

APPLIED DIFFERENTIAL CALCULUS

SYLLABUS

Spring 2023 - First Half

Math 110

§A. What is this class?

Calculus can be viewed broadly as the study of change. Some of the immediate questions to ask about any changing quantity could be: “*how do we know if it is changing*”, “*when is it increasing or decreasing*”, and perhaps more importantly, “*how fast is the quantity changing?*”. We hope to answer these questions by interpreting mathematical quantities as functions that are represented graphically, numerically, analytically, or verbally; and interpret their derivative as their rate of change.

This course and MATH 115 together form a typical first-semester course on differential calculus. Here is some general advice that may prove helpful moving forward. Start your homework assignments early, so that if you need help you have sufficient time to meet with me or the ZI. Begin studying for quizzes well in advance. Put your good study habits into practice by reviewing formulas and working through extra problems when necessary, so that you can identify weaknesses and seek help. Remember that part of doing real math is productive failure: you’ll try things that don’t work; learn something from that failure; try something new that works a bit better, and... after a while, you will figure it out, and come out with a much more robust understanding of the structure of mathematics.

§B. Key Information

Course Info

- **Class Meetings:** MWF 8:00 AM - 8:50 AM (EST), Taylor 210
- **Thursday Meetings:** Th 8:00 AM - 9:20 AM (EST), Taylor 210

How to find me

- **Instructor:** Subhadip Chowdhury
- **Email:** schowdhury@wooster.edu
- **Phone:** 330-263-2473
- **Office:** Taylor 307

Zone Intern

- **Name:** Rey Silvanus
- **Email:** rsilvanus24@wooster.edu

Office Hour

- [MS Bookings link](#)

Required Study Materials

- **Textbook:** We will mainly use lecture notes and activities written especially for this class. You can use [Calculus Volume 1 - OpenStax](#) as a reference. The text is open-source and freely available online.
- **Computing Software:** We will use [DESMOS](#).

Class announcements

- **Available on:** <https://moodle-2223.wooster.edu/>
Check Moodle and your Wooster email at least once before and after each class.

Additional details on some parts of the syllabus are available on Moodle.

Contents



A	What is this class?	1
B	Key Information	1
C	Prerequisites	3
D	How do I earn a grade	3
	D.1 Types of Assignments	3
	D.2 How are Course Standards scored?	4
E	Policies	5
	E.1 Attendance and Absence	5
	E.2 Early and Late Work	6
	E.3 Special Accommodations	6
	E.4 Email Responses	7
F	How to get help?	7
	F.1 My Office Hours	7
	F.2 Zone Intern Office Hours	7
	F.3 Math Center	7
G	Academic Integrity and Collaboration	7
	G.1 Specific academic honesty expectations	8
	G.2 Consequences of academic dishonesty	9
	G.3 A positive note	9
H	Academic Policies, Procedures & Support Services	9
	H.1 Conflicts with Academic Responsibilities	9
	H.2 College Policy on Final Examinations	9
	H.3 Course Withdrawal Options (for 2022-23 Academic Year)	10
	H.4 Academic Resource Center: Academic Support and Disabilities	10
	H.5 The College Libraries and the Research Help Desk	10
	H.6 Basic Needs, Food Security & Access to Course Materials	11
	H.7 Diversity and Inclusion	11
	H.8 Names, Pronouns & Pronunciation	11
	H.9 Title IX Reporting Policy	12
	H.10 Discriminatory or Bias-Related Harassment Reporting Policy	12
	H.11 Well-being at Wooster	12
I	Disclaimer	13
J	Math 110 Course Standards	14

§C. Prerequisites

The prerequisite for this course is a solid understanding of precalculus mathematics. Students generally place into Math 110 either by earning a grade of C- or higher in Math 105 or by their score on Wooster's pre-arrival math placement test. If you have any concerns regarding your preparedness level for this course, please do not hesitate to speak with me.

§D. How do I earn a grade

Our course is graded by a methodology called the Learning-Based Grading system, also called standards-based or mastery-based grading, in which most graded work do not have a point value or percentage. Instead, you earn your grade by showing **appropriate engagement** with the course (including active participation and appropriate civil conduct in the classroom, as described in [section D.1](#) below) and **demonstrating evidence of skill on the learning objectives** that describe the major ideas covered by each assignment. These objectives are listed in [section J](#) and will be updated throughout the semester.

When you submit most work, I will evaluate it relative to the quality standards made clear on each assignment. If your work meets the standard, then you will receive full credit for it. Otherwise, you will get helpful feedback and, on most items, the chance to reflect on the feedback, revise your work, and then reassess your understanding.

This feedback loop represents and supports the way that people learn. Learning happens over time, as we revisit ideas and reflect on them. In this class, your final grade will reflect how well you eventually understand each topic. You can make mistakes without penalty, as long as you eventually demonstrate fluency in the topic.

D.I. Types of Assignments

Active Participation and Engagement (daily)

For aspiring young scholars and professionals, consistent effort is a necessary starting point. Full engagement will be expected in your future college courses and in professional setting, so they are also expected here. The active participation of every student in all activities (whether whole class, small group, or individual) leads to the best learning environment for everyone. Some ways in which engagement can be demonstrated include the following:

- participating in collaborative group work
- giving constructive feedback during in-class discussions
- asking relevant questions in class, during office hours, or through email
- creating an inclusive & welcoming class environment for peers

See also [section E.1](#) for attendance and absence policies.

Edfinity Homework (One set for every Learning Target)

We will be using an online homework system called Edfinity for most homework assignments this semester. These are meant to help build your computational skills. There will be at least one Homework set per

course standard. You will access your Edfinity assignments through Moodle and you can see more info on our Moodle course page.

Satisfactory completion of Edfinity homework is one of the course standards as described in [section J](#).

Quizzes (almost every week)

Rather than midterm or final exams, we will have in-class quizzes almost every Friday, and on the last day of class. The tentative dates are listed in Moodle.

Each quiz will cover all of the standards that we have discussed up to that point in the class. For example, the first quiz should cover about 3 standards. The second quiz will cover about 6 standards, and so on. In this way, the last two quizzes in the final weeks of the course will have all course standards present.

See [section D.2](#) for an explanation of how course standards are scored in quizzes. Having each quiz contain questions pertaining to every standard we have covered thus far means each new quiz is another opportunity to show your proficiency in the course standards. If you initially struggle with a particular standard, you will have the time and opportunity to study, practice, and try again.

Note that there will be no make-up quizzes. If you miss a quiz, you will have the opportunity to complete a course standard again on subsequent quizzes. See [section E.2](#) for certain exceptions to this rule.

D.2. How are Course Standards scored?

Each standard represents about 1–2 days of classwork. They are listed in [section J](#) approximately in the chronological order we will cover them. For each standard, you'll earn one of the following scores:

- **M** (Meets Expectation) - Understanding of the concepts is evident through correct work and clear, audience-appropriate explanations. There may be some need for revision or expansion, but no significant gaps or errors are present.
- **P** (Partial Understanding) - Demonstrates useful progress, but with a major gap. Gaps include: major math errors, incomplete work, or unclear communication or reasoning that leaves understanding in doubt. **Additional review is necessary. Reassess in the next quiz.**
- **X** (Not Assessable) - Fragmentary or no response. An insubstantial attempt, too many errors to correct each individually, or uses an inappropriate method or tool for this problem. **Must be redone from the beginning.**

Note: You may sometimes get a **P*** on a standard in a Quiz. This grade indicates work that contains an error which I think is minor, but I need to talk with you about it. Come to my office to discuss a **P*** within two days after it is returned. If you can convince me that the error was minor and explain how to fix it, then I will update the **P*** to an **M** for free. If I don't hear from you within two days, a **P*** automatically becomes a **P**.

You will receive helpful feedback on unsatisfactory work, the chance to reflect on the feedback, revise your work, and then reassess your understanding in the next quiz. My hope is that this method of grading will keep you clearly informed as to the expectations of the class and how well you are meeting them, while also removing the (often distracting) elements of linear grading that uses letters or total points. If you have questions or concerns at any time, please feel free to discuss them with me.

Description of Scores on Moodle

- When you earn a **M** grade on a standard the first time during a quiz, it will be marked as **In-Progress** in Moodle.
- If you earn a second grade of **M** on that same standard during a quiz, it will be marked as **Complete** in Moodle.

I recommend you keep track of which standards you have completed and to what degree separately, in your own records (using your returned quizzes), and then compare against what I have recorded on Moodle. This will help ensure no user error on my part because if you see a discrepancy between your records and Moodles, please let me know and I will fix it.

Note: One important thing to keep in mind during this class is that you should not be discouraged if you don't earn **M** on a standard the first time. That's normal. I'm only interested in what you can show me you can do by the end of the semester. However, do not put off finishing the standards; it will be hard to catch up if you fall too far behind.

How is the final letter grade determined?

To determine your course base grade (the letter **A/B/C/D/F** without plus/minus modifications), use the following table. *To earn a grade, you must complete all the requirements in the column for that grade; your base grade is the highest grade level for which all the requirements have been met or exceeded.* There are no grades of **A+**, **D+**, or **D-** at Wooster. If you do not meet all of the criteria for a **D**, your grade will be an **F**.

Category	A	B	C	C-	D
Participation & Engagement	Frequent	Regular	Occasional	Occasional	Minimal
Course Standards (16)	In Progress on at least 15; Complete on at least 12	In Progress on at least 13; Complete on at least 10	In Progress on at least 11; Complete on at least 8	In Progress on at least 10; Complete on at least 6	In Progress on at least 9

I will set +/- grades based on how close you are to the next higher (or lower) letter grade. For example, a student who has frequently participated in class, and gets **In-Progress** on 15 standards but **Complete** on only 11, would earn a grade of A-. Please contact me any time during the semester if you want to review your current progress.

Note: A grade of C- or higher is necessary to receive credit toward any major or minor, and/or to continue to subsequent calculus courses such as MATH 115 or MATH 120.

§E. Policies

E.1. Attendance and Absence

Attendance is crucial to success in this class. Your best chance to discuss new material, ask questions, and avoid confusion is during class. So, don't miss class! You are responsible for all material and

announcements from class, even in case of absence. Much of this information will be available on Moodle. Please check in with me and with your classmates when you are back.

That said, life happens. We get the flu (or COVID!). Relatives need your help. When this happens, do what you need to do. I trust that you are an adult and will make the best choices that you can. I appreciate it if you can notify me in advance of an absence, if possible.

It is College of Wooster policy that a student may not miss more than 25% of class meetings (e.g. about 6-7 classes for a half-credit course in spring semesters), through any combination of excused and unexcused absences. If you think you will miss more than one class in a row, you should contact me beforehand to let me know, and meet me afterward to discuss how you can catch up and move forward in the course. If you miss three classes in a row, I will send out an academic alert. If you miss more than 7 classes, you should contact Dean Jen Bowen and/or Amber Larson, Director of the Academic Resource Center. They can help you consider options for dropping the course.

E.2. Early and Late Work

Early Work

Quizzes: You can arrange to take a quiz up to one day early if you have a conflicting extracurricular college event on that day, and you got permission from the Dean's office or your coach. *In such cases, you must give me a heads-up by Monday of the week leading up to the quiz.* Contact me directly regarding other cases.

Late Work and Tokens

In general, our course policy is to not accept any late work. Each student starts the semester with **3 tokens** (and can have a max of 3 tokens at any time), which can be used to purchase exceptions to this rule. The token menu is below. *To purchase an exception, send me an email.* The cost of each item is listed at the beginning:

- (Costs 1 token) Extend the deadline of an Edfinity homework by 24 hrs.
- (Costs 2 tokens) Take a checkpoint quiz on Monday or Tuesday next week. This will need to be in person at my office - email me to discuss availability. This does not apply to the final quiz.

Please note that tokens may not be "stacked". For example, you aren't allowed to extend the deadline of an assignment by 2 days by using two tokens. Note that any leftover token at the end of the course will be counted towards class engagement, but has no value towards your scores.

If you have significant extenuating circumstances that cause you to miss multiple assignments (even with tokens), see me to discuss arrangements.

E.3. Special Accommodations

The Academic Resource Center, which is in APEX (Gault library) offers a variety of academic support services such as time management and class preparation, ELL peer tutoring, coordinating accommodations for students with diagnosed disabilities, etc. Please see the **Academic Policies, Procedures & Support Services** document for further details or go to the ARC website.

E.4. Email Responses

I do my best to reply to emails promptly and helpfully. However, I receive a lot of email. To help both you and me, here are some specific expectations about emails:

- If you email me between 8:00 am and 5:00 pm on a weekday, I'll reply to you on the same day.
- If you email me in the evening or overnight (after 5:00 pm), I will reply to you the next weekday.
- If your email asks a question that is answered in the Syllabus or on Moodle (such as in an announcement or an assignment sheet), I may reply by directing you to read the appropriate document.

See Moodle for further instructions and examples of good professional emails.

§F. How to get help?

F.1. My Office Hours

Please come see me during my office hours if you have questions or just want to discuss something from class. These will be most effective if you have spent some time formulating your questions beforehand - often you will answer your own questions during that process! You can also contact me via Email or MS Teams with your questions. See the email response section above for my 'business hours'!

F.2. Zone Intern Office Hours

Rey Silvanus (class of '24) is your ZI for this course. Rey will be present during our Thursday class meetings. He will assist us with Desmos labs, problem sessions, and other assignments much in the same way as the instructor: by answering questions and providing guidance. The main role of a zone intern is to be a peer-tutor and mentor to help strengthen your understanding of the course material. Rey will hold his own office hours within the math center.

See Moodle for office hour times and further instructions.

F.3. Math Center

You can also get help regarding this course in the Math Center, located at Taylor 301; no appointment is necessary. The Math Center is open on weekday afternoons (run by Prof. Kirsch) and on Sunday through Thursday evenings (run by peer tutors). This is a resource that is very useful when you need it; however, understand that working with a tutor in the Math Center is no substitute for spending time working out problems yourself.

§G. Academic Integrity and Collaboration

In this class, your primary goal in this course is to develop a deep personal understanding and expertise in the theory behind Calculus concepts. Collaboration and cooperation are extremely helpful in the learning process, and we will have many opportunities for collaborative work. However, there are some portions of our class that must be done independently.

The College's understanding and expectations regarding issues of academic honesty are fully articulated in the Code of Academic Integrity as published in [The Scot's Key](#) and form an essential part of the implicit

contract between the student and the College. The Code provides a framework at Wooster to help students develop and exhibit honesty in their academic work. You are expected to know and abide by these rules.

In this class, we will use the following definition of plagiarism:

Definition 7.1

Plagiarism is the act of submitting the work of someone else as if it were your own. Specifically, this action misleads the instructor to think that the work is the result of learning and understanding by the student named on the paper, when in fact the understanding truly belongs to someone else. This may apply to an entire solution, or individual parts of a solution.

G.I. Specific academic honesty expectations

It is often unclear what exactly "collaboration" means when working on assignments. The following section should clarify what my expectations are regarding this and give guidelines for avoiding plagiarism in assignments. The list is intended to be helpful but not exhaustive. If you are unsure about the appropriateness of some form of assistance on an assignment, you should always ask me.

- **Edfinity Homework:** On homework problems, you are permitted to discuss big ideas and hints with your classmates, but every step of every solution should be one that you understand yourself and that you have generated on your own. Utilize the Math center to practice problems similar to the homework with your ZI and to enhance your study strategies, but please understand that your ZI is not going to do the homework for you.

Any collaboration should occur only when your collaborator is at essentially the same stage of the problem solution as yourself. In particular, if you have not yet started problem #4 and you ask a friend (who has already completed it), "How did you do problem 4?", this counts as **plagiarism**.

- **Outside resources in general:** On all work, unless directly stated otherwise, the only resources you may use are our class notes (including any worksheet on Moodle) and the approved textbook (see the first page). You are not permitted to go looking for completed solutions to problems in other texts or resources. **In particular, usage of internet resources is completely off-limits for completing homework problems.** Often, full solutions for our homework problems can be found online. If you see such a solution prior to submitting homework, there is essentially no way that you can claim to have an original solution.
- **Copying:** Copying a solution, or any part of a solution, from any source (friend, internet, book, etc.) in any setting, constitutes **plagiarism**.
- **Past students or Peer tutors:** On any assignment, basing your work on the efforts of another student who previously completed this course or one like it, or a tutor not specifically approved by me, is considered **plagiarism**.
- **Math Center Tutors:** You are encouraged to seek their help on homework, and after you have taken a quiz to clarify and understand a concept. If you seek their help before putting forth any personal effort, this will be considered **plagiarism**.

G.2. Consequences of academic dishonesty

Evidence of dishonest behavior on any assignment will be grounds for a minimum penalty of earning an N or 0 on all relevant objectives for that assignment. Other penalties may include permanently failing the relevant objectives (regardless of other work) or, in severe cases, failure of the course. **Peers who willingly assist others in acts of plagiarism are equally guilty and will suffer similar penalties.** In all cases, the guidelines established in [The Scot's Key](#) will be followed. I reserve the right to discuss the nature and origins of any assignment with any student prior to assigning a grade.

G.3. A positive note

Remember that I want you to be successful. That is, I want you to develop a deep, personal understanding of the material we study so that you become a better student of mathematics who can go on to do well in all of your future endeavors. Every part of this course structure - including both collaborative work and restrictions on collaboration - are intended to help you with this. You will often struggle, and that's intentional - struggle (and eventual success!) is essential to learning. Indeed, productively failing (and learning from it) is part of your final grade.

In all aspects of the course, please understand that I am generous with hints and am always willing to discuss problems with you. I will never simply give you an answer, but I will offer direction and guidance that will assist you in coming up with a solution on your own. This is by far the most satisfying way to solve a problem, and the difficulty is well worth it. You are always welcome to discuss your questions or concerns with me at any time.

§H. Academic Policies, Procedures & Support Services

H.1. Conflicts with Academic Responsibilities

The College of Wooster is an academic institution and its fundamental purpose is to stimulate its students to reach the highest standard of intellectual achievement. As an academic institution with this purpose, the College expects students to give the highest priority to their academic responsibilities. When conflicts arise between academic commitments and complementary programs (including athletic, cultural, educational, and volunteer activities), students, faculty, staff, and administrators all share the responsibility of minimizing and resolving them.

As a student, you have the responsibility to inform the faculty member of potential conflicts as soon as you are aware of them, and to discuss and work with the faculty member to identify alternative ways to fulfill your academic commitments without sacrificing the academic integrity and rigor of the course.

H.2. College Policy on Final Examinations

No final examinations are to be given during the last week of classes or on reading days. Students who wish to reschedule a final exam must submit a petition to the Dean for Curriculum and Academic Engagement in advance of the examination. The student must confer with the instructor before submitting a petition, and the instructor should indicate to the Dean if they support the petition. Normally, such petitions are granted only for health reasons. If other reasons necessitate a request for a change in a final exam, the request must be submitted three weeks in advance of the examination. You can find [electronic petition forms on the Registrar's website](#).

H.3. Course Withdrawal Options (for 2022-23 Academic Year)

Students may withdraw from a course after the half-semester course drop deadline (Tues., Jan. 31) until the last day of this class (Mon., Feb. 27, 2023). Students may withdraw from one course, up to 1.25 credits, at any time through the last day of that class, as long as their total remaining credits are 3.0 or above. This may be done without documentation of extenuating circumstances. Requests to drop enrollment below 3.0 credits will require additional documentation through a [Petition for an Exception to an Academic Policy](#).

Note that because the federal government guidelines define courses as ‘attempted’ after 6 weeks (or 3 weeks for a half-semester class), if a student withdraws from a course after that point, it will be noted as a ‘W’ on their transcript.

H.4. Academic Resource Center: Academic Support and Disabilities

Contact: Amber Larson, alarson@wooster.edu, (330)263-2595, [ARC Website](#)

The Academic Resource Center, which is in APEX (Gault library) offers a variety of academic support services, programs and 1:1 meetings available to all students. Popular areas of support include time management techniques, class preparation tips and test taking strategies. In addition, the Academic Resource Center coordinates peer-tutoring for several academic departments. Students are encouraged to schedule an appointment.

An additional support that the Academic Resource Center offers is English Language Learning. Students can receive instruction or support with English grammar, sentence structure, writing, reading comprehension, reading speed, vocabulary, listening comprehension, speaking fluency, pronunciation, and American culture through 1:1 meetings with the Academic Resource Center staff, ELL Peer Tutoring, ELL Writing Studio courses, and other programming offered throughout the year.

The Academic Resource Center also coordinates accommodations for students with diagnosed disabilities. At the beginning of the semester, students should contact the Academic Resource Center to make arrangements for securing appropriate accommodations. Although the Academic Resource Center will notify professors of students with documented disabilities and the approved accommodations, students are encouraged to speak with professors during the first week of each semester. If a student does not request accommodations or does not provide documentation to the Academic Resource Center, faculty are under no obligation to provide accommodations.

Your success in this course is important to me. If there are circumstances that may affect your academic performance or impact your learning in particular portions of the class, please let me know as soon as possible. You do not need to share specifics, but together we can develop strategies to meet both your needs and the requirements of the course. There are also a range of resources on campus, including the [Writing Center](#), [Math Center](#), [STEM Success Initiative](#), and [APEX](#).

H.5. The College Libraries and the Research Help Desk

Contact: library@wooster.edu, 330-263-2493, [Libraries website](#)

Your librarian for this course is Ian McCullough. You can ask your librarian for help with research in this class and can make an appointment with them using the [research consultation form](#) for help

with your research and information needs, including finding and using items we have in the Libraries; learning expert tips to refine your search for articles in magazines, journals, and newspapers; making an appointment with a librarian for help on a project; and learning how to evaluate the information you discover.

H.6. Basic Needs, Food Security & Access to Course Materials

Contact: Dean of Students Office, dos@wooster.edu, 330-263-2545, Galpin Hall

We learn as whole people. To learn effectively you must have basic security: a roof over your head, a safe place to sleep, enough food to eat. If you have trouble with any of those things or need assistance obtaining the course materials for this or other classes, please talk with me or with staff in the Dean of Students office. Together we can work to make sure those needs are met. There is a [Technology Assistance Application](#) (Wooster login required) and Wooster alums have created a fund to assist students who encounter a personal financial crisis during their time at the College; find out more about this [Emergency Funding](#) through the DoS office.

H.7. Diversity and Inclusion

The College of Wooster is committed to inclusive excellence in undergraduate education, and our department seeks to actively foster a welcoming learning environment in which diversity and individual differences are valued, respected, and celebrated. Diversity comes in many forms, including but not limited to, race, color, national origin, ancestry, sex, gender identity and expression, sexual orientation, socioeconomic status, religion, age, and physical and/or mental abilities. The diversity that students and staff bring to the classroom is an invaluable resource, strength, and benefit to everyone at the College of Wooster. As such, we remain vigilant and attentive about issues of diversity, equity, and inclusion in the classroom. Expressions or actions disparaging others are contrary to the mission of the department and will not be tolerated.

It is also important that we all be respectful of everyone's privacy around health concerns, vaccination status, and any accommodations that are necessary for the classroom. It is not appropriate to question why someone requests physical distancing, chooses to wear a mask or requires any other accommodations. As part of our participation together in this class, we commit to showing respect to each other as individuals, to working together to create a learning environment that fosters a sense of belonging and inclusion to all members, and to understanding that our differences are also strengths. Your suggestions are encouraged and appreciated, and please contact me—via email, office hours, or after class—if you have any concerns or questions.

No student is required to take an examination or fulfill other scheduled course requirements on recognized [religious holidays](#). Please declare your intention to observe these holidays at the beginning of the semester.

H.8. Names, Pronouns & Pronunciation

All people have the right to be addressed and referred to as they prefer. I will do my best to address and refer to all students by the names and pronouns that they share in class, regardless of what is listed on the roster, and I support classmates in doing so as well. I would like for you to refer to me as **Prof. Chowdhury** or **Dr. Chowdhury**. I use he/him/his pronouns. Please share the name you prefer to be called and pronouns you wish to use in this class with me via classroom introductions or privately.

If you are interested in changing your chosen name and/or including your pronoun(s) in The College of Wooster system, [you can find additional information here](#). What appears in The College of Wooster system is what will display in all platforms across Microsoft Teams. At present, there is no alternative way to change your name or to add pronouns in Teams, but you can add a background that includes these for any video platform.

I encourage everyone in this classroom to create a space of mutual respect and support by also giving each other some grace around pronouns, pronunciation of names, etc., if or when we make mistakes. This is not at all to absolve anyone of responsibility for using correct pronouns, names, and pronunciations. But I find it useful to acknowledge that even with the best of intentions, sometimes we can all still make mistakes.

H.9. Title IX Reporting Policy

Contact: Joe Hall, jhall@wooster.edu, [Title IX website](#)

The College of Wooster is committed to fostering a campus community based on respect and nonviolence. To this end, we recognize that all Wooster community members are responsible for ensuring that our community is free from discrimination, gender bias, sexual harassment, and sexual assault. In accordance with Title IX, Wooster is legally obligated to provide supportive options for all reports of sexual harassment and sexual assault that occur on our campus. Faculty who become aware of an incident of sexual violence, including harassment, rape, sexual assault, relationship violence, or stalking, are mandated reporters at the College and are required to notify Wooster's Title IX Coordinator. The purpose of this disclosure is to ensure that students are made aware of their reporting options and resources for support. For more information about your rights and reporting options at Wooster, including confidential and anonymous reporting options, please visit <https://inside.wooster.edu/title-ix/>.

H.10. Discriminatory or Bias-Related Harassment Reporting Policy

Contact: Visit the [Bias Reporting website](#)

The College of Wooster is committed to promoting its mission of inclusivity and equity in all aspects of the educational enterprise. This commitment extends to all rights, privileges, programs and activities, including housing, employment, admissions, financial assistance, and educational and athletic programs at the College. The College's Bias Incident Reporting Process is designed to effectively respond to bias concerns raised by faculty, students, staff, alumni and visitors to the College. If you or someone you know are the victims of bias, you can:

- [File a report online](#) (where you may choose to identify yourself or not)
- Contact Security and Protective Services: 2590 (from campus phone) or 330-263-2590
- Call the Anonymous Tip Line: 2337 (from campus phone) or 330-263-2337
- Contact the Dean of Students Office: 2545 (from a campus phone) or 330-263-2545
- Contact the Vice President for Equity, Inclusion, and Diversity Cheryl Nuñez at 330-263-2356

H.11. Well-being at Wooster

Contact (24/7): (330) 263-2319, or visit the [Wellness Center website](#)

The College of Wooster is committed to supporting the wellbeing of our students. During the course of their academic careers, students experience challenges that may interfere with their learning & health (both physical and mental), including but not limited to: strained relationships, adjusting to a new environment, chronic worrying, persistent sadness or loss of interest in enjoyable activities, family conflict, grief and loss, domestic violence, unwanted sexual experiences, difficulty concentrating, drug/alcohol problems, significant changes in eating and sleeping patterns, microaggressions, challenges with organization, procrastination and/or lack of motivation. Counseling Services at the Longbrake Student Wellness Center is a free and confidential resource providing short-term counseling and connections to community agencies for students needing longer term or specialized resources. You can make an appointment by calling 330.263.2319 between 8:30am-4:30pm during weekdays or by emailing Lori Stine (lstine@wooster.edu). You can also find helpful resources on the Counseling Services website at <https://inside.wooster.edu/health/counseling/>.

Students also have free access to TimelyCare, a telehealth service providing scheduled medical and counseling appointments as well as 24/7 crisis consultation with licensed professionals. Students use their Wooster email to establish an account at [TimelyCare: Telehealth for Scots](#). TimelyCare also provides students access to nutritionists and health coaches about issues of sleep and exercise, and psychiatry (with a referral from doctor or counselor).

If you or a friend is in crisis, please call Campus Safety at 330-287-3333 or the National Suicide Prevention Lifeline (1-800-273-TALK) or connect with the Crisis Text Line by Texting “4HOPE” to 741-741.

For financial concerns: Dean of Students Office, dos@wooster.edu (330) 263-2545, [DoS website](#)

For safety concerns: Campus Security and Protective Services (330)263-2590 or cw-security@wooster.edu, [Campus Safety website](#). **In the care of an emergency, call: 330-287-3333.**

§I. Disclaimer

I reserve the right to make changes to this syllabus if needed. Any changes will be announced to the class in a timely manner.

§J. Math 110 Course Standards

Functions

I can use *functions* and other pre-calculus mathematics proficiently.

- S1. **Functions Fundamentals** - I can correctly identify types of functions from formulas and graphs. I can identify the domain and range of a function or properties such as increasing and decreasing. I can graph and interpret piecewise functions. I can represent functions in multiple ways.
- S2. **Inverses, Exponential, and Logarithmic Functions** - I can identify graphically whether a function has an inverse and explain what it means for a function to be one-to-one. I can graph exponential and logarithmic functions and use their properties to solve application problems.

Limits & Continuity

I can calculate, use, and explain the idea of *limits*.

- S3. **Limits and Graphs** - I can evaluate limits of functions, including one-sided limits, by graphical means, using appropriate justification and notation. I can use limit expressions to create my own examples of functions and can explain why my examples are correct.
- S4. **Continuity** - I can use continuity to evaluate limits using appropriate justification and notation. I can determine the points at which a function is (and is not) continuous.

Derivatives

I understand the *meaning of the derivative*.

- S5. **Derivative Definition** - I can explain the geometry of the definition of the derivative. I can interpret rates of change using secant and tangent lines. I can calculate derivatives and estimates of derivatives using difference quotients and from graphs. I can correctly interpret the derivative as a rate of change in context and assign appropriate units.
- S6. **Differentiability** - I can recognize points where a function is (and is not) differentiable, with appropriate justification.
- S7. **Derivatives and Graphs I** - I can match the graph of a function with its derivative and vice-versa. I can create my own examples of functions that satisfy various differentiability, continuity, and limit conditions and can explain why my examples are correct.

Derivative Formulas

I can use derivative formulas to calculate derivatives *efficiently*.

- S8. **Essential Derivative Formulas** - I can compute derivatives correctly for sums, constant multiples, and power, polynomial, exponential, and logarithmic functions.
- S9. **Product & Quotient Rules** - I can compute derivatives correctly using the product and quotient rules.
- S10. **Chain Rule** - I can compute derivatives correctly using the chain rule for function composition.

S11. Combining Formulas & Strategy - I can compute derivatives correctly using multiple rules in combination. I know which rules to apply to compute the derivative of a function.

Applications of Derivatives

I can use derivatives to understand and solve *genuine applications*.

S12. Maxima and Minima - I can identify relative and absolute extrema (maximum and minimum points) of a function graphically. I can use calculus to identify critical points and inflection points of functions and correctly apply them to identifying extrema. I can determine absolute extrema for a function on a closed interval.

S13. Derivatives and Graphs II - I can interpret f' and f'' for a function f graphically and descriptively. I can use information about f , f' , and f'' to create my own examples of functions and can explain why my examples are correct.

S14. STEM Applications - I can interpret the derivative as a rate of change. I can do this in the context of economics and population growth. I can use derivatives to explain the relationship between position, velocity, and acceleration functions, and solve problems in these contexts.

S15. Applied Optimization - I can correctly setup applied optimization problems. I can use calculus to solve applied optimization problems.

Academic Engagement

I am developing *habits of academic engagement* that will prepare me for upper-level coursework.

S16. Homework - I am consistently completing the homework sets posted on Edfinity.

For this standard, a **Complete** designation will be awarded for an overall Edfinity score of at least 90%, or an **In-Progress** designation for an overall Edfinity score of at least 75%.

These standards connect to Wooster's graduate qualities, including in the following areas:

- Independent Thinking, through the ability to:
 - ▶ Engage in critical and creative thinking.
 - ▶ Embody the intellectual curiosity, passion, and self-confidence necessary for life-long learning.
 - ▶ Appreciate and critique ideas.
- Integrative and Collaborative Inquiry, through the ability to:
 - ▶ Actively integrate theory and practice.
- Dynamic Understanding of the Liberal Arts through the ability to:
 - ▶ Understand disciplinary knowledge in mathematics, and physical and natural sciences.
 - ▶ Demonstrate quantitative literacy.
 - ▶ Employ deep knowledge, insight, and judgment to solve real world problems.
- Effective Communication, through the ability to:

- ▶ Exhibit skill in written and digital communication.
- ▶ Engage in effective discourse through active listening, questioning, and reasoning.
- Justice and Civic/Social Responsibility, through the ability to:
 - ▶ Actively promote equity and inclusion.