

MATH 1220: Calculus II

Section 003 — Summer 2021

Instructor Information

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Office Hours: TBD, also by appointment

Class Information

Dates: Spring 2021; June 14 – August 5
Days: Mondays, Tuesdays, Wednesdays, Thursdays
Time: 8:00 –9:30AM, Mountain Time
Location: Canvas and Zoom

Textbook (Required)

Calculus with Differential Equations, 9th Edition, by Varberg, Purcell, and Rigdon

Course Description

Geometric applications of the integral, logarithmic, and exponential functions, techniques of integration, conic sections, improper integrals, numerical approximation techniques, infinite series and power series expansions, differential equations. This is a 4 credit hour course that satisfies a quantitative reasoning requirement.

Prerequisites

“C” or better in (MATH 1210 OR MATH 1250 OR MATH 1270 OR MATH 1311 OR MATH 1310) OR AP Calculus AB score of at least 4 OR AP Calculus BC score of at least 3.

Required Course Materials

You will need a computer or smartphone with reliable internet and a working microphone and webcam to access the course Canvas page, Gradescope for submitting assignments (including exams), and Zoom for participating in lectures, office hours, and exams. Access to a scanning device (smartphones can be used as scanning devices) is also required for submitting assignments.

Calculators

Calculators are not required for this course. You may use calculators on homework and exams, but they should not be necessary. If you do use a calculator, you must still clearly write out all of your work/intermediate steps to get full credit.

Course Format

As I am sure you are all aware, this class is only operating in an online format due to the current pandemic. We are all stepping out of our comfort zones, employing new methods, and learning as we go, so I ask that you be patient with any unforeseen hiccups we may encounter during this course. This course will operate under an “interactive video conferencing” (IVC) format.

- ▷ **Before Class:** Sometimes I will assign pre-recorded videos to watch, short readings, or a specific problem to complete before lectures. These will be posted to the course Canvas page. It is critical that you watch/read these and keep up with the schedule on Canvas, as the lectures will be designed assuming you have done so. You are also encouraged to look over the corresponding chapters in the textbook.
- ▷ **During Class:** The official scheduled time for our course is Mondays, Tuesdays, Wednesdays, and Thursdays, 8:00 - 9:30AM, Mountain Time. Classes will be held remotely via Zoom. The Zoom meeting room will be linked on the front page and the left side column in Canvas. Classes will include time for a more traditional lecture as well as time for working together on problems and asking questions. You are always encouraged to bring up any parts of the videos or textbook that were confusing, ask about homework problems, etc. Lectures will be recorded and posted on Canvas afterwards.
- ▷ **Canvas:** It is important that you check the course Canvas page each day and set up your account so that you get notifications when I make an announcement. *You need to read all announcements.* All course materials and assignments will be delivered through the course Canvas page. Canvas will be where you go to get updates about the course, check the course schedule, get homework assignments, etc. You need to check the modules tab and the assignments tab regularly.
- ▷ **Gradescope:** Homework assignments and exams will all be submitted electronically through the course Gradescope page, which will be accessible through the course Canvas page. You are responsible for submitting all assignments in the correct format (as a *single PDF file*) by the given due date. Electronic and internet difficulties or failures are not valid excuses for late assignments; make sure you leave yourself enough time to deal with any such issues.

Course Components

You will complete weekly homework assignments as well as three midterm exams and a comprehensive final exam. Weekly homework assignments will typically be due by 11:59PM on Mondays. Details about each component of the course are given below, along with the percentage each contributes to your grade. I reserve the right to adjust due dates, details, and grade weightings as needed.

- ▷ **Attendance (10% of final grade):** To get the most out of this course, you must show up to class. You can miss up to seven classes without it affecting your grade.
- ▷ **Homework (25% of final grade):** A set of problems covering lecture materials from the preceding week will be due on most Mondays by 11:59PM on Gradescope. The specific problems for each assignment will be published on the Canvas page for that assignment a week before the due date. A subset of the assigned problems will be chosen to be graded

based on correctness, and the others will be graded based on completion. To get full credit on homework assignments, you must show all of your work/reasoning. Just writing down your final answer without any work is not enough. Your two lowest homework scores will be dropped. *No late homework assignments will be accepted, for any reason.* I drop the two lowest scores to cover situations in which you are not able to complete the assignment on time; please reserve and use these opportunities wisely.

- ▷ **Midterm Exams (40% of final grade):** We will have three midterm exams during class on Wednesday, June 23rd, on Thursday, July 8th, and on Thursday, July 22nd. Exams will be released through a Canvas announcement just before the official starting time, and proctored through the normal class Zoom meeting room. You will be required to submit your exam on Gradescope within the specified time limit. Details on how to submit your exam will be provided about a week ahead of time. Review materials will also be posted roughly a week prior to each midterm. Your lowest midterm exam score will be dropped. There will be no opportunities to make-up or retake exams. If you have a legitimate conflict that prevents you from taking an exam, you must contact me at least a week before the exam to arrange an earlier time to take it.
- ▷ **Final Exam (25% of final grade):** A two-hour comprehensive exam will be given on Thursday, August 5th from 7:30 to 9:30AM, Mountain Time. (This date and time is set by the University. I will try to announce any changes, but be sure to double-check the official University exam schedule as we near the end of the term.) This exam will be administered in the same way as the midterms. Additionally, as with the midterms, study resources will be posted about a week prior to the exam.

Course Learning Objectives

After this course, you should be able to . . .

- ▷ compute derivatives and integrals for exponential, logarithmic, hyperbolic functions, and inverse trigonometric functions;
- ▷ integrate integrable functions using integration by parts, u-substitution, trigonometric substitutions, rationalizing substitutions, partial fraction decomposition, and trigonometric identities. This includes knowing which techniques to apply to a given integral;
- ▷ use L'Hôpital's Rule to calculate indeterminate-type limits and also know what limits are the non-indeterminate forms and how to compute those limits;
- ▷ compute improper integrals;
- ▷ understand the difference between an infinite sequence and infinite series and determine if a sequence converges or diverges.
- ▷ determine whether or not an infinite series of numbers converges or diverges using a variety of tests;
- ▷ understand what it means for a power series to converge or diverge, find the Taylor series for a given function, and determine how closely a Taylor polynomial approximates a function using Taylor's Remainder Theorem;
- ▷ Differentiate and integrate functions in polar coordinates;

- ▷ be comfortable working with the mathematical symbols of calculus. Students should have a firm understanding of the meaning of the mathematical symbols used in this course and be able to use them correctly in their own solutions;
- ▷ have improved mathematical thinking, reasoning, and communication skills. Students should be able to formulate their problem solutions as grammatically correct sentences that incorporate all of the necessary mathematical work and computations;
- ▷ have improved problem-solving skills. Students should be able to read and understand problem descriptions and then formulate equations modeling the problem, usually by applying geometric or physical principles. Students will be able to select the appropriate calculus tools to apply to a given problem, execute them accurately, and interpret the results in the context of the problem.

Grading Policies

Final grades will be assigned according to the following scale:

A	93 – 100	C+	77 – 79
A–	90 – 92	C	73 – 76
B+	87 – 89	C–	70 – 72
B	83 – 86	D	60 – 69
B–	80 – 82	E	0 – 59

- ▷ **Collaboration and Outside Resources:** You are highly encouraged to work with others on homework assignments. Mathematics is a social activity! However, all final work must be your own; that is, despite a group deriving a solution, your work and/or explanations are expected to be unique. Exams must be entirely your own work. *Plagiarism is unacceptable* and will result in a zero grade for all persons involved, as well as serious academic repercussions. Exams will likely be open-note and open-book, but you may not collaborate with other students or use any other external resources, including web resources. Any collaboration on exams is considered cheating and will be prosecuted as such.
- ▷ **Gradescope Submissions:** Homework assignments and exams will be submitted by students on Gradescope, which is linked on the course Canvas page. You will need to scan your assignments (a smartphone can act as a scanning device), convert them to a *single PDF file*, and upload them to Gradescope. When submitting an assignment, you **MUST** look at the Gradescope outline and match each question to the pages of your submission on which you answer them. If you do not match your submission, you risk getting a score of zero.
- ▷ **Regrade Requests:** Should you feel a homework or exam question was scored unfairly, you may submit a regrade request in Gradescope, *not in office hours or via email*. For homework and midterms, regrade requests must be made within a week of grade posting. Final exam scores will be posted and three days will be allotted to lodge regrade requests before final scores are posted. You must state in your request *why* you feel you deserve more points, making sure you have carefully reviewed the rubric. A regrade request may result in an increase in score, no change in score, or in rare cases a decrease in score.

- ▷ **Making-up or Re-taking Exams:** There will be no retakes or make-ups of exams, for any reason. If you have an emergent, extenuating circumstance that makes it necessary to take an alternate exam, it is your responsibility to discuss that with me well before the exam occurs, or as soon as possible. I may allow exams to be taken early, but not late. Should an emergency occur during or just before an exam, contact me as soon as possible; with a valid written excuse from a physician or the Dean's Office, we may be able to arrange an alternate option.
- ▷ **Grades Online:** It is your responsibility to ensure the accuracy of all recorded assignment and exam grades. If you see any errors in your grades on Canvas, reach out to me as soon as possible.

Contacting Me Outside of Class

The best way to reach me is either via Canvas message or via email (see above). I typically answer emails/messages once per day during the week, so please send your emails/messages with this in mind. For emails/messages sent over the weekend, I will do my best to respond in a timely manner, but do not expect a response until Monday. Please do reach out if you have any questions or concerns about the course. If you have crisis-level extenuating circumstances which affect your class performance and you need guidance/advice/flexibility, please communicate with me as soon as possible so I can help you in some manner, which I am truly happy to do. The longer you wait to communicate with me, the less I can and am willing to do to help.

Student Resources

If you find yourself struggling with any aspect of the course material, even if it is just one topic or one homework problem, please utilize one of the resources below. It is best to resolve any confusion as early as possible, especially because as we progress in the course, new topics will assume a mastery of material we have already covered.

- ▷ **My office hours:** I will hold regular weekly office hours (see above) via Zoom. This is an excellent resource to utilize to make sure you understand the course content. Please drop by to ask questions about any assignments or the course content in general. If you have any questions, comments, and/or concerns and are either unable to attend office hours or do not feel comfortable speaking in front of others, please email me and we will figure something out.
- ▷ **The math tutoring center:** The **T. Benny Rushing Mathematics Student Center** offers **free** tutoring Mondays-Thursdays, 8:00AM–8:00PM and Fridays, 8:00AM–6:00PM. They have tutors specialized in most areas of undergraduate mathematics. Check their website for the most up-to-date information, but they should currently be operating entirely online.
- ▷ **Private tutoring:** The **Learning Center** offers very inexpensive tutoring at just \$5 per hour. They also currently have funding that allows them to provide your first three tutoring session for free, and there are scholarships available if covering further costs is an issue. Check their website for the most up-to-date information, but they should currently be operating entirely online. I also know many excellent math tutors I can connect you with directly; feel free to email me if you would like a recommendation.

Netiquette

Zoom lectures, Canvas, and emails are all considered equivalent to traditional classrooms and student behavior within these environments shall conform to the student code. Respectful participation in all aspects of the course will make our time together productive and engaging. I will treat you with respect, and in return I expect that you will treat your fellow classmates and me with respect as well. Specifically:

- ▷ During Zoom classes, you are expected to remain muted unless you are answering or asking a question or you are working together in groups.
- ▷ Disrespectful, angry, or abusive language is not acceptable, whether spoken aloud on Zoom, written in the Zoom chat, written on Canvas, or in email. Posting photos is not allowed. Behavioral misconduct will be dealt with according to the Student Code just as in an in-person classroom. *Any behavioral misconduct will cause you to be removed and banned from all future Zoom meetings.*
- ▷ Do not use ALL CAPS, except for titles, or overuse certain punctuation marks such as exclamation points and question marks. Avoid slang terms and texting abbreviations such as “u” instead of “you.” When emailing, keep a professional tone, *e.g.* use a descriptive subject line, avoid “Hey,” and address your instructors using the name/title they have told you to use. Sign your message with your name. Be cautious when using humor or sarcasm, as tone is sometimes lost in an email, chat, or discussion post, and your message might be taken seriously or be offensive to others.
- ▷ Be careful with personal information (both yours and others).

Classroom Social Equity

I strive to be ethical, kind, fair, inclusive, and respectful in my classroom. I expect my students to behave likewise. It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students’ learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength, and benefit. It is my intent to present materials and activities that are respectful of diversity: age, disability, gender, gender identity, gender expression, sexual orientation, national origin, race, ethnicity, culture, religion, socioeconomic status, political affiliation, veteran status, and other unique identities. In this regard, I have these requests of you, my student:

- ▷ Please do tell me, discreetly, if you have any sort of anxiety disorder, TBI, PTSD, C-PTSD, or any other challenge that would cause psychological harm to you by me calling on you in class. I want students to feel a little uncomfortable and stretched during class, while working on problems as a large group, but I definitely do not want to cause anyone harm. So, please tell me, in a way you feel comfortable, if that is the case for you and I will confidentially accommodate your request.
- ▷ Class rosters are provided to the instructor with the students’ legal name as well as preferred first name (if previously entered by you in the Student Profile section of your CIS account). 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 feel respected. If you need assistance getting your preferred name on your U-ID card, please visit the [LGBT Resource Center](#), Room 409 in the Olpin Union Building. If your preferred name is different than your legal first name (the preferred name you chose does show up in CIS on my roll sheet, but not yet in Canvas), please log into Canvas and go to Account (on the far left) → Settings and change your Display Name to be the name you prefer. This will help me greatly in knowing students' names and to address you correctly when responding to Canvas messages/comments/discussions.

- ▷ If you would like, please let me know through writing, or in person, your preferred name and/or pronouns. In return, if someone discloses their personal pronoun to you/the group, I expect you respect their identity and maintain a safe learning environment. You may not understand their personal preferences (and you do not have to), but you must respect them. I will not tolerate disrespectful behavior.
- ▷ If any of our class meetings conflict with your religious events, please let me know so that we can make arrangements for you.
- ▷ Your suggestions are encouraged and appreciated. If there is ever a time that you feel this course or the curriculum is not equitable, please email me or meet with me to discuss your concerns so I have a chance to address them. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups.

COVID-19 Considerations

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

Student Code

Students are encouraged to review the [Student Code](#) for the University of Utah. You should read the Code carefully and know you are responsible for the content.

To ensure that the highest standards of academic conduct are promoted and supported at the University, students must adhere to generally accepted standards of academic honesty, including but not limited to refraining from cheating, plagiarizing, research misconduct, misrepresenting one's work, and/or inappropriately collaborating. A student who engages in academic misconduct as defined in Part I.B. may be subject to academic sanctions including but not limited to a grade reduction, failing grade, probation, suspension or dismissal from the program or the University, or revocation of the student's degree or certificate. Sanctions may also include community service, a written reprimand, and/or a written statement of misconduct that can be put into an appropriate record maintained for purposes of the profession or discipline for which the student is preparing. Incidents of academic misconduct will be subject to penalty per Section V of Policy 6-400, the Student Code. Incidents of academic dishonesty on regular assignments will result in a minimum penalty of a full letter-grade reduction and up to a failing grade (E) for the course. Incidents of academic dishonesty on exams will result in a minimum penalty of a failing grade (E) for the course, and the incident(s) will be referred to the dean of your major-department college for possible further sanction.

Furthermore, All students are expected to maintain professional behavior in the classroom setting. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, 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.

Office of the Dean of Students

The Office of the Dean of Students is dedicated to being a resource to students through support, advocacy, involvement, and accountability. It serves as a support for students facing challenges to their success as students, and assists with the interpretation of University policy and regulations. Please consider reaching out to the Office of Dean of Students for any questions, issues and concerns. The office is located at 200 South Central Campus Dr., Suite 270, open Monday through Friday, 8:00AM – 5:00PM.

ADA Statement

The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the [Center for Disability & Access](#) (CDA), 162 Olpin Union Building, 801-581-5020 (V/TDD). The CDA will work with you and me to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to CDA. As I am sure you are aware, if you need accommodations, it is your responsibility to give me the relevant paperwork and take initiative in telling me what you need.

English Language Learners

If you are an English language learner, please be aware of several resources on campus that will support you with your language and writing development. These resources include the [Writing Center](#), the [Writing Program](#), and the [English Language Institute](#). Please let me know if there is any additional support you would like to discuss for this class.

Undocumented Student Support

Immigration is a complex phenomenon with broad impact—those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles to engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from the Dream Center. Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your residence. The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families. To learn more, please contact the Dream Center at 801-213-3697 or visit dream.utah.edu.

Veterans Center

If you are a student veteran, the University of Utah has a Veterans Support Center located in Room 161 in the Olpin Union Building, open Monday through Friday, 8:00AM – 5:00PM. Please visit their [website](#) for more information about what support they offer, a list of ongoing events and links to

outside resources. Please also let me know if you need any additional support in this class for any reason.

Wellness Statement

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](#) (801-581-7776) or the [Counseling Center](#) (801-581-6826).

Student Success Advocates

The mission of [Student Success Advocates](#) is to support students in making the most of their University of Utah experience (ssa.utah.edu). They can assist with mentoring, resources, etc. Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact a [Student Success Advocate](#) for support (<https://asuu.utah.edu/displaced-students>).

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).

Discrimination and Harassment

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 Office of the Dean of Students, 270 Union Building, 801-581-7066. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS). Please see the [Student Bill of Rights, section E](#). I will listen and believe you if someone is threatening you.

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

Lodging Complaints

If you feel that I have disrespected you, not accommodated you, made you feel unsafe, harassed you in any way, etc., *please* let me know. I will be more than happy to change my behavior and work with you to make the class more safe and/or accessible; I strive to create a safe learning environment for all students. Though you can reach out to me, I understand confronting someone who has disrespected/offended/harassed/upset/hurt you can be difficult. If you would like to lodge a formal complaint against me (for my teaching, behavior, class conduct, etc.), you may email my course coordinator, Matt Cecil, at mcecil@math.utah.edu.

I reserve the right to change my policies stated in this syllabus at any point in the semester. If I do make a change to a policy, I will announce it in class as well as communicate the change via email or an announcement in Canvas.

Tentative Daily Schedule

The daily coverage may change depending on the progress of the class, but below is the general plan we will follow.

	Date	Material Covered (Corresponding Textbook Section)	Assignments Due
Week 1	M, June 14	Introduction and Expectations, 6.1	
	T, June 15	6.2, 6.3	
	W, June 16	6.4, 6.5	
	Th, June 17	6.6, 6.7	
Week 2	M, June 21	6.8, 6.9	Homework 1
	T, June 22	Catch-up and Review	
	W, June 23	Midterm 1	
	Th, June 24	7.1, 7.2	
Week 3	M, June 28	7.3, 7.4	Homework 2
	T, June 29	7.4, 7.5	
	W, June 30	7.6	
	Th, July 1	8.1, 8.2	
Week 4	M, July 5	No Class	Homework 3
	T, July 6	8.3, 8.4	
	W, July 7	Catch-up and Review	
	Th, July 8	Midterm 2	
Week 5	M, July 12	9.1	Homework 4
	T, July 13	9.2	
	W, July 14	9.3, 9.4	
	Th, July 15	9.4, 9.5	
Week 6	M, July 19	9.6, 9.7	Homework 5
	T, July 20	Catch-up and Review	
	W, July 21	Catch-up and Review	
	Th, July 22	Midterm 3	
Week 7	M, July 26	9.8, 9.9	Homework 6
	T, July 27	10.5, 10.6	
	W, July 28	10.7	
	Th, July 29	Catch-up and Review	
Week 8	M, August 2	No Class	Homework 7
	T, August 3	No Class	
	W, August 4	No Class	
	Th, August 5	Final Exam: 7:30 – 9:30AM	Finally done! ☺