

MTH 251: Differential Calculus – Winter 2021

As your MTH 251 instructor this term, my goal is to support your learning so you can be successful in this course and beyond. We are again in the not-so-unique situation again of remote learning. We are striving to create a course that will be informative, engaging, and fun learning experience!

INSTRUCTOR CONTACT INFORMATION

Instructor: Amanda Blaisdell

Email: Amanda.blaisdell@oregonstate.edu

Office: At my house ☺

Office hours: By appointment – send me an email!

Teaching Assistant: Rachel Wofford

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COURSE INFORMATION

Weekly “Lecture”:	Monday, Wednesday, & Friday, 0300 – 0350 PST via Zoom
Recitation:	Thursdays at various times, check your course schedule, via Zoom
Course Outline:	The course is divided into 5 Units. Each Unit will be covered in about 2 weeks of class. There will be an assessment for each Unit when it is complete during Weeks 3, 5, 7, 9 and Finals Week.

CATALOG DESCRIPTION

Differential calculus for engineers and scientists. Rates of change: the derivative, velocity, and acceleration. The algebraic rules of differential calculus and derivatives of polynomial, rational, and trigonometric functions. Maximum-minimum problems, curve sketching, and other applications. Antiderivatives and simple motion problems.

Enforced prerequisites:	MTH 112 with C-, or at least 75% on the ALEKS math placement test
Course Credits:	4
Terms Offered:	Fall, Winter, Spring, Summer

LEARNING OUTCOMES

MTH 251 MEASURABLE STUDENT LEARNING OUTCOMES

A successful student in MTH 251 will be able to:

1. Calculate average and instantaneous rates of change and identify instantaneous rates of change with derivatives.
2. Apply ideas of differential calculus to motion problems (velocity, speed, and acceleration).
3. Apply the algebraic limit laws and the standard rules of differentiation including the chain rule to calculate particular limits and derivatives.
4. Use methods of calculus to solve maximum and minimum problems.
5. Use methods of calculus to determine the shapes of curves.

BACCALAUREATE CORE LEARNING OUTCOMES

MTH 251 satisfies the Baccalaureate Core Skills category for Mathematics and successful completion of the Mathematics category is one of OSU's First Year Skills requirements.

1. Identify situations that can be modeled mathematically.
2. Calculate and/or estimate the relevant variables and relations in a mathematical setting.
3. Critique the applicability of a mathematical approach or the validity of a mathematical conclusion.

REQUIRED LEARNING RESOURCES

Textbook: *Calculus Volume 1* by OpenStax

Online Homework: Knewton Alta, purchase options are available in Canvas

Desmos Account: *This is recommended.* Desmos is an online graphing tool which we will often use in class. You can visit [Desmos.com](https://www.desmos.com) and there is a free smartphone app, as well.

ASSESSMENT & GRADING

At the end of the term your final grade will be based on the following categories and weights, calculated and rounded to the nearest tenths place, and assigned a letter grade, no stricter than the scale given below.

CATEGORY	PERCENT
Online Homework – Knewton Alta	14%
Written Homework and Reflections	14%
Course Engagement	12%
Unit 1 Quiz	12%
Unit 2 Quiz	12%
Unit 3 Quiz	12%
Unit 4 Quiz	12%
Unit 5 Quiz	12%
Total	100%

A	100–92.5%	A-	92.4–90%	B+	89.9–87.5%
B	87.4–82.5%	B-	82.4–80%	C+	79.9–77.5%
C	77.4–72.5%	C-	72.4–70%	D	69–60%
F	59% and below				

I will use Canvas for individual assignment grades. The overall total provided in Canvas may not be accurate during the term, but will be when final grades are calculated.

ONLINE HOMEWORK (KNEWTON ALTA) – DUE THURSDAYS & SUNDAYS BY 11:59PM

The online homework is a time to practice solving problems and applying conceptual ideas mathematically. The online homework system will tell you immediately if you have “gotten the correct answer” or not. This allows you to self-correct and learn from your mistakes as you work the problems. Knewton Alta is an adaptive homework system meaning that students are provided with just-in-time instruction and practice as they work to complete assignments. There is also built in instruction in the form of examples and videos for each Objective.

You can access our Knewton Alta course by clicking on any of the Knewton Alta assignments in Canvas. There is information about purchase options in our Canvas page. **DO NOT** delay signing up for Knewton Alta. There is a way to gain temporary access while you wait to receive your Knewton Alta code.

NOTE: No due date extensions are granted. Homework completed after the initial due date will be graded with a 10% score deduction.

Written Homework – Due Thursdays

The written homework is a great way to practice problems without the added structure and guidance that the online homework system provides. This should help you (the student) to assess what your strengths and weaknesses are. Attempting to solve these problems is an important part of understanding what we are learning.

The written homework will be posted to canvas every week. The written homework will be handed in Gradescope as a **SINGLE PDF** using the given template or on separate sheets of paper, keeping the spacing from the template, by the date and time posted in Canvas and Gradescope. These assignments are graded for completion, effort, work shown, and at least one question will be graded for correctness. **Late homework will not be accepted. Turn in what you have completed by the due date. You need to figure out how to scan your homework before the due date.** There are several free phone apps that will convert pictures into a PDF and there are free scanners available in the library.

Written Homework Reflection – Due Sundays

By looking at the provided solutions and comparing them to your own solutions you will start to find what your weaknesses and strengths are in the material covered. By responding about why you made mistakes or had misconceptions about a problem(s), you are solidifying that understanding while practicing your communication skills!

Immediately after the due date of the written homework a discussion board will become available and the **solutions** to the written homework will become available. The task for the student is to look over the posted solutions and compare to the student's submitted assignment. Detailed instructions for this assignment are in each discussion board on canvas.

NOTE: No due date extensions are granted. If you believe there are extraordinary circumstances, please speak with your instructor. Your two lowest assignments in this category will be dropped.

COURSE ENGAGEMENT

Pre-Class Quizzes – Due each day before class

The pre-class quizzes provide an opportunity to practice skills introduced in the pre-class materials (videos and readings), answer survey questions, and inform your instructor about questions you will have about the pre-class materials. These quizzes will be graded on completion. *Your three lowest pre-class quiz scores will be dropped.*

Recitation Activities – Done in Recitation

We will be working on active learning activities during each weekly recitation on Zoom. These activities could be answering poll questions in Zoom, working on a group activity in breakout room, reflecting on the recent big ideas in the course, or other active learning activities. You will earn points for these activities by being an active participant and answering questions posed in recitation. There will be asynchronous versions of the activities available if you are unable to attend the Zoom meeting. *Your lowest Recitation score will be dropped.*

UNIT QUIZZES – DURING WEEKS 3, 5, 7, 9, & FINALS WEEK

Unit quizzes will assess the students' understanding of the concepts in the course as well as assess the students' ability to do calculations.

Quiz	Dates Available
Unit 1	Tuesday, January 26 th
Unit 2	Tuesday, February 9 th
Unit 3	Tuesday, February 23 rd
Unit 4	Tuesday, March 9 th
Unit 5 & Single Unit Retake	Tuesday, March 16 th

Quiz policies:

- You may use the following online scientific calculator: <https://www.desmos.com/scientific>
- You are not allowed to use the internet to find solutions to questions on exams and you are not allowed to ask other people for solutions to questions on exams.
- Extensions will not be given.
- Exams cannot be rescheduled or taken early.
- The exams for this class will be graded using the online platform, Gradescope.
- Regrade requests in Gradescope will only be considered within one week of being released from Gradescope.
- Quizzes will be available on the noted date from 7pm to 8:20pm Pacific Standard Time (PST).

QUIZZES

- The Quizzes #1-4 will be available starting 7:00pm PST on Tuesday, January 26; February 9; February 23; and March 9 respectively, and it will close at 9:00pm PST. Note: the Quiz is only available to take and submit for a total of 120 minutes.
- You have 120 minutes to complete the problems on the quiz, make a pdf, and upload the pdf to Gradescope.
- We expect the quiz itself to take you approximately 40 minutes. The remaining 80 minutes allows for the time it takes to access the PDF, make and then upload your solutions.

QUIZ 5

- Quiz 5 will be available starting 8:00pm PST on Tuesday, March 16, 2021 and it will close at 10:00pm PST. Note: the Quiz is only available to take and submit for a total of 120 minutes.
- You have 120 minutes to complete the problems on the quiz, make a pdf, and upload the pdf to Gradescope.
- We expect the quiz itself to take you approximately 40 minutes. The remaining 80 minutes allows for the time it takes to access the PDF, make and then upload your solutions.
- The remaining 80 minutes allows for the time it takes to access the PDF, make and then upload your solutions.

RETAKES

You are able to retake one quiz (from Unit 1 - Unit 4, not Unit 5) during Finals Week. It is your choice if you would like to retake a quiz and you select the one quiz you would like to retake. If you elect to retake a quiz, the higher score of your two attempts will be the score that gets recorded in the gradebook. If at any time throughout

the term you miss a quiz and receive a 0, you may use this retake opportunity during finals week to replace that 0 score.

- Retakes will be available starting on Wednesday, March 17 at 12:00AM PST and will close Thursday, March 18 at 11:59pm PST.
- Once you begin / open your selected Retake, you will have only 120 minutes from that starting time to complete the problems on the quiz, make a pdf, and upload the pdf to gradescope.

IN CLASS & RECORDINGS

The classroom experience should prepare you for success in your career. Students are expected to behave in a professional manner, to be courteous to each other and the instructor. Students should make every effort to arrive to class on time, and stay for the entire class, participating actively during in-class activities.

Each class session will be recorded and will only be available to those of us in this course. You may access these videos to review content or when you miss a class, but may not share them in any form outside of this course. Your data and privacy are top priorities. Only registered students in this class have access to the meeting invitation. You will have an option in Zoom to change your display name, and it is acceptable to revise it to your first name (preferred name) and last initial. The recording of our main session will be posted to Canvas and will only be accessible to registered students.

ACADEMIC SUPPORT

During this time of remote learning, the Math and Stats Learning Center has gone virtual. The Virtual MSLC offers real-time personalized tutoring for OSU students with Graduate Teaching Assistants, faculty members, and skilled undergraduate tutors. The Virtual MSLC runs on Slack and Zoom. First-time visitors will need to log in with ONID credentials. To log into the virtual MSLC visit: <https://math.oregonstate.edu/mslc>[Links to an external site.](#)

*When are able to return to in person instruction: The **Math & Statistics Learning Center, MSLC, in Kidder 108B** is open 9am to 5pm Monday through Thursday and 9am to 4pm on Friday. There are also evening drop-in tutoring available 7pm - 10pm Sunday - Thursday. Tutoring is available starting Week 2 through Week 10.*

REACH OUT FOR SUCCESS

University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it's important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about resources that assist with wellness and academic success at oregonstate.edu/ReachOut. If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255)

STATEMENT REGARDING STUDENTS WITH DISABILITIES

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

POLICY ON INCOMPLETES

Incompletes are given only in accordance with the University [incomplete grade policy](#).

ACADEMIC HONESTY AND STUDENT CONDUCT EXPECTATIONS

In this class students are expected to follow [OSU's Student Conduct Code](#), outlined on the Student Conduct and Community Standards website, where academic dishonesty is defined as "an act of deception in which a Student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the Student's own efforts or the efforts of another." Academic misconduct includes five categories of behavior:

- Cheating- use or attempted use of unauthorized materials, information or study aids
- Fabrication- falsification or invention of any information
- Assisting- helping another commit an act of academic dishonesty
- Tampering- altering or interfering with evaluation instruments and documents, or
- Plagiarism- representing the words or ideas of another person as one's own.

STATEMENT REGARDING RELIGIOUS ACCOMMODATION

Oregon State University is required to provide reasonable accommodations for employee and student sincerely held religious beliefs. It is incumbent on the student making the request to make the faculty member aware of the request as soon as possible prior to the need for the accommodation. See the [Religious Accommodation Process for Students](#).