Welcome to MTH 201-03. This class studies **calculus**, which is a branch of mathematics that studies **change**. Calculus is a beautiful and interesting area of study and has great practical value in the natural sciences, business and finance, the social sciences, and even the arts. My primary role as the instructor is to create an environment where you have a rich set of opportunities to learn, ask questions, and explore, and to help you attain your learning goals. This syllabus is both a contract for how the course will be operated and a road map that will familiarize you with where we will be going this summer. If you have any questions, please don't hesitate to ask.

CONTACT INFORMATION

- **Instructor**: Robert Talbert, PhD., Associate Professor of Mathematics
- **Campus office/phone**: MAK A-2-168, 616-331-8968. However, please note that I will not be based out of this office during the spring and summer, so email is preferred.
- **Blackboard**: Announcements, assignments, grades, and other important course information will be communicated through the course Blackboard site.
- **Discussion board**: Our class discussion board is hosted by **Piazza** at https://piazza.com/gvsu/summer2015/mth20103/home. We will not use the discussion board feature on Blackboard. Please use Piazza for all course-related mathematical questions.
- **Email**: talbertr@gvsu.edu You can expect to receive a response to any email you send within 24 hours, often much sooner, if it is sent during the work week (Monday--Friday) during regular business hours (8am--4pm EDT). I typically do not check email between 9pm and 6am EDT on any day, and only intermittently on the weekends, in order to devote time to family and rest. If you send an email on the weekends, the soonest you can expect a response is the following Monday. **Please reserve email for communications about course logistics and not course content. All questions about what we are studying in the course should instead be posted to the Piazza discussion board.**
- **Office hours**: Virtual, times to be determined in Week 1. Individual consultations can always be scheduled by appointment; however, please use all existing electronic channels to consult with me first before scheduling a face-to-face appointment.
- **Social media:** Our class has a Twitter account at @CalculusGVSU that will be used for updates, information, and fun stuff. If you are on Twitter, please follow this account. If you are not on Twitter, you can either create an account (making it private if you want) and then follow, or simply check in on the Twitter feed for updates. Prof. Talbert's Twitter account is @RobertTalbert.

THREE BEFORE ME

Before contacting me concerning technical questions or other class logistics (due dates, assignment clarification, etc.), use the **Three Before Me** rule that says you should try learning your answer through three other means first:

1. For technical support on technological issues contact the **GVSU IT Help Desk** by phone (616-331-2101) or email helpdesk@gvsu.edu. For Blackboard help, you can also review the support documents in our Blackboard course site or by clicking the "Help" button at the top of your Blackboard window.
2. Refer to **course resources** such as the syllabus, calendar, assignment details that are posted on Blackboard, and the FAQ sticky item on Piazza.
3. Email **another student in the class** or, better yet, post a question on Piazza.

GETTING MATH HELP IN MTH 201

Every student in the course will run into problems with understanding calculus at some point. When this happens to you, use the following methods to get help, in this order:

1. **First, try to resolve the problem yourself** by studying examples and worked-out solutions from your notes, the book, the videos, and other resources you might find in print or on the web. You're smart! You'd be surprised what you can understand on your own.
2. If you've tried resolving the issue yourself and you're still stuck, **post your question to the discussion board (Piazza)**. Others may be able to help you, and if it's a particularly good question you might get an upvote.
3. If you've tried working the issue out by yourself and have posted to the discussion board and still can't work through the issue you can meet with me during my **virtual office hours** which will be set during week 1.
4. Alternatively, if you are able to come to the Allendale campus, the **Math Center** in Mackinac Hall A-2-601 will be open during the entire Spring and Summer terms Monday through Thursday from 11am to 4pm to provide free tutoring.

There are many channels through which you can get help. It's up to you to tap into them!

COURSE DESCRIPTION

A development of the fundamental concepts of calculus using graphical, numerical, and analytic 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. Please see the mathematics program for placement test details. Fulfills Foundations - Mathematical Sciences. *Prerequisites*: (MTH 122 and MTH 123), or placement into MTH 201 via the calculus readiness test.

COURSE LEARNING OUTCOMES

A successful MTH 201 will demonstrate evidence of mastery of each of the following learning outcomes:

- Perform basic limit, derivative, and integral symbolic computations correctly and fluently by hand.
- Compute the tangent line to a function at a specific point on its graph.
- Compute the area between the graph of a function and the horizontal axis.
- State the formal definition of the derivative and explain the purpose of the symbols in the definition.
- State the formal definition of the definite integral as a Riemann sum and explain the purpose of the symbols in the definition.
- State and apply the Fundamental Theorem of Calculus.
- Interpret the meaning of a derivative in terms of the slope of a tangent line and as an instantaneous rate of change in a function.
- Interpret the meaning of a definite integral in terms of total change in a function and in terms of signed area.
- Draw conclusions about the limit, derivative, or integral of a function by examining a function in symbolic, graphical, and numerical/data representations.
- Solve problems that require the use of derivatives to extract useful information and apply it within a larger context, such as in optimization and related rates problems.
- Apply basic knowledge about calculus to new problems.
- Communicate the results of a problem clearly, correctly, and in a manner appropriate to the audience.
- Use a variety of computing technologies effectively to identify patterns, make deductions, visualize information, solve problems and communicate results of one's work.

COURSE MATERIALS

Textbook: *Active Calculus* by Matt Boelkins et al. This is a free PDF download at http://gvsu.edu/s/xr. If you would like a print copy, see the link at the bottom of that page. We will be working through Chapters 1--4 of this textbook.
Video materials: All course lectures are on a YouTube playlist at http://bit.ly/GVSUCalculus.
Software: The course uses three software tools:
- Geogebra, a free program for graphing functions and building models. (Free download at http://www.geogebra.org/download)
- Wolfram|Alpha, a website for doing computation and symbolic work (Website; apps for iOS and Android are also available)
- Google Sheets, a free online spreadsheet tool (Website; apps for iOS and Android are also available)

METHODS OF INSTRUCTION

This course is taught under the **online** designation, meaning that the entire course is delivered online through Blackboard. No synchronous face-to-face meetings are scheduled. A detailed calendar accompanies this course syllabus. Instructional strategies include modeling, lecture, discussions, video presentations, and problem based learning. We will use

Blackboard extensively for all of our online activity. Our course weeks will be Monday through Sunday (with the week ending at 11:59pm EDT each Sunday).

MINIMUM TECHNOLOGY REQUIREMENTS AND TECHNICAL SKILLS

All students must have access to sufficient hardware and software to complete the course. The minimum requirements to access the courseware through the internet are:

- Access to a **high speed** internet connection. Low-speed (e.g. dialup) connections are not recommended because of the need to access streaming video content.
- An **active GVSU email account** that you will use for all email correspondence. Emails from non-GVSU accounts will not receive a response.
- A computer that is sufficiently equipped to work with all the courseware. Please review the minimum computer standards at the GVSU Information Technology website here: http://bit.ly/1ySbfzv. A Chromebook would meet these requirements as well. A tablet device such as an iPad is also OK, although you might find a laptop easier to work with.
- A modern web browser such as Safari, Firefox, or Chrome. **Internet Explorer is not recommended**.
- A modern word processor or typesetting system that supports mathematical notation. Microsoft Word and Google Docs are examples. Students interested in learning to use *LaTeX*, a professional-grade mathematical typesetting system, are encouraged to check out the web service Overleaf: https://www.overleaf.com/
- A program for viewing PDF files, such as Adobe Acrobat Reader.

A graphing calculator is not required for this course. Instead, you are encouraged to use the standard three software items (Geogebra, Wolfram|Alpha, spreadsheets) for all computational work. Other apps that past students have found helpful for MTH 201 include:

- **Desmos**, an online graphing calculator (mobile apps and Chrome extension also available): https://www.desmos.com/
- **powerONE**, a scientific calculator app for iOS and Android: http://www.infinitysw.com/products
- **TeXPad**, an iOS and Mac OS X app for writing LaTeX and Markdown documents: https://www.texpadapp.com/

TECHNOLOGY EXPECTATIONS

Being an online class with no face-to-face meetings, it is essential that each of you maintain close and regular contact with the course Blackboard site, email, discussion board, and social media to make sure you are fully aware of happenings in the course. In particular, you are expected to:

- **Check in with the course Blackboard site and Piazza discussion board at least once per day during the ordinary work week (Monday--Friday)**, to monitor announcements, get assignments, and participate in discussion threads.

- **Check your GVSU email at least twice per day during the work week**, once between 12:00am and noon and again between noon and midnight, **and at least once per day on weekends**. All course announcements will be made through Blackboard, which keeps announcements in the Announcements area and forwards them to your GVSU email.
- **If you are on Twitter, check in with the course Twitter account regularly**. High-level important announcements will be tweeted as well as posted on Blackboard, and many extra communications will flow through Twitter as well.

Given our extensive use of technology, we are likely to experience more issues with technology than the average class. When (not "if"!) you encounter an issue with technology, you are expected to seek help as soon as possible if you cannot rectify the issue yourself. If you cannot resolve the issue yourself, use the **Three Before Me** rule.

If you are submitting an assignment, but encounter a difficulty and are unsure if the assignment was received, you are expected to take a screen shot and add a valid time/date stamp to the screenshot to document what was happening and when it occurred, so that you are not penalized for a late submission. If you are unsure how to do this on your computer, please ask.

COURSE WORKFLOW, ASSESSMENT, AND GRADING

A TYPICAL WEEK IN MTH 201-03

Our course is organized on a week-by-week basis, with each week focusing on a different block of concepts in Calculus. A "week" is defined to run from Monday to 11:59pm EDT the following Sunday. At the beginning of each week (12:01am on Mondays), materials and assignments corresponding to the topic of the week will appear on the course Blackboard site. You'll then work through these materials and assignments throughout the week, according to the following rough schedule:

- **Monday and Tuesday:** Complete the readings and video assignments along with Guided Practice assignments (see below for description). During this initial two-day period it's expected that you'll ask questions on Piazza about what you are reading and viewing.
- **Tuesday and Wednesday:** Work on basic assignments and examples designed to help you dig deeper into the content and assess how well you are performing. During this second phase of the week, you will probably be asking more questions on Piazza about the assignments as well as helping other students with their questions.
- **Wednesday--Friday:** Wrap up the basic assignment and begin work on larger, more complex assignments that will lead you to applying what you know to authentic and challenging problems. By the end of the week you should still be asking questions as well as helping others.
- **Weekend**: The weekend is for you either as a time to complete weekly assignments, to get a headstart on the following week, or just to rest. (Be sure to build in down time for

yourself!) Most (but not all) weekly course assignments have a deadline of **11:59pm EDT on Sundays**.

Then it all starts over again on Monday. Hence we will have a regular, predictable rhythm of work each week that you can depend upon. You will have some freedom to move at your own pace within this deadline structure, although the course is not truly "self-paced" in its entirety.

ASSIGNED WORK

The work you do in the course has two purposes: To help you make sense of the concepts you are supposed to know, and to assess how well you have mastered the learning objectives of the course. These items of work include:

- **Guided Practice:** These are structured activities that guide you (by questions that you answer) through reading, viewing, and other preparatory activities on new content.
- **Online Homework**: Between 10--15 exercises each week will be delivered using the online system WeBWorK. These exercises focus on computational skill and basic conceptual understanding and build upon your first contact with Calculus material you gain through Guided Practice.
- **Concept Quizzes**: Each week, in addition to the online homework you will have a 10-question objective quiz given on Blackboard that digs deeper into conceptual understanding and interpretation of Calculus concepts.
- **Problems**: The objectives of the course can be broken down into 16 distinct types of problems. Samples of these 16 types are posted to the Blackboard site. Within these 16 types are 6 types that are labelled **core**, and 10 that are outside the core. These problems are more complex and challenging than those found on Guided Practice, Online Homework, or Concept Quizzes and include elements of each of these. Your ability to solve these problems will be assessed through four Midterm Exams and a Final Exam, described more fully below.
- **Miniprojects**: In addition to the Problems, eight miniprojects that involve using course technology are available, with 4 of those 8 labelled as **core** and 4 more outside the core. Miniprojects focus on real-world applications and the use of real-world data and, especially, the use of technology to model and solve problems involving calculus.
- **Communications items**: Finally, since communication is vital in an online course, throughout the course you will have opportunities to communicate your work in various forms to me and to others. These include *video presentations* and *discussion board contributions*.

GRADING SYSTEM

MTH 201-03 uses a **points-free mastery-based grading system** that is designed to provide you with control over the grading process, transparency as to your progress toward a course grade, and a final course grade that truly reflects your actual mastery of course concepts. Our grading system works as follows:

- At the beginning of the semester, you will be asked to decide on the **target grade** you plan to earn for the course. This does not need to be an "A". You'll be asked to carefully consider your goals, skill set, life situation, academic needs, and so on before stating your target grade. For some students, a "B" or even a "C" is perfectly sufficient and realistic, relative to their situation.
- **The means of assessing your graded work in the class is done without using points.** Instead, your work is graded on a two-level scale of **Pass/No Pass** or on a three level scale of **Mastery/Progressing/Novice**. Whenever you submit work to be graded, I will employ my best professional judgment along with a clear list of specifications for categorizing that work. The specifications for your work are provided in a separate document, and you should make yourself intimately familiar with that document. Your Guided Practice, Online Homework, and Concept Quizzes are graded on a Pass/No Pass basis; Problems and Miniprojects are graded using Mastery/Progressing/Novice designations.
- The grade you earn at the end of the semester is determined by **counting the number of items in each category that you complete at an acceptable level**. There are no points involved and no statistical or numerical calculations.

The table for determining your grade is given below. For reference: there are a total of 24 problems and miniprojects, 10 of which are considered core and 14 of which are outside the core. Also, there will be ten concept quizzes, 25 guided practice assignments, and 120 points of online homework. "Pass" means the following:
- *Guided Practice*: "Pass" means that all questions to be submitted have been submitted before the deadline, with a good-faith effort to be right. Correctness of the answers is not factored in.
- *Concept Quiz*: "Pass" means a score of at least 8 out of 10.
- *Video presentations*: "Pass" is outlined in the **Specifications for Student Work** document posted separately on Blackboard.

All other descriptions of Passing, Mastery, Progressing, or Novice level work are explained in the **Specifications for Student Work** document, posted separately.

To earn this grade:	Achieve the following:
A	- Complete the *Getting Started* assignment in week 1, AND - Pass 23 of 25 Guided Practice assignments, AND - Pass 9 of 10 Concept Quizzes, AND - Score at least 110 total points on WeBWorK, AND - Attain Mastery level on all 10 core problems and miniprojects PLUS <u>10 other</u> problems or miniprojects, AND - Complete 3 video presentations with a Pass, AND - Make 10 instructor-upvoted discussion board contributions.
B	- Complete the *Getting Started* assignment in week 1, AND - Pass 20 of 25 Guided Practice assignments, AND - Pass 8 of 10 Concept Quizzes, AND - Score at least 100 total points on WeBWorK, AND - Attain Mastery level on all 10 core problems and miniprojects PLUS <u>five other</u> problems or miniprojects, AND - Complete two video presentations with a Pass AND - Make 5 insttructor-upvoted discussion board contributions.
C	- Complete the *Getting Started* assignment in week 1, AND - Pass 17 of 25 Guided Practice assignments, AND - Pass 7 of 10 Concept Quizzes, AND - Score at least 90 total points on WeBWorK, AND - Attain Mastery level on all 10 core problems and miniprojects, AND - Complete one video presentation with a Pass AND - Make 1 instructor-upvoted discussion board contribution.
D	- Complete the *Getting Started* assignment in week 1, AND - Pass 12 of 25 Guided Practice assignments, AND - Pass 5 of 10 Concept Quizzes, AND - Score at least 80 total points on WeBWorK, AND - Attain Mastery level on at least 10 problems and miniprojects (not necessarily in the core), AND - Complete either video presentation with a Pass OR Make 1 instructor-upvoted discussion board contribution but not both.

<u>All</u> of the achievements for a particular grade must be met in order for that grade to be earned. Additionally, if <u>any one</u> of the items for a "D" is not met, the grade awarded will be "F".

Partial credit: *Partial credit is not awarded on any assessed item* (except for some WeBWorK questions). Rather, your work is given a mark based on whether, in my best professional judgment, it meets the standard for that mark. Note that for Problems and Miniprojects, "Mastery" does not mean "mistake free"; you are allowed room for some minor errors in most

cases as long as the specifications are met. Please review *Specifications for Student Work* on the Blackboard site for details.

Revisions: Instead of partial credit, you will receive numerous opportunities to revise and resubmit work that does not meet the specifications for Passing or Mastery. Specifically:
- Online homework gives instant feedback on correctness when you submit it. **You are allowed unlimited reattempts on every online homework item** until the 11:59pm EDT Sunday deadline.
- **Each Concept Quiz can be attempted twice without penalty** (an initial attempt + one reattempt). Further reattempts can be "purchased" using tokens (see below).
- Problems are assessed on Midterm and Final exams. **Each of the Midterm Exams past the first one as well as the Final Exam is cumulative**. The first midterm exam will have four problems on it, the second one eight problems, the third around twelve, and the fourth midterm and final will include all 16 problems. **In this way if you do not perform well on a problem on one midterm exam, you can try again on a subsequent one.** Conversely, once you finish enough problems at Mastery level for the grade you want, you can opt out of the exams. It's not uncommon for many students not to take the final exam because they have already "levelled up" to their target grade by the time of the exam.
- **Any miniproject submission that does not attain Mastery level can be revised and resubmitted for regrading**. You can submit up to one miniproject per week for regrading (in addition to any new submissions). Miniprojects that attain Progressing level can be resubmitted without penalty. Miniprojects assessed at Novice level can be resubmitted if you spend a token (below).

Note: Guided Practice assignments may not be revised or submitted late. These must be completed at the stated deadline or they receive a permanent No Pass.

Tokens: Each student will be given five "tokens" at the beginning of the term. Each token can be cashed in for one of the following:
- A revision of a Miniproject that was assessed at Novice level.
- A third attempt of a Quiz.
- A 24-hour extension on any Midterm Exam, Miniproject, WeBWorK set, or video presentation, or the *Getting Started* assignment. If you choose to use a token for a deadline extension, you must inform me prior to the original deadline (which is 11:59pm EDT Sunday) and the new deadline will become 11:59pm EDT Monday. Submissions given after the extended deadline are not accepted.

Opportunities to earn additional tokens may be given during the semester.

Plus/Minus grading: In case not all of your attainments in the class are at the same grade level, we will figure plus/minus grades as follows. Note there are five overall categories of work you will do: Guided Practice, Concept Quizzes, Online Homework (WeBWorK), Problems/Miniprojects, and Communications. ("Communications" contains the *Getting Started* assignment, video presentations, and discussion board posts.) First, find your category at

which you have attained the *lowest* level of work. If that is the only category at this level, you will receive **a "minus" grade for the next level up**. Otherwise (more than one category at that lowest level) you will receive **a "plus" grade at this level**.

● **Example**: A student who has passed 12 Guided Practice assignments ("A" level), 9 concept quizzes (also "A") level, scored 103 points on WeBWorK ("B" level), attained mastery on all 10 core problems/miniprojects but only 2 more problems/miniprojects ("C" level) and completed the communications items at "A" level receives a B- since the problems/miniprojects was the lowest level but the only one at that level.
● **Example**: A student who has passed 9 Guided Practice assignments ("C" level), 9 concept quizzes (also "A") level, scored 92 points on WeBWorK ("C" level), attained mastery on all 10 core problems/miniprojects but only 2 more ("C" level) and completed the the communications items at "A" level receives a C+ since the problems/miniprojects was the lowest level but was not the only item at that level.

Please note that GVSU does not award grades of A+ or D-.

Notes about this grading system: The advantages of this grading system are numerous:
● It focuses course work away from point-scoring, which is counterproductive to learning, and focuses instead on whether or not your work meets professional quality standards.
● It places control of your grade firmly in your hands so that you don't have to "hope" for a grade.
● It directly links the grade you earn to the amount and quality of work that you do.
● It gives a final grade that communicates real information about your mastery of the subject.
● Finally, it allows you to be graded on what you *eventually* master, so that early missteps do not have to have a major negative future impact.

A recent student commented about this grading system: *"This class was not the easiest one that I had this semester, but it was definitely the least stressful because of the grading system."* The chief downside to this system is that it's complicated. I will provide you with tools to track your progress through the course to help make it easier. And if you have any questions or concerns about the system, please let me know.

COURSE POLICIES

Academic Honesty: Academically honest work by a student is work that authentically reflects the student's understandings, however incomplete, of the work being done. In any course, but especially an online course where direct observation of your work is not feasible, the need for academic honesty is paramount. Grand Valley State University's academic honesty-integrity policy is found in Section 3.1 of the GVSU Student Code:

http://www.gvsu.edu/studentcode/31-academic-honesty-integrity-of-scholarships-and-grades-8.htm Each student has the responsibility for being familiar with this policy and abiding by it.

Individual Work: The work that you submit on each course assignment is to be your own work. Each item of work has different parameters for the amount of collaboration that is allowed:

- On Guided Practice assignments, you may collaborate freely. However, the work you submit must be your own and not done by someone else.
- On Concept Quizzes and WeBWorK, you are allowed to consult texts and videos that contain factual information to help you and to use course technology (Geogebra, Wolfram|Alpha, and spreadsheets), but you are not allowed to interact with another person except the instructor. Exception: You may discuss problems from WeBWorK on the class discussion board as long as the interaction does not involve specific instructions for solving a problem. That is, general conceptual questions may be discussed. I have the right to delete any thread that contains discussion that goes out of these bounds.
- Problems and Miniprojects are done "open everything" -- you are allowed to consult texts and videos that contain factual information to help you and to use course technology (Geogebra, Wolfram|Alpha, and spreadsheets), but you are not allowed to interact with another person except the instructor. Exception: You may discuss general conceptual ideas on the class discussion board. But I have the right to delete any thread that contains discussion that goes further.

Etiquette for online interactions: When using the discussion board or communicating with others in the class, you are expected to maintain a professional attitude and manner. Be mindful that often, comments made in a written medium such a discussion board come across more harshly or personally than they would if communicated verbally. Do your best to maintain an attitude of respect, positivity, and professionalism and to avoid any negative or personal comments.

Late submissions of work: Deadlines on graded items will be enforced. You may purchase a 24-hour extension on some items through the use of a token. Otherwise no late submissions will be accepted unless you have received approval prior to the deadline or can demonstrate that the lateness was unavoidable. Work that is late that does not have instructor approval is counted as a non-submission with no opportunity to revise.

Significantly incomplete work: Work that is submitted that contains (in the professor's best professional judgment) significant omissions, or work that does not represent a good-faith effort at completion will be marked as a non-submission. Unless the student submits complete work before the 24-hour deadline extension, the work will be treated as a non-submission without the possibility of revision.

Updates to this syllabus: The syllabus is subject to change if amendments and additions are warranted. All changes will be communicated appropriately to the class in this case, and

changes will be made to the Google Document version of the syllabus with a time/date stamp indicating when the change was made.

Information for students with disabilities: Grand Valley State University (GVSU) is committed to providing access to programs and facilities for all students, faculty, and staff. GVSU promotes the inclusion of individuals with disabilities as part of our commitment to creating a diverse, intercultural community. It is the policy of GVSU to comply with the Americans with Disabilities Act as amended by the ADA Amendment Act (2008), Section 504 of the Rehabilitation Act of 1973, and other applicable federal and state laws that prohibit discrimination on the basis of disability. GVSU will provide reasonable accommodations to qualified individuals with disabilities upon request. If there is any student in this class who has special needs because of learning, physical, or other disability, please contact me (Prof. Talbert) or the Disability Support Services office (200 STU, 616–331–2490).

Course Calendar

Week	Focus of the Week	Assignments and Events ✴
1 (May 4--10)	Measuring velocity; the concept of a limit. (1.1--1.2)	Getting Started assignment posted 100% Tuition deadline (May 8)
2 (May 11--17)	The derivative of a function, at a point and as a function. (1.3--1.4)	
3 (May 18--24)	Interpreting the first and second derivative. (1.5--1.6)	Midterm Exam 1 posted
4 (May 25--31)	Continuity and differentiability; linear approximation. (1.7--1.8)	Memorial Day Recess (May 25) 75% Tuition deadline (May 29)
5 (June 1--7)	Computing derivatives of polynomial, exponential, and trig functions. (2.1--2.2)	
6 (June 8--14)	The Product and Quotient Rules. (2.3--2.4)	Midterm Exam 2 posted
7 (June 15--21)	The Chain Rule. (2.5)	Deadline to withdraw with a "W" (June 19)
8 (June 22--28)	Derivatives of inverse functions and implicit differentiation. (2.6, 2.7)	
9 (June 29--July 5)	Finding extreme values of functions and describing function families. (3.1, 3.2)	Independence Day Recess (July 3) Midterm Exam 3 posted
10 (July 6--July 12)	Optimization. (3.3, 3.4)	
11 (July 13--19)	Related Rates; determining distance traveled from velocity. (3.5, 4.1)	
12 (July 20--26)	Riemann sums and the definite integral. (4.2, 4.3)	Midterm Exam 4 posted
13 (July 27--31)	The Fundamental Theorem of Calculus. (4.4)	Special mini-exam over Problem 16. Last day of classes (July 31)

✴ These are in addition to weekly Guided Practice, WeBWorK, and concept quiz assignments. Guided Practice is typically due by 11:59pm EDT on Tuesdays; WeBWorK and concept quizzes are typically due by 11:59pm EDT on Sundays.

The final exam will be posted on Blackboard on **Monday, August 3** and will be due at **11:59pm EDT on Tuesday, August 4**.