in the document Mastery Grading for 2210-006, on Canvas.

Make-Up Policy: Students with university excused absences should make alternative arrangements with me as soon as possible if the absences interfere with any course components. If a student expects to miss assignment due dates or an exam, they are required to notify the instructor in advance, in person or by e-mail. The validity of excuses, whether given in advanced or not, will be handled on a case-by-case basis. As per university policy the final exam may not be taken early. The instructor reserves the right to alter the questions and format of any make-up assignment given. To accommodate for busy weeks and bad days, **two lowest discussion post scores and one lowest homework score will be dropped from the grade.**

Academic Dishonesty: Cheating in any form will not be tolerated and may result in a failing grade for the relevant assignment or exam and/or a failing grade in the course. The guidelines in University of Utah Policy 6-400: Code of Student Rights and Responsibilities will be followed.

You are not allowed to post graded homework or exam problems to any websites or message boards (including Chegg, Math Stack Exchange, and the Canvas discussion board). You are not allowed to ask anyone for help during exams.

About the Mathematics:

Tutoring and Resources: Free tutoring offered at the T. Benny Rushing Mathematics Center, which is physically located in the basement between the JWB and LCB buildings, but is providing online tutoring this semester. The hours are 8 am to 8 pm Monday through Thursday and 8 am to 6 pm on Fridays. Their schedule

indicates which tutors are fluent in languages other than English. The link to online tutoring and more information can be found here: <https://www.math.utah.edu/undergraduate/mathcenter.php>
The math department has a full set of lecture videos which you are welcome to use to supplement our course material. These can be found at <http://www.math.utah.edu/lectures/>

Expected Learning Outcomes: Upon successful completion of this course, a student should be able to:

- Perform basic vector computations, including dot and cross products. Interpret the geometric meaning of these operations.
- Find the parametric equations of a line in 3 dimensions.
- Convert between cylindrical, rectangular and spherical coordinates.
- Determine the equation of a plane in 3-d, including a tangent plane to a surface in 3-d.
- Perform calculus operations on functions of several variables, including limits, partial derivatives, directional derivatives, and gradients; understand what the gradient means geometrically.
- Find maxima and minima of a function of two variables; use Lagrange Multipliers for constrained optimization problems.
- Compute double and triple integrals in rectangular coordinates.
- Compute double and triple integrals in spherical and cylindrical coordinates. Understand when it's prudent to switch to one coordinate system over another in computing an integral.
- Use double or triple integrals for finding surface areas and volumes of 3 dimensional regions.
- Determine if a vector field is conservative and if so, find the corresponding potential function. Compute divergence and curl of a vector field.
- Compute line and surface integrals.
- Use and understand when to apply Green's Theorem, Gauss' Divergence Theorem and Stokes Theorem.

Important Dates:

First Day of Class- Tuesday, January 19

Last day to add or drop – Friday, January 29

Test Day 1- Friday, February 12

Test Day 2- Friday, March 12

Last day to withdraw- Friday, March 12

Test Day 3- Friday, April 2

Last Day to elect CR/NC- Friday, April 9

Test Day 4-Friday, April 23

Last Day of Classes- Tuesday, April 27

Reading Day- Wednesday, April 28

Final Test Day- Monday, May 3, 8-10 am

About the Classroom:

Accommodations: The Americans with Disabilities Act requires that reasonable accommodations be provided for students with physical, cognitive, systemic learning, and psychiatric disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the instructor and to the Center for Disability & Access (162 UNION , 801-581-5020). All written information in this course can be made available in alternative format with prior notification to the Center for Disability & Access.

Student Names and Personal Pronouns: Class rosters are provided to the instructor with the student's legal name as well as Preferred first name (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise me of any name or

pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected. If you need assistance getting your preferred name on your UIDcard, please visit the LGBT Resource Center Room 409 in the Olpin Union Building, or email bpeacock@sa.utah.edu to schedule a time to drop by. The LGBT Resource Center hours are M-F 8am-5pm, and 8am-6pm on Tuesdays.

Student Responsibilities: All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, and I will do so, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee.

<http://regulations.utah.edu/academics/6-400.php>

Covid-19 Considerations: Students must self-report if they test positive for COVID-19 via coronavirus.utah.edu

Addressing Sexual Misconduct: Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veterans status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

Student Wellness: Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at www.wellness.utah.edu or 801-581-7776.

University Counseling Center: The University Counseling Center (<https://counselingcenter.utah.edu/>) provides developmental, preventive, and therapeutic services and programs that promote the intellectual, emotional, cultural, and social development of University of Utah students. They advocate a philosophy of acceptance, compassion, and support for those they serve, as well as for each other. They aspire to respect cultural, individual and role differences as they continually work toward creating a safe and affirming climate for individuals of all ages, cultures, ethnicities, genders, gender identities, languages, mental and physical abilities, national origins, races, religions, sexual orientations, sizes and socioeconomic statuses.

Campus Safety: The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu

Syllabus Subject to Change: This syllabus is meant to serve as an outline for our course. Please note that I may have to modify sections as the semester progresses. Any changes will be announced in class and on Canvas with reasonable time for students to adjust.