

# Math 8 Spring 2026: Calculus of Functions of One and Several Variables

## Instructors and Course Information

### Section 1

*Instructor:* Beth Anne Castellano ([bethanne.gr@dartmouth.edu](mailto:bethanne.gr@dartmouth.edu))

*Office:* Kemeny 213

*Office Hours:* TTh 4:30 - 5:30 pm, x-hour (see below)

*Course Times:* MWF 2:10 - 3:15 pm, x-hour Th 1:20 - 2:10 pm

*Location:* Kemeny 004

### Section 2

*Instructor:* Lily McBeath ([lily.mcbeath.gr@dartmouth.edu](mailto:lily.mcbeath.gr@dartmouth.edu))

*Office:* Kemeny 213

*Office Hours:* MW 9:00 - 10:00 am, x-hour (see below)

*Course Times:* MWF 10:10 - 11:15 am, x-hour Th 12:15 - 1:05 pm

*Location:* Kemeny 006

## Course Description

Calculus is foundational not only to mathematics, but also to physical and biological sciences, engineering, economics, business, and more. Thus, it is a prerequisite to many courses in these fields. This course is a sequel to Math 3 and is appropriate for students who have successfully completed an AB calculus curriculum (or the equivalent) in secondary school.

The first third of the course is devoted to sequences and series (including Taylor series) in single-variable calculus. The remainder of the course studies scalar valued functions of several variables. This section starts with the study of vector geometry, equations of lines and planes, and space curves (velocity, acceleration, arclength). Then the focus turns to differential calculus of functions of several variables. Topics include limits and continuity, partial derivatives, tangent planes and differentials, the Chain Rule, directional derivatives and applications, and optimization problems including the use of Lagrange multipliers. For a more detailed description of the topics we will learn in this class, see the Course Summary on [Canvas](#).

*Required text:* One of the following (*Multivariable calculus* is just chapters 10-17 of *Calculus*, and we will not use the earlier chapters):

1. Stewart, James (2015). *Calculus* (Eighth edition). (ISBN: 9781285740621)
2. Stewart, James (2015). *Multivariable calculus* (Eighth edition). (ISBN: 9781305266643)

## Course Goals

- Students will learn the main concepts and techniques in sequences and series and differentiable multivariable calculus.
- Students will improve their ability to sit with and analyze unfamiliar problems and craft solutions.
- Students will identify areas in mathematics and other fields where calculus is useful.
- Students will be prepared for more advanced courses in math and other departments that have Math 8 as a prerequisite.

## Grades, Assignments & Exams

The course grade will be computed as follows:

WeBWorK	20%
Weekly Reflection	10%
Midterm 1	20%
Midterm 2	20%
Final Exam	30%

The final grade distribution is up to the discretion of the instructors and course supervisor. Students earning below a 60% for their final grade should not expect to pass the course. Each of the course components are explained below, but you should also read the “Course Components - Purpose & Tips” document on the [Grades, Assignments & Exams](#) page of Canvas for further details.

### WeBWorK

The daily web-based problems can only be accessed by clicking the corresponding link in the [Assignments](#) section of [Canvas](#). See also the [WeBWorK homepage](#) containing a FAQ and quick start guide.

It is *highly recommended* that you keep a notebook in which you write up your WeBWorK homework (including your work as well as the answers). Then when you are studying for exams, you will have a record of your work to refer to.

WeBWorK assigned from each class should be done by the next class. This preparation will be expected during the lecture. That being said, the formal deadline is set to be the day of the class after the next one. For instance, WeBWorK assigned on Fridays is due by class on Monday, but will be accepted until 11:59 p.m. the following Wednesday. Similarly, WeBWorK assigned on Mondays is expected to be done by class on Wednesdays, but will be accepted until 11:59 p.m. on the upcoming Friday within the same week. So although you have the authority to grant yourself a short extension if necessary, at no penalty, you should not do so consistently if you want to keep pace with the course. The two lowest WeBWorK scores will be dropped at the end of the class.

### Weekly Reflection

Each week you will be asked to submit a reflection, which will be initiated by a set of prompts. There will be some prompts related to the specific material covered in class each week, but the recurring prompts will closely resemble the following:

1. What is a concept or problem that you have made progress on this week? What is going well?
2. What is an area of challenge this week?
3. Share any problem from class or the suggested problems list that you are not sure how to solve. What have you tried so far?
4. (Required if applicable) If you included a challenging concept or problem last week, what have you worked on since then? If you received feedback from the instructor last week, how have you addressed or made use of that feedback?

5. What have you done this week to support your learning in the course?
6. Any general feedback about the course?

The goal of this assignment is to serve as a record of your learning throughout the course, to give feedback to and receive feedback from your instructor, and to provide a resource with problems and concepts to pay attention to as you prepare for exams. Throughout the quarter, you will examine how the course is going, record things that are going well, highlight areas of confusion or problems that you are not sure how to solve, and receive feedback and math hints from the instructor to help guide your learning.

Your reflection assignments need to be meaningful (one word responses and those without any substance do not receive credit), but the assignment is not meant to be time-consuming. To get full credit, you must answer *at least four* of the prompts, including any prompts marked as required by the instructor. Each assignment is graded for completion: 0 (didn't do it) or 1 (did it), and the total comprises your weekly reflection grade. A sample reflection will be provided to demonstrate what a "complete" reflection looks like. The lowest week's score will be dropped at the end of the class.

### Exams

There will be two midterm exams and a cumulative final exam. The exam schedule is as follows:

Exam	Date & Time	Location
Midterm 1	Tuesday, April 21 (5:00 - 7:00 pm)	TBD
Midterm 2	Tuesday, May 12 (5:00 - 7:00 pm)	TBD
Final	Saturday, June 6 (11:30 am - 2:30 pm)	TBD

The midterms will be in person and 2 hours in length. The final is a 3 hour exam scheduled by the registrar. More information will be provided by your instructor in the week before each midterm.

If you have a conflict with one of the midterm exams because of a religious observance, scheduled extracurricular activity such as a game or performance, scheduled laboratory for another course, or similar commitment, please speak with your instructor as soon as possible, and *at least one week in advance* so that possible alternative arrangements can be pursued.

All students must take the final at the scheduled time, unless they are scheduled by the registrar to have two conflicting examinations or three examinations on a single calendar day. In particular, no final will be given early or late to accommodate student travel plans. If you make travel plans that later turn out to conflict with the scheduled exam, then it is your responsibility to either reschedule your travel plans or take a zero in the final.

### Tutorials & Additional Support for your Learning

Our graduate teaching assistant Jacob Lehmann Duke will host tutorials Tuesdays and Thursdays from 7:00-9:00pm in Kemeny 006, focusing on answering your questions as you work through understanding the concepts. You can stop by to get help with any questions you have regarding the course topics and homework assignments. Tutorials are open to all Math 8 students and no appointment is needed.

For further support outside of office hours and tutorials, there is also the [Peer Tutoring Program](#). Julia Silva, the peer tutor assigned to this course, will run sessions on Mondays 7:00-8:00pm, Wednesdays 8:00-9:00pm, and Sundays (drop-in) 2:00-3:00pm (location TBD). This program requires [registration](#) and is run by the [Academic Skills Center](#), which has many resources and programs to help students become more efficient and effective learners.

## **Academic Honor Principle**

Cooperation on daily WeBWork is permitted (and encouraged), but you should write up solutions on your own. In other words, you might share your thoughts on a sheet of paper or blackboard to get started together, but then work on your own submission afterwards using only your understanding.

The use of generative AI to respond to prompts on weekly reflection assignments is prohibited. These assignments are designed to help you reflect on your progress and synthesize concepts, and thus must be written entirely in your own words.

Students may not give or receive assistance of any kind on an exam from any person except for the instructor or someone explicitly designated by the instructor to answer questions about the exam. Please reach out to your instructor with any questions you may have about these policies before submitting anything that has been substantially informed by something other than your own work.

Plagiarism, collusion, or other violations of the [Academic Honor Principle](#), after consultation, will be referred to the Committee on Standards. If you have any questions as to whether some action would be acceptable under the Academic Honor Principle, please speak to your instructor beforehand. For more information about standards of conduct, please see the [Community Standards](#).

## **Student Accessibility Needs**

Students requesting disability-related accommodations and services for this course are required to register with Student Accessibility Services (SAS; [Apply for Services webpage](#); 1-603-646-9900) and to request that an accommodation email be sent to their instructor in advance of the need for an accommodation. Then, students should schedule a follow-up meeting with their instructor to determine relevant details such as what role SAS or the [Testing Center](#) may play in accommodation implementation. This process works best for everyone when completed as early in the quarter as possible. If students have questions about whether they are eligible for accommodations or have concerns about the implementation of their accommodations, they should contact the SAS office. All inquiries and discussions will remain confidential.

## **Mental Health**

The academic environment at Dartmouth is challenging, our terms are intensive, and classes are not the only demanding part of your life. There are a number of resources available to you on campus to support your wellness, including: the [Counseling Center](#) which allows you to book triage appointments online, the [Student Wellness Center](#) which offers wellness check-ins, and your [Undergraduate Dean](#). The student-led [Dartmouth Student Mental Health Union](#) and their peer support program may be helpful if you would like to speak to a trained fellow student support listener. If you need immediate assistance, please contact the counselor on-call at (603) 646-9442 at any time. Please make your instructor aware of anything that will hinder your success in this course.

## Religious Observances

Dartmouth has a deep commitment to support students' religious observances and diverse faith practices. Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with your instructor as soon as possible – before the end of the second week of the term at the latest – to discuss appropriate course adjustments.

## Title IX

At Dartmouth, we value integrity, responsibility, and respect for the rights and interests of others, all central to our Principles of Community. We are dedicated to establishing and maintaining a safe and inclusive campus where all have equal access to the educational and employment opportunities Dartmouth offers. We strive to promote an environment of sexual respect, safety, and well-being. In its policies and standards, Dartmouth demonstrates unequivocally that sexual assault, gender-based harassment, domestic violence, dating violence, and stalking are not tolerated in our community.

The [Sexual Respect Website](#) at Dartmouth provides a wealth of information on your rights with regard to sexual respect and resources that are available to all in our community.

Please note that your instructor is obligated to share disclosures regarding conduct under Title IX with Dartmouth's Title IX Coordinator. Confidential resources are also available, and include licensed medical or counseling professionals (e.g., a licensed psychologist), staff members of organizations recognized as rape crisis centers under state law (such as WISE), and ordained clergy (see [this resource sheet](#)).

Should you have any questions, please feel free to contact Dartmouth's Title IX Coordinator or the Deputy Title IX Coordinator for the Guarini School. Their contact information can be found on the sexual respect website at: <https://sexual-respect.dartmouth.edu>.