# Math 1120 Calculus I

**Vital Information**

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Office Hours (In-Person and Zoom):
Monday, Friday: 12:00-1:00
Tuesday, Thursday: 10:30-11:30
Wednesday: 1:30-2:30
or just stop by! I don't mind drop-ins!

WELCOME TO CALCULUS! Calculus is not just another algebra course. The subjects are as far apart as the finite and the infinite - literally! While algebra deals with finite operations, calculus represents one of the human mind's first successful encounters with the infinite.

**The Text**

The text we be using is HawkesLearning for *Calculus: Early Transcendentals* by Sisson and Szarvas, second edition. From now on, I will refer to the textbook with the letters **SS**. We will cover Chapters 1-5 and part of Chapter 6. Much of Chapter 1 will be done through review exercises. **HawkesLearning includes an eBook copy of the text! If you want a print copy of the text, you can purchase one online from many outlets. You must have access to HawkesLearning - a copy of the physical textbook is optional!** How and where you purchased your text affects your access to this important online tool.

If you received your textbook through the Textbooks for All program or purchased an access code through the bookstore, you should have an access code for HawkesLearning. If you are unable to purchase access right away, there is a temporary access option that you can use immediately. Instructions on how to register are provided on the website. The temporary trial option WILL run out in a few weeks, so do not think that you can string together a series of temporary access codes!

**AI, Chegg, and Any Other Online Tool**

You will *not* have access to any online information during exams or quizzes. While these utilities can be helpful when *learning* material, you must do your homework and study for exams and quizzes without using any online tools. Using any online utilities on exams or quizzes is academic dishonesty and will be treated as such. I recommend that you read Carthage's Academic Honesty policy thoroughly; it is *very* strict.

**Course Goals**

By the end of the course, students should be able to do the following.

- Compute or recall derivatives and antiderivatives involving polynomials, trigonometric functions, exponential functions, and logarithmic functions.

- Use the sum rule, product rule, quotient rule, and chain rule to compute derivatives; use substitution to find antiderivatives.

- Interpret and identify differential calculus material in graphs; use calculus material in applications.

- Write calculus material using correct notation and appropriate form.

- Demonstrate sufficient knowledge of the course content.

**Topics Covered**

This course will cover the following topics.

- A brief review of algebra, trigonometry, logarithms, and exponential functions.

- Graphing with and without calculus.

- Analytic Geometry.

- Differentiation, including implicit differentiation.

- Techniques of differentiation.

- Applications of differentiation.

- Antiderivatives and definite integrals, including Riemann sums.

- The Fundamental Theorem of Calculus.

- Some applications of definite integrals, including area, volume, volume of solids of revolution, arc length, and surface area of surfaces of revolution.

**Skills**

In this course we will spend a significant amount of time developing these skills.

- Writing mathematics using *complete sentences, correct notation, proper organization, and clear explanations.*

- Using technology as computational and communication tools.

- Deciding whether to use technology or hand computation in a given situation.

- Problem solving using quantitative reasoning.

**Grades**

Your grade in this class will be based on the following items.

| | |
|---|---|
| HawkesLearning Homework | 10% |
| Written Homework | 10% |
| Online Quizzes/In-Class Work | 10% |
| Formal Quizzes | 10% |
| Three Exams | 45% |
| Cumulative Final Exam | 15% |
| | 100% |

If you ever have any questions or concerns about your grade please come and talk to me. We may not be able to iron out every problem but at least we can talk about the situation and understand each other's concerns. I post all grades to Schoology as soon as I they are available.

My grading scale for a score of $x$ is given below.

| | |
|---|---|
| $92 \leq x \leq 100$ | A |
| $90 \leq x < 92$ | A- |
| $88 \leq x < 90$ | B+ |
| $82 \leq x < 88$ | B |
| $80 \leq x < 82$ | B- |
| $78 \leq x < 80$ | C+ |
| $72 \leq x < 78$ | C |
| $70 \leq x < 72$ | C- |
| $68 \leq x < 70$ | D+ |
| $62 \leq x < 68$ | D |
| $60 \leq x < 62$ | D- |
| $0 \leq x < 60$ | F |

**Homework Assignments**

I maintain a web page containing the homework assignments for this course, together with other information. The main page is at the following address.

`http://www.marksnavely.us`

You can go directly to the course website, or use the link in the Schoology site. Homework assignments will be collected as specified on the web page and on HawkesLearning, usually at the beginning of every class meeting except review days and exam days. Check the web page for specific assignments and due dates. I provide homework solutions as requested on the Help Page on the course website. The user name is **student** and the password is **mathhelp**. This is the user name and password that you will use everywhere on my website!

**Homework is due at the beginning of class. Online homework is set to be due at the start of class. Place any written assignments on the pile at the front**

of the room or scan the assignment or email it to me as a single pdf document before class begins. **I will not accept late homework (written, online quizzes, etc.) unless there are exceptional circumstances, which will be determined on a case-by-case basis.** I will be collecting the homework as indicated on the course website. **I strongly encourage you to work in pairs or trios on these assignments, but everyone must turn in their own work. I recommend working together to figure out the problems but writing by yourself.**

**I will not answer questions over homework on the day it is due, and I ask that you not stop by my office right before class with questions. I also will not "pre-grade" your work ("Would you look at this and tell me if it's right?").** If you think your work is correct, turn it in. If you don't think it's correct, why don't you think it's correct? I *love* to answer questions you have about the problems you're working on, but "Tell me if this is right" isn't a question.

### Schoology

Carthage uses a course management system called Schoology. You've probably been introduced to this package elsewhere. I will post grades there as often as I can, and I have included a link to the course website.

### Quizzes and Exams

We will have a quiz or exam most Thursdays, and other quizzes when needed. You should view these as a learning experience. You have the chance to see how much of the material you understand when the books and notes are put away, and quizzes help you get a feel for what types of questions I will be asking on the exams. If you have trouble with a quiz question, you should review your notes and homework *before the next class period!* PLEASE USE THE RESTROOM BEFORE COMING TO CLASS ON QUIZ DAYS AND EXAM DAYS!

### Office Hours

During office hours, I promise to be in my office and ready to help you in any way I can. I realize that you may have a another class during my office hours, so I welcome appointments and drop-ins. If you stop by and the blind is up, tap on the door and I'll let you know if I can help you at that time! If I'm on the phone, after I see you, please go to the chairs in the hallway and wait. I'll come to you when I get off the phone. If the blind is down or the light is off in my office, there is a reason. You don't need to bother to knock - if I'm not in, I won't answer; if I'm in but the blind is down, it is down for a reason.

### Computers and Calculators

We use a computer program called *Mathematica* in this course, and may also use a website called Desmos. *Mathematica* is available in the MathLab next door, and you can download and install the entire package on your computer for free. If you do not want to install Mathematica on your computer, there is an online version available through user.wolfram.com that runs through a web browser. More information is on the course website. While this is not a course in *Mathematica*, the mathematics department at Carthage teaches the computer program as a tool, and a very important tool. We may also use *Microsoft Excel* from time to time.

Questions always arise about graphing calculators. Any calculator that has trigonometric functions, exponential functions and logarithms will do just fine. The TI-30 IIS is a great calculator at a very reasonable price. On tests and quizzes, I may ask those of you who have graphing calculators not to use the calculator's graphing or equation solving capabilities.

**Five Important Items**

- **If you're working online, whether taking a quiz or working homework, the same rules apply as if you were working in person.** For homework, I encourage you to work together, but you should be working on problems together, not just sharing answers. If you're taking a quiz or exam online, you should do your own work, with no assistance from any other person, website, book, text, notes, or anything that you would not be permitted to use in class. You should not use the graphing capabilities of your calculator, nor should you use your calculator to compute any derivatives.

- **Please turn off all cell phones, music players, and other electronic devices before class, including exam days.** If you need to have your communication equipment on during class, please talk to me before class starts. Texting during class is rude and not appropriate behavior. **Headphones and earbuds are not permitted during exams or quizzes.**

- **Carthage College strives to make all learning experiences as accessible as possible.** If you anticipate or experience academic barriers due to your disability (including mental health, learning disorders, and chronic medical conditions), please let me know immediately so we can discuss options privately. To establish reasonable accommodations, you must register with Warren Wolchuk in Learning Accessibility Services (wwolchuk@carthage.edu).

- **We do have class the day before break, and we may have quizzes those days.** Rides leaving early and airline reservations are **not** valid excuses. If you have three final exams in one day during the final exam period, please let me know so that arrangements can be made.

- **I live stream all of our classes.** If you need to miss class for some reason, you can still participate in class by asking questions in the chat. **Homework is still due at the beginning of class even if you are not present - submit your homework as a pdf file via email. In-class work should be submitted immediately after class via email, preferably as a pdf.** You may participate in class through the live stream **twice** this semester. If you are on the live stream more than twice, I may not accept your in-class work. Exceptions will be made on a case-by-case basis.

**College is not 13th grade!**

How is college calculus different from high school calculus? That is a difficult question to answer, but I offer some ways in which this course is different from high school courses I have examined.

- **We move quickly.** This course will cover the same amount of material as one year of high school AP calculus AB, and we have considerably less classroom time. We may also have a bit more lecture, and a bit less group work.

- **We want you to understand how calculus works, not how to take a test.** Many high school calculus classes are designed to help students pass the AP test. That's not a bad thing, but realize that our goals are somewhat different. We want you to be able to use calculus to solve new problems. To do that, you have to understand how it works, so we may not look at calculus the same way students and teachers do in high school.

- **You need to know when you are allowed to use the techniques we learn.** Word to the wise: I love homework problems that don't use the methods of the current section!

- **You are expected to do more outside of class.** Not every homework problem will be exactly like an example we did in class.

- **Reading assignments are real assignments.** Reading assignments are essential in achieving the previous three goals. You need to read more than just the examples! The words in the text are there for a reason - to help you understand how calculus works, to help you know when to use the techniques and when not to use them, and to expand upon the work we did in class.

- **We will emphasize writing and communication.** Whether you go to graduate school or into the business sector, you will probably need to communicate technical material to non-technical people. Good communication skills are a must. Graduates have told us that this was the most important thing we taught them!

- **You are responsible for your education.** You paid for it, and college is not cheap. It is your job to make the most of it. I'm here to help those who want to learn. If you don't want to learn, it's not my job to search you out and make you learn.

## Student Support Resources

The information below is provided by Carthage. I include it in my syllabus at the request of the college.

**Course Description:** *"Calculus I (MTH)(QR) 4cr This course is a study of coordinate systems, straight lines and conic sections, theory of limits, differentiations of algebraic functions, applications to slopes and curves, and maxima and minima."*

**Academic Integrity Statement - Academic Honesty Policy:** Academic honesty is a necessary corollary to academic freedom; each concept presupposes the other. The goals and objectives of Carthage fall within the implicit context of academic honesty. Therefore, Carthage expects academic honesty from all of its members and maintains college-wide honesty guidelines and penalties that must be supported by the whole academic community. The guidelines and penalties are found in the Carthage Community Code; a link to the community code is on the course website.

**Learning Accessibility Service Information:** Carthage College strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers due to your particular circumstances (including mental health, learning disorders, and chronic medical conditions), please let me know immediately so we can discuss options privately. To establish reasonable accommodations, you must register with the Director of Learning Accessibility Services Warren Wolchuk (wwolchuk@carthage.edu).

**The Health and Counseling Center:** The Health and Counseling Center (HCC) addresses student physical, mental, and emotional well-being. All services, provided by experienced professionals, are free and confidential to currently enrolled, full-time undergraduate students. Students must call or visit the HCC to schedule an appointment. Health services are available by walk-in or appointment from 8:30 am - 3:30 pm. Counseling walk-in sessions are available Monday through Friday from 11:30 am to 1:00 pm, last appointment begins around 12:30 pm, first-come first-seen.
    TWC, first floor (behind mailboxes) 262-551-5710
    https://www.carthage.edu/campus-life/health-counseling/
    Mon-Fri 8:30 am to 1 pm and 2 pm to 4:00 pm.
    Students can visit **Uwill** to access teletherapy services.

**Peer Tutoring:** Peer Tutoring is available to assist you with any aspect of the class, including understanding readings, preparing for quizzes, studying for exams, and developing effective study habits. This free campus resource is here to help everyone maximize their academic potential. You can see available tutors and make an appointment up to seven days in advance on Navigate. For more information, visit carthage.edu/tutoring.

**Student-Athletes:** If you are a student-athlete, you should inform me of this status at the start of the semester by providing me with the Coach's Letter that you received (this letter should name your head coach and the competition dates, and should have been provided to you at the first meeting). In addition to sharing this information at the start of the semester, you need to notify me of any class days to be missed due to a Carthage Athletics-sponsored event in which you are participating. You should notify me in advance of each upcoming contest. (For example, if you know you are traveling with the team on Friday, please let me know several days in advance). You will need to make up any missed lectures, assignments, and/or exams. Some work that can happen only during class time, such as discussion points, is not possible to make up. Students are encouraged to be in communication often; excessive absences will necessitate conversations with the instructor and the associate athletic director and may impact your grade. Please note: student-athletes cannot miss class to attend a practice session or athletic training appointment.

**Respect and Equity Statement:** One of this course's priorities is to create an environment where everyone feels safe and welcome. All students are encouraged to participate, speak up, and express their viewpoints in a manner that is in keeping with the principles we seek to maintain as a community: mutual respect, tolerance of difference, kindness, and compassion. Please be considerate of others during class and in online communications. Carthage College is committed to equal access to programs, facilities, admission, and employment for all persons. It is the policy of the college to maintain an environment free of harassment and free of discrimination against any person because of actual or perceived age, race, color, ancestry, national

origin, religion, creed, service in the uniformed services (as defined in state and federal law), veteran status, sex, sexual orientation, marital or family status, pregnancy, pregnancy-related conditions, physical or mental disability, gender, gender identity, gender expression, genetic information or political ideas. Discriminatory conduct and harassment, as well as sexual misconduct and relationship violence, violate the dignity of individuals and impede the realization of the college's educational mission, and will not be tolerated.

**Title IX Statement:** This course will foster a learning environment in which people of all identities are encouraged to contribute their perspectives to academic discourse. Language is gender-inclusive and non-sexist when we use words that affirm and respect how people describe, express, and experience their gender. Just as sexist language excludes women's experiences, non-gender-inclusive language excludes the experiences of individuals whose identities may not fit the gender binary, and/or who may not identify with the sex they were assigned at birth. Gender-inclusive/non-sexist language acknowledges people of any gender (for example, first-year student versus freshman, chair versus chairman, humankind versus mankind, etc.). It also affirms non-binary gender identifications and recognizes the difference between biological sex and gender expression. Students, faculty, and staff may share their pronouns and names, and these gender identities and gender expressions will be honored. Title IX makes it clear that violence and harassment based on sex and gender 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, etc. If you or someone you know has been harassed or assaulted, you can find resources on the Carthage website at www.carthage.edu/title-ix.

## Mission Statement
SEEKING TRUTH, BUILDING STRENGTH, INSPIRING SERVICE - TOGETHER