

# MTH 201 Sections 02 and 04, Fall 2020 Syllabus

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**Welcome to Calculus!** I'm Robert Talbert, Professor of Mathematics, and I am grateful that you are signed up for the course and am looking forward to working with you this semester. Before reading any further, here are some first things to know:

1. **I want you to succeed.** Your intellectual growth is my primary priority and responsibility this semester. I am committed to working with you to help you learn, to make sure you're not just surviving but thriving in our class and having productive, positive experiences with fascinating ideas that lead to a lifetime of further learning in this subject.
2. **Success doesn't come easy.** "Success" means more than just good grades. It involves being challenged intellectually and being regularly pushed out of your comfort zone and not settling for less than your best work. It also takes active, intentional participation even when it's difficult to get motivated. And, the pandemic is making everything harder than it needs to be. Make no mistake, you'll be working **hard** in MTH 201.
3. **But the struggle is normal and healthy.** When you're exercising to get physically stronger, the most explosive growth happens at the moment that you are struggling the hardest and you might feel you can't go any further. The same is true for getting mentally stronger. Your earlier math courses might have been easy for you, and so for you, struggle feels like you're doing something wrong. **This is not the case. Struggle is actually a sign you're doing things right.**
4. **Every facet of this course is built to give you support when you are challenged, and every person in the course has your back.** Throughout the semester, you will be challenged but also given a lot of support to help you rise to the challenge. I will be readily available to help in several channels; your classmates will be available for help through structured and informal support groups; and the GVSU Math Department provides free help through the Math Center. There are people there to help every step of the way.

I am really looking forward to working with you in this course. It won't be easy, but if we work together and stay focused, you'll learn an amazing amount and have a great experience.

## Course Information

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**Instructor:** Robert Talbert, Ph.D., Professor of Mathematics. Email: [talbertr@gvsu.edu](mailto:talbertr@gvsu.edu). Phone: 616.331.8968.

**Office:** My office is **Mackinac Hall C-2-513**. However, all student meetings this semester will be conducted online unless you have a specific need that requires a physical meeting.

**Drop-in hours:** Monday through Thursday, 1-1:50pm on Zoom, using the link <http://gvsu.edu/s/1qX> and

password **growthmind**. **You do not need an appointment; just click the link.** If you cannot attend drop-in hours, you can contact me by email, through a Campuswire direct message, or by scheduling an appointment at <http://rtalbert.youcanbook.me>.

**Availability:** I typically only check email and other messages between 6am and 6pm on weekdays and once on Saturday mornings. If you send a message that needs a response during those times, you can expect to get a response within 6 hours. Otherwise you can expect one when I am back online.

**Face-to-face Meetings:** Your section is split into two groups (“Red” and “Blue”) and the different groups take turns meeting face-to-face (F2F) and working online. The time and location of your F2F meetings depends on your section and group:

Section	Red group	Blue group
02	Monday/Wednesday 10:00-10:50am, Mackinac Hall D-1-135	Tuesday/Thursday 10:00-10:50am, Mackinac Hall D-1-135
04	Monday/Wednesday 3:00-3:50pm, Mackinac Hall A-1-165	Tuesday/Thursday 3:00-3:50pm, Mackinac Hall A-1-165

Please **do not attend the F2F meeting for the group you are not part of**, as this might lead to social distancing issues.

**Textbook:** *Active Calculus* (2018 edition) by Matt Boelkins. The textbook is freely available online at <https://activecalculus.org/ACS.html>. **This online version is preferred.** There is also a PDF version available, and instructions for ordering a printed copy, at <https://activecalculus.org/>.

**Course website and discussion board:** All course announcements, assignments, and grades will be communicated using the course **Blackboard** site available at <http://mybb.gvsu.edu>. All other course communications will be available through **Campuswire**, our class discussion tool; to join, go to <https://campuswire.com/p/GAD2DF67E> and use the code 7913 .

**Course calendar:** A Google Calendar, will all due dates and other important time-sensitive information posted on it, is available on Blackboard in the left sidebar. **Be sure to check the calendar once daily** for upcoming events. The calendar is kept up-to-date constantly and **in cases of apparent conflicts in times or dates, the calendar is considered to be correct always.**

**Definition of “Week”:** Quite often we’ll refer to a “week” as a unit of time in the course. For us, a “week” is *the period of time starting at 12:01am Eastern on Monday and ending at 11:59pm Eastern the following Sunday.*

**Technology:** To use the course tools, you will need to have access to the following:

- **A laptop or tablet device**, preferably one with a **touchscreen that allows writing on the screen with a stylus**. Please plan on bringing this device with you to all F2F meetings.
- **A modern web browser**. Chrome is preferred, but browsers such as Firefox and Edge are also fine.
- **Reliable access to high-speed internet.**
- **An active GVSU network account** so that you can access email, Blackboard, and Google Docs.

If you have any issue with accessing any of the above, please let me know as soon as possible.

**Student communication expectations:** Due to the hybrid format of the course and the unpredictable, fast-changing pandemic situation, it is imperative that you maintain awareness of course announcements and other communications. **Each student is expected to check their email, Blackboard announcements, Campuswire posts, and the course calendar at least once per day and preferably more than once.** All important information will be pushed to you as soon as possible; it's your responsibility to check messages regularly and act on the information. *"I didn't see the announcement"* will not be accepted as an excuse!

## What Calculus is about

Calculus is the mathematical study of **change**. Quite frequently we care not only about *how much* there is of a certain quantity but *how fast it is changing* at a given point in time. For example, right now we care about the *number* of Covid-19 cases in Michigan, but in some ways we care *more* about the *rate at which those cases are going up or down*. Those two pieces of information together — the amount *and* the rate of change — are needed to make real decisions.

Calculus starts with simple geometry and introduces the important concept of the *limit* to develop an entire language, focused on the *derivative* and the *definite integral*, that allows us to describe and calculate change.

**Course content:** We will cover chapters 1-4 of the *Active Calculus* text. Key topics include: understanding functions from the perspective of calculus, the concept of limit, the definition and meaning of the derivative, computing derivatives, using derivatives in applications, antiderivatives and definite integrals and their meaning, and the Fundamental Theorem of Calculus. In every topic, we seek a **conceptual understanding** from several perspectives, the ability to **apply ideas**, development of **logical reasoning and communication skills**, and an **appreciation for calculus as a whole**.

**Official course description:** A development of the fundamental concepts of calculus using graphical, numerical, and analytical methods with algebraic and trigonometric functions of a single variable. Limits and continuity, derivatives, indefinite integrals, definite integrals, and the Fundamental Theorem of Calculus; applications of derivatives and integrals. Fulfills Foundations - Mathematical Sciences. Offered every semester. *Prerequisites:* MTH 122 and MTH 123; or MTH 124; or assignment through Grand Valley math placement.

## Schedule and flow of course activities

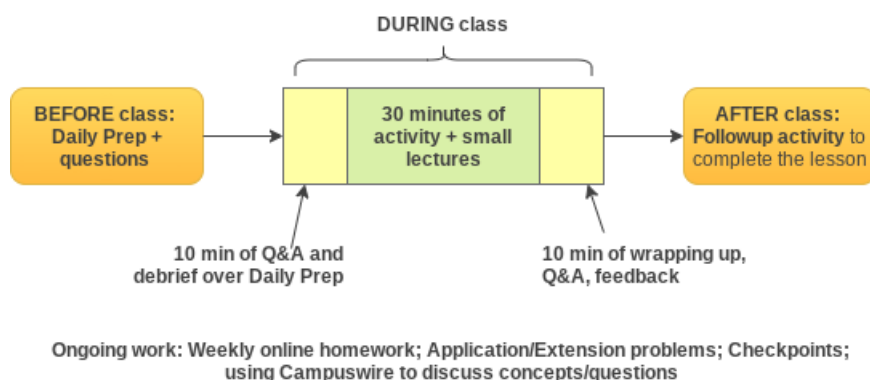
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Your work in the class will follow a pattern that will involve you **before**, **during**, and **after** our meetings:

- **BEFORE each class:** You'll complete a **Daily Prep** assignment in which you'll get familiar with the basic concepts of the upcoming lesson. Daily Prep assignments will typically be due by 11:59pm ET the night before the lesson; you'll be able to work ahead if you want.
- **DURING each class:** Class meetings will typically start with 10 minutes for going over the Daily Prep assignments and fielding questions. Then we will spend around 30 minutes doing activities together on the harder concepts from the material. **Lectures on the material will be infrequent and short;**

you'll watch longer lectures prior to class in your Daily Prep. Then we will typically spend 10 minutes wrapping up, going through some of the main points of the activity, taking short ungraded quizzes to give you feedback on your learning, and getting your feedback on the lesson.

- **AFTER each class:** Only about half the lesson is covered during the in-class session. The rest of the lesson is learned through **Followup Activities** that you will do asynchronously (outside of class on your own schedule). There are also recurring assignments described later in this document that take place outside of class meetings that you'll be doing.



## Your learning activities for the course

The learning activities for the course cover three basic areas of learning: *basic skills*, *applications* of those basic skills, and *engagement* in the learning community of the course. Here are the categories of work you'll be doing:

- **Daily Preparation (DP):** You will complete these before each of your F2F meetings. Each Daily Prep assignment involves reading, video-watching, or interaction and then working exercises on basic learning objectives.
- **Followup Activities (FA):** Followup activities will complete the lesson for each part of a module and are done after a F2F meeting. They're the equivalent of a second class meetings' worth of active learning tasks, only they're done asynchronously online.
- **Learning Target Checks:** A major part of the course is your demonstrating progress toward the 20 different **Learning Targets**, found at the end of this syllabus. To demonstrate your knowledge of a Learning Target, you'll do work to earn a "check" on that Target. Later in the syllabus, we'll describe four different ways to do this.
- **Application/Extension Problems (AEPs):** AEPs are sets of problems that lead you through applications of the basic skills of the course to solving real-world problems or extensions of the ideas in those skills. These frequently involve using technology to build models of real-world situations and then using calculus with those models to draw useful conclusions.
- **Practice and Engagement (PE):** Staying involved with others in the course and building your skill by practicing with the basics are both crucial pieces to success in MTH 201. To keep you on track, you'll earn Practice and Engagement (PE) Credits by completing tasks related to this goal throughout the semester. One source of PE credits is completing Daily Prep and Followup activities; **each of these is worth 1 PE credit**. Also, each week there will be a 16-problem homework set assigned using the

WeBWorK online homework system; each WeBWorK problem you successfully complete will earn 1 PE credit as well. There will be numerous other opportunities to earn PE credits, for example through the Startup Assignment.

Additionally, we will have a **Final Exam** consisting of two parts. The first part focuses on big-picture questions on the overall ideas of the course. Your performance on this part contributes to the plus/minus grade in the course. The other part of the final exam will be one final Checkpoint to give you the chance to meet additional learning targets that have not yet been mastered. The Final Exam will be done asynchronously; it will be assigned on Monday December 14 and due on Wednesday December 16.

## How your work is graded

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Our course uses a **mastery-based grading system** in which **most graded work does not have a point value** but is instead graded on the basis of **whether or not it meets standards of acceptable work or not**. When you submit most work, I will evaluate it relative to those standards (which will be publicized in advance) and if your work doesn't meet the standard, you'll be given feedback on it and then a chance to redo it. So very little in the course is ever "one and done"; your grade in the course instead will be based on what you *eventually* learn.

## How Learning Targets are graded

There are 20 Learning Targets in the course, which together form an outline of all the important concepts in Calculus. Ten (10) of these are designated as **Core** targets due to their central nature in Calculus, and the other 10 are designated as **Supplemental**.

An important goal for you in the course is to **demonstrate proficiency, and eventually mastery, of all the Core targets and as many of the Supplemental targets as you can**. Accordingly, there are two levels of achievement on the Learning Targets: **Proficiency** and **Mastery**. Each time you provide a piece of evidence that shows you know how to perform the task in a Learning Target, you will earn a "check" on that Learning Target. **Earning one check on a Learning Target gives puts you at "Proficiency" level on that Target. Earning two checks puts you at "Mastery" level.**

You can earn a check on a Learning Target in **four different ways**:

1. By **completing a problem on a Checkpoint** that pertains to that Learning Target. A *Checkpoint* is a take-home exam given every 1-2 weeks (see the calendar for dates) that contains one (sometimes multi-part) problem per Learning Target that has been covered in class activities up to that point. Checkpoint are cumulative, so each one contains new versions of all the problems from previous Checkpoints, plus new problems for newly-covered Learning Targets. This way, if you do work on a problem that doesn't meet the standard for acceptable work, you can redo it later.
2. By **scheduling an oral exam** (through Zoom/Google Meet) during which you'll be given a problem similar to one on a Checkpoint for the Learning Target, and completing the problem satisfactorily along with followup questions I may ask.
3. By **creating a video** of yourself in which you work out the solution to a problem similar to one on a

Checkpoint for the Learning Target (that I will provide), then submitting that video and answering followup questions via a video meeting.

4. By **using work on an AEP** that, in your view, shows evidence that you know how to perform the task on a Learning Target. In this option, you'll schedule a video interview with me and make the case for your work, and I'll listen and then ask some followup questions that you'll need to address.

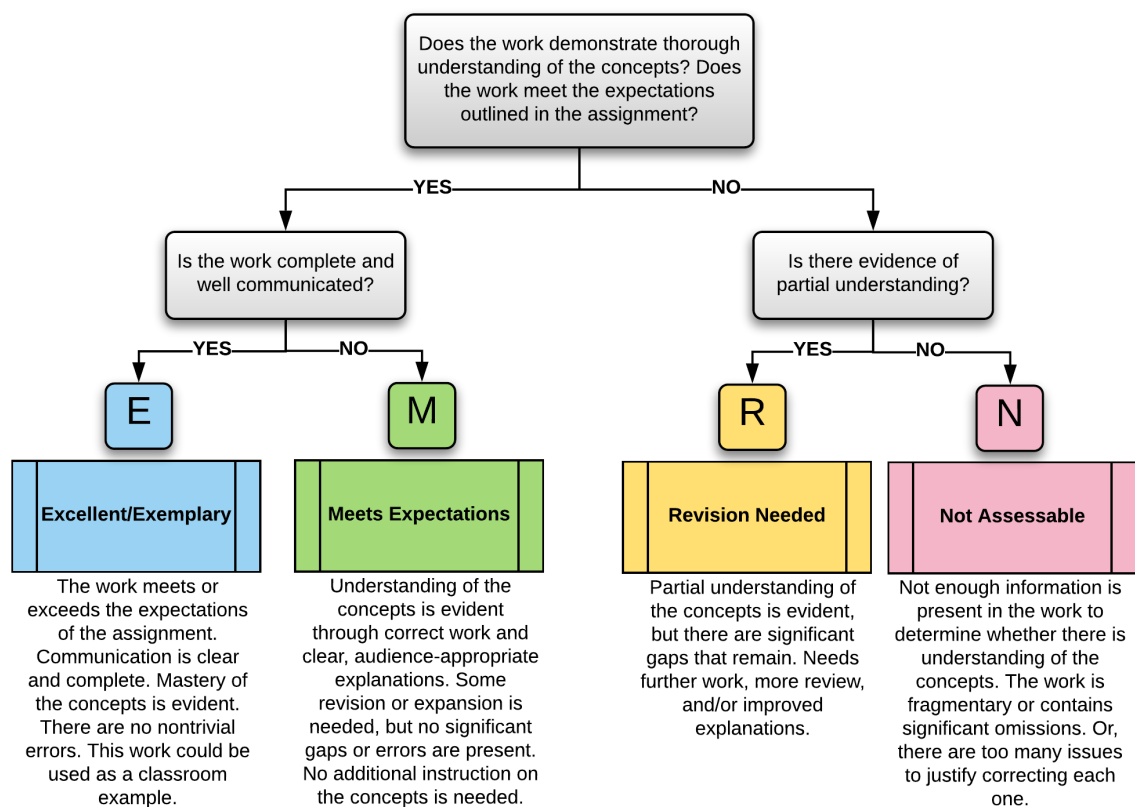
Most students earn most of their checks through Checkpoints rather than the three alternatives, but you should feel free to use different options to see if one works better for you than others. However, please note some important restrictions:

- To earn Mastery level on a Learning Target, *at least one of your two checks must be earned through a Checkpoint or through an oral exam.*
- *No more than one oral exam, one video, or one AEP can be used in a given week to earn a check.* (To prevent a student from scheduling 18-20 oral exams in the last week of class!)

## How everything else is graded

**Daily Prep and Followup Activities** are graded with either a “check” or an “x”, based on completeness and effort. **A “check” is given if the work is turned in on time, and if every item has a response that represents a good-faith effort to be right.** Actual correctness is not factored in, so you should feel free to make honest mistakes and present your best understanding of the concepts, even if it's flawed, as long as you do a thorough job of it. An “x” will be given to work that is late, incomplete (there's at least one item that has no response), or shows insufficient effort (for example just putting down “I don't know” without trying).

**AEPs:** These are more involved, and are graded using one of four labels: **E** (Excellent/Exemplary), **M** (Meets Expectations), **R** (Revision Needed), or **N** (Not Enough Information/Not Assessable). Those labels are assigned using this flowchart:



EMRN rubric based on the EMRF rubric, due to Rodney Stutzman and Kimberly Race: <http://eric.ed.gov/?id=EJ717675>  
EMRN rubric by Robert Talbert is licensed under CC BY-SA 4.0



**PE credits** vary in their grading. Many credits are given for simply completing a task (e.g. filling out a survey). Others require that certain standards are met before the credit is given. In particular, *PE credits earned through WeBWork homework problems are only given if the answer submitted to WeBWork is correct.* Please note, some (but not many) WeBWork problems allow partial credit; in this case, partial PE credit is given.

## How to revise and resubmit your work

The most significant and challenging work you do in the course — Learning Target checks and AEPs — **can be revised and resubmitted to allow you to improve on previous attempts and raise your grade.** Your course grade is therefore based on what you *eventually* show that you can do, not just the results of a single moment. The process of revision/resubmission depends on the item:

**Learning Target check attempts** can be revised by reattempting the item on a later Checkpoint or through one of the other means described earlier. For example, if you attempt a Checkpoint problem on a target and don't do good-enough work, you can reattempt it on a later Checkpoint, or through an oral exam, or a video, or an AEP. Remember, though, only one check per week can be earned through oral exams, videos, or AEPs; and Mastery level on a target requires at least one check earned by a Checkpoint or oral exam.

**AEPs** earning M, R, or N can be revised and resubmitted at any time just by revising the work based on my feedback and then uploading the revision. They will be regraded using the same standards as originally used. There are two important limitations on your revision and resubmission of AEP's:

**Two-submission-per-week rule: No more than two submissions of AEP sets may be made per week. This can be two new sets, two revisions, or one of each.** A third submission can be purchased with a token (below) but **four or more submissions in a week are not allowed under any circumstance.**

**Revision of N grades rule: Students have to spend a token (below) in order to revise any AEP that was graded at "N" (Not Assessable).**

**Daily Prep, Followup, and most PE credit opportunities cannot be revised** because they are graded on completeness and effort, and therefore can only be done once. However, **WeBWork problems can be reattempted as many times as needed until the deadline for the problem set** in case you come up with a wrong answer.

## Tokens

Tokens are a fake currency that are used to "purchase" exceptions to course policies and other advantageous items in the course. Every student starts with five of these. One token can be spent for any of the following at any time:

- Attempt a second Learning Target in a given week through non-Checkpoint means
- Submit a third AEP (either revision or new submission) in a given week
- Revise an AEP graded "N"
- Extend the deadline on a Checkpoint by 12 hours (request must be submitted prior to the original deadline)
- Extend the deadline on a WeBWork set by 24 hours (request must be submitted prior to the original deadline)
- Purchase 3 PE credits

With the exception of the last item, tokens may not be "stacked", for example by spending 3 tokens to get a 72-hour WeBWork deadline extension. You can stack tokens to purchase PE credits (e.g. spend 3 to get 9 credits).

## How your semester grade is determined

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Your grade for the semester is not based on points because most items in the course don't carry point values. Instead, your grade will be based on **the quantity and quality of evidence you can provide of across-the-board mastery of Calculus** — the basic skills found in the Learning Targets, the applications found in AEPs, and your daily work and engagement.

### Determining your base grade



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**.

Category:	D	C	B	A
Core LTs (10)	Proficient 5	Master 5, Proficient 5	Master 7, Proficient 3	Master 10
Supplemental LTs (10)	Proficient 5	Master 3, Proficient 3	Master 3, Proficient 5	Master 5, Proficient 3
AEPs (8)	2 M+	5 M+	2 E, 4 M+	4 E, 2 M+
DP + FA (48)	24	34	39	44
PE	100	170	190	210

Again, **all of the requirements in a grade column must be met or exceeded in order to earn that grade**. Otherwise your grade is the *highest* grade for which *all* the requirements are met or exceeded. For example, if you only earn 180 PE credits during the semester, you are not eligible for a grade of B or A in the course; your base grade would be a C at most. **A grade of F is given if not all the requirements for a D are met.**

In this table, please note:

- For AEPs, “M+” means “M or better” which means “M or E”. Therefore, for example, if you earn 3 E grades and 3 M grades on AEPs, you’ve satisfied the requirements for a B because you have earned 2 E’s and 4 grades that are “M or better”.
- The fourth row of the table is the *sum* of your Daily Prep and Followup activities. There are 24 of each of these planned for a total of 48. If you fall behind in Daily Prep, you can double down on Followup activities to make up for it, or vice versa. But you should plan on completing all or almost all of each of these, as they are only graded on the basis of completeness and effort.

**Important note on PE credits:** There will be at least 240 PE credits available: 48 total through Daily Prep and Followup activities plus 192 through WeBWork. Other PE credit opportunities will be available but probably not more than 50 credits’ worth. Therefore, **it is likely impossible to earn a C in the course (requirement of 170 PE credits) without doing at least 130-150 points of WeBWork.**

## Determining plus/minus modifiers

A **“plus”** is added to the base grade if all requirements for a base grade are satisfied, *and either* the LT (both the Core and Supplemental) **or** AEP requirement for the next level up is also satisfied; **and** the big-picture portion of the final exam is passed.

A **“minus”** is added to the base grade above if: (1) All requirements for a base grade are satisfied *except one*, and that one is no more than two levels below the others; **or** (2) You meet the minimum requirements for a

base grade but do not pass the big-picture portion of the final exam. In the first case, if the deficient area is more than two levels below, the penalty will be either a minus or a full letter grade, at my discretion.

## Academic integrity

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The university's academic integrity policy is described in the GVSU Student Code [which you can read online here](#). **Every student has the responsibility of reading and understanding these policies, especially the consequences for engaging in academically dishonest activities.**

Some of the work you will do in the course involves collaboration; at other times collaboration may be allowed but not required; while at others it may not be allowed. Here are the rules for collaboration on each kind of work you do:

- *Daily Prep and Followup Activities*: You may collaborate with others, but your writeup must be in your own words. You may not copy someone's work and submit it as your own, nor may you copy the ideas from someone and simply change the wording.
- *Checkpoints* and other work done on Learning Targets: No interactions at all with another person or with unauthorized sources on the internet is allowed. Any evidence of using information from another person or source will be investigated as academic dishonesty.
- *AEPs*: Similarly, no interactions at all with another person or with unauthorized sources on the internet is allowed.
- *WeBWorkK*: You may discuss main ideas with other students, but you must come to the answer through your own work. Please note, the details of WeBWorkK problems are randomly generated and unique for each student, so you will have to eventually work each problem out yourself.

**In particular, use of "study" sites such as Chegg or Coursehero, or Q&A sites like Stack Exchange or Quora, to obtain help on graded work other than Daily Prep or Followups is forbidden and will automatically constitute academic dishonesty.**

All suspected instances of academic dishonesty will be thoroughly investigated, and whether a student has committed academic dishonesty is my determination to make based on the evidence. If I determine academic dishonesty has been committed, a report will be filed with the Dean of Students office, and the minimum penalty will be:

- *Daily Prep and Followup*: A grade of "x".
- *Checkpoints* and other Learning Target work: A grade of "x" and required expense of two tokens to reattempt; for severe cases, you may be barred from reattempting.
- *AEP's*: A grade of "N", and you will not be allowed to revise or resubmit the AEP for the rest of the semester.
- *WeBWorkK* problems: The entire problem set will be graded at a "0" (not just the problem that involved the academic dishonesty) and no reattempts allowed.

Note these are *minimum* penalties; additional penalties may be given including reduction of course grades and potential suspension from the university.

**Please note: There is no need to commit academic dishonesty in this class since you can revise and resubmit almost anything.** If you come to believe that cheating or plagiarism is necessary given your situation: DON'T DO IT. Get some help instead and take comfort in the fact that you can just submit your best effort, get feedback, and try again later.

## Other course policies

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### Attendance, deadlines, and late work

**Attendance:** You are expected to participate in your group's F2F meetings twice per week. If you are feeling well and are comfortable being present in person, you should attend physically. However, if you are not feeling well or are not comfortable being present, **you may opt out of the F2F meeting and participate remotely instead.** Each F2F meeting will be live-streamed so you can join your group's meeting remotely if needed or desired. Please note, though, **this does not mean you can skip the meeting entirely.** You are still expected to participate (possibly remotely) with your group when it's your group's day to meet.

**Attending the other group's meetings:** Please **do not attend the F2F meetings for the group you are not part of.** That is, Red Team students should not attend Blue Team F2F meetings and vice versa. "Crashing" another group's meeting will violate social distancing requirements, and students attempting to do so will be asked to leave immediately. **However:** You are welcome to tune in to the other group's live stream if you wish, in case you were absent, want to see something a second time, etc.

**Deadlines and late work:** Deadlines are generally strictly enforced, and late work will not be accepted. However, you can spend tokens to extend deadlines for Checkpoints and WeBWoRK sets. Daily Prep and Followup activity deadlines will not be extended.

**AEP deadlines:** AEP sets do not have fixed deadlines, and you do not have to do all of them. The only deadline is a single deadline for all AEPs of **11:59pm Eastern on Friday, December 11** past which no AEP work of any kind may be submitted. Otherwise, simply work on AEPs at a reasonable, steady pace through the semester and turn them in when they are complete and you're ready to get feedback on them. However, remember the **Two-Item-Per-Week Rule** — you will not be able to procrastinate until the end of the term and do several all at once.

### Technology Support

If you encounter issues with technology, please use the appropriate source of help:

- *For help with Blackboard:* Email the Blackboard Help Desk at [bbadmin@gvsu.edu](mailto:bbadmin@gvsu.edu) or call (616) 331-8526. For hours of operation and more information see <https://www.gvsu.edu/elearn/help/>.
- *For help with the GVSU network, email, or printing:* Email the GVSU IT Help Desk at [helpdesk@gvsu.edu](mailto:helpdesk@gvsu.edu); or call (616) 331-2101 or toll free (855) 435-7488. For hours of operation and more information see <https://www.gvsu.edu/it/>.
- *For specific help with your computer:* Try the GVSU IT Help Desk (see previous bullet) or contact your

equipment manufacturer or computer store.

- *For help with course tools such as Desmos and Campuswire:* Ask a question on the #tech channel on Campuswire, seek out the help documentation in the tool, or do a targeted Google search.

Please note that I (**Prof. Talbert**) **am not able to provide student tech support** as I do not have access to your accounts or knowledge of your hardware. I can help with questions about course tools (Desmos, etc.) but please ask those questions on Campuswire so others can see and help too.

## Getting help and support

**Math Center:** GVSU's Math Tutoring Center is online with Blackboard Collaborate this semester. You can access virtual drop-in tutoring through a link in your Blackboard course called Math Tutoring Center or on our website at <http://gvsu.edu/tutoring/math/>. Then you need to click on the "Online Math Tutoring Center" button, which will require a GVSU login. There will be tutors online, ready to help, Monday through Thursday 10a – 9p, Friday 10a – 2p and Sunday 6p – 9p starting Wednesday, September 2nd. Bring questions about your technology, on methods and concepts, or on specific problems. All Math Center tutoring is free, so stop by early and often. When you enter the Collaborate room, please type your first and last name so you can get you signed in and connected with a tutor.

**Special learning needs:** If you have special needs because of learning, physical or other disabilities, it is your responsibility to contact Disability Support Resources (DSR) at 616-331-2490 or <http://www.gvsu.edu/dsr/>. DSR will help you arrange accommodations. Then, speak with me in person about making those accommodations and ensure that they are consistent with your arrangements with DSR.

**Basic needs security:** If you have difficulty affording groceries or accessing sufficient food to eat every day, or if you lack a safe and stable place to live, I encourage you to visit [Replenish](#), a food resource for GVSU students. If you are comfortable doing so, please speak with me about your circumstances so that I can advocate for you and to connect you with other campus resources.

**Gender identity and expression:** If, for purposes of gender identity and expression, your official name (in Banner) does not match your preferred name, your name can be updated in Blackboard. Please contact the registrar's office to submit this request. The registrar's office will contact the Blackboard administrator to make the change and will also contact your professors to inform them that your name in Banner will not match the name in Blackboard.

## Miscellaneous

**This course is subject to the GVSU policies listed at** <http://www.gvsu.edu/coursepolicies/>

**General education:** This course satisfies the Mathematical Sciences Foundation requirement for the General Education program. <https://www.gvsu.edu/gened/>

**Changes to this syllabus:** Changes to this syllabus may occur during the semester. In those cases, the changes will be announced in class and online, and if appropriate, students will be given a voice on how the

changes will be implemented. It is your responsibility stay abreast of the information passed along in course announcements so that you will be aware of any changes that take place.

**Credits:** Portions of the language of this syllabus were adapted from the syllabi of Prof. Matt Boelkins and Prof. David Clark, both of GVSU.

## Covid-19 Policies

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As you are well aware, we will be having class this semester while trying to navigate a global pandemic that seems to change every day. While we can't predict even the near future, the following are general guidelines and plans for how we can work productively together in the course.

### Taking care of yourself

Above all else, **take care of your own physical and mental health** during these difficult times. Make sure you are getting sufficient rest, staying connected to friends and family, and giving yourself time and space to do things you enjoy outside of college. [This website lists several good tips](#) for maintaining good self-care in our situation.

Before coming to campus, [perform a self-evaluation each time](#) and if you feel even the slightest bit of sickness or Covid-19 symptoms, stay home and participate remotely. You should be on campus only if you feel *completely healthy*. Remember that **you can opt out of your group's F2F meeting at any time and participate online synchronously — no questions asked, no permission needed, no penalty incurred**. Also note that *there are no graded assessments done in class* so you will never have to make up work that was turned in during class.

### Keeping our class meetings safe

When you are present in a F2F meeting, please observe the following:

**Wear a mask at all times.** Face coverings, such as masks, are required to be worn in the classroom. Students who have forgotten their face coverings may get a disposable mask at a campus office. The evidence is clear that [face coverings are a crucial part of keeping coronavirus at bay](#) and [support the university's commitment to providing all members of its community with an inclusive living and learning environment with equitable opportunities for success](#). GVSU's policy on face coverings is posted on the [Lakers Together web site](#). Students who are not able to wear a face covering due to a medical condition should [contact Disability Support Services \(DSR\)](#) to discuss their individual situation.

Please note, students who remove their masks during class, wear the mask incorrectly (for example, with the nose exposed), or refuse to wear a mask will be reminded of this policy once, and then asked to leave if non-compliance continues.

**Observe proper social distancing.** Your classroom has been specially arranged so that students are 6 feet apart from each other and from the professor at all times. This is sufficient for social distancing and close

enough so that 2-3 students can turn to each other and discuss a concept. We will also leverage technology to allow for remote communication, for example using the chat rooms in Campuswire. **Please do not encroach on the space of another person, or share physical objects such as pens, calculators, or paper.**

**Practice appropriate personal hygiene.** Wash your hands regularly or use hand sanitizer. If you must cough or sneeze, do so facing away from other people and use the inside of your elbow to cover your mouth, even if you have a mask on. You may wish to bring sanitizing wipes to wipe down your desk and seat before and after class.

## If plans change

We will begin the semester in “staggered hybrid” mode, but several things could happen during the semester that might alter this setup. The details for how we respond to events of the next 14 weeks depend on the situation, but please rest assured that I (Talbert) have plans in reserve for all likely scenarios including if the university goes fully online or if I cannot be present due to self-quarantine or infection. **Remember to check your email, Blackboard announcements, and Campuswire daily to stay notified of all course information.**

**Encouragement:** Although these plans can be scary and demoralizing, I want you to know that **GVSU is doing everything in its power to keep people safe from Covid-19**. If we observe reasonable precautions like the ones described above, **there is no reason to be afraid**. If we stay focused, remain flexible, and give our best work then we will learn just as well as in “normal” times, which I am hopeful will return soon.

## Course learning objectives

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By the end of the course, you will be able to:

- Use **functions** and other pre-Calculus mathematics proficiently.
- Calculate, use, and explain the concept of **limits**.
- Explain and interpret the meaning of the **derivative** of a function.
- Use **shortcuts** to calculate derivatives efficiently.
- Use derivatives to solve authentic real-life **application problems**.
- Use **definite integrals and the Fundamental Theorem of Calculus** to find areas and total change.

A full list of official departmental objectives for MTH 201 can be found [here](#).

## Appendix: Learning Targets and Module Schedule

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### Learning Targets

- **Group F: Use functions and other pre-Calculus mathematics proficiently.**

- F.1 **(CORE)**: I can evaluate functions given in different representations, find composites of functions, and determine the domain and range of a function. (*Assessed via the Functions Bootcamp assignment*)
- F.2: I can find the average rate of change of a function on an interval.
- **Group L: Calculate, use, and explain the concept of limits.**
  - L.1: **(CORE)** I can find the limit of a function at a point using numerical, graphical, and algebraic methods.
- **Group D: Explain and interpret the meaning of the derivative of a function.**
  - D.1 **(CORE)**: I can find the derivative of a function, both at a point and as a function, using the definition of the derivative.
  - D.2 **(CORE)**: I can use derivative notation correctly, state the units of a derivative, estimate the value of a derivative using difference quotients, and correctly interpret the meaning of a derivative in context.
  - D.3 **(CORE)**: Given information about  $f$ ,  $f'$ , or  $f''$ , I can correctly give information about  $f$ ,  $f'$ , or  $f''$  and the increasing/decreasing behavior and concavity of  $f$  (and vice versa).
  - D.4: I can find the equation of the tangent line to a function at a point and use the tangent line to estimate values of the function.
- **Group DC: Use shortcuts to calculate derivatives efficiently.**
  - DC.1 **(CORE)**: I can compute derivatives correctly for power, polynomial, and exponential functions and the sine and cosine functions, and basic combinations of these (constant multiples, sums, differences).
  - DC.2 **(CORE)**: I can compute derivatives correctly for products, quotients, and composites of functions.
  - DC.3: I can compute derivatives correctly using multiple rules in combination.
  - DC.4: I can compute the derivatives correctly for logarithmic, trigonometric, and inverse trigonometric functions.
- **Group DA: Use derivatives to solve authentic real-life application problems.**
  - DA.1 **(CORE)**: I can find the critical values of a function, determine where the function is increasing and decreasing, and apply the First and Second Derivative Tests to classify the critical points as local extrema.
  - DA.2: I can determine the intervals of concavity of a function and find all of its points of inflection.
  - DA.3: I can use the Extreme Value Theorem to find the absolute maximum and minimum values of a continuous function on a closed interval.
  - DA.4 **(CORE)**: I can set up and use derivatives to solve applied optimization problems.
- **Group INT: Use definite integrals and the Fundamental Theorem of Calculus to find areas and total change.**

- INT.1: I can calculate the area between curves, net change, and displacement using geometric formulas and Riemann sums.
- INT.2: I can explain the meaning of each part of the definition of the definite integral in terms of a graph, and interpret the definite integral in terms of areas, net change, and displacement.
- INT.3: I can evaluate a definite integral using geometric formulas and the Properties of the Definite Integral.
- INT.4 **(CORE)**: I can evaluate a definite integral using the Fundamental Theorem of Calculus.
- INT.5: I can correctly antidifferentiate basic functions and identify antiderivatives.

## Course Module schedule

Please see the Course Calendar for the dates corresponding to these modules.

Module	Focus	Sections from text	Learning Targets
1	How do we find the speed of a moving object?	1.1, 1.2	F.2, L.1
2	What is the derivative of a function?	1.3, 1.4	D.1, D.2
3	What does a derivative tell us about a function?	1.5, 1.6	D.3, D.4
4	How do we efficiently compute derivatives of basic functions?	2.1, 2.2	DC.1
5	How do we compute derivatives of products and quotients?	2.3, 2.4	DC.2
6	How do we compute derivatives of composites and other functions?	2.5, 2.6	DC.2, DC.3, DC.4
7	How are derivatives used to detect and describe function behavior?	3.1, 3.2	DA.1, DA.2
8	How are derivatives used to find the highest and lowest values of a function?	3.3	DA.3
9	How are derivatives used to find the best way to do something?	3.4	DA.4
10	How do we find how far a moving object has traveled?	4.1, 4.2	INT.1
11	What is the definite integral of a function?	4.3, 4.4	INT.2, INT.3
12	How are derivatives and integrals related?	4.4	INT.4, INT.5



