

Math 201 - 04 Calculus I

Disclaimer: The instructor views the course syllabus as an educational contract between the instructor and students. Every effort will be made to avoid changing the course schedule and policy but the possibility exists that unforeseen events and circumstances will make syllabus changes necessary. The instructor reserves the right to make changes to the syllabus as deemed necessary. Students will be notified in a timely manner of any syllabus changes via email or the course Announcements. Please remember to check your BB and the course Announcements often.

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

1. Course Information

Textbook : Calculus -Single Variable, Fifth/Sixth Edition, Hughes-Hallette, et al. My copy is 5th edition. Either edition will do. Find a used one if possible.

Time and Room : 11 - 11:50, MWF (D1227 MAK) 10 - 10:50 F (A2151 MAK)

Contact info : Jiyeon Suh Ph.D. / A2122 MAK / suhj@gvsu.edu
331-8966 (Office/voice mail)/ 331-2040 (Math Office)

Office hours : If the regular office hours given below doesn't work with your schedule, **please contact me to find other times.** 3:00 -- 4:00 MTWF at PCS(Peer Collaboration Space - right next to Math Office A2178 MAK)

Math Center : Tutoring for this course is available at MAK A-2-601/ 616-331-2084 <https://www.gvsu.edu/tutoring/math/>

Important! Students need to bring their trials (**clearly written on your note**) of the problems on which they are seeking guidance during the office hours. Instructor needs to have that to understand and figure out how to help as many students as possible during the office hour. Students who claims that they don't even know how to start, will be guided first to find out what needs to be reviewed. **Please bring your note of the course content** to show when asked. It will be crucial to first review the content properly ahead to use the office hour efficiently and effectively. I will help you to review the content if necessary.

2. Course Description from SOR(Syllabus of Record)

Prerequisites: MTH 122 and MTH 123 or assignment through Grand Valley math placement.

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.

General Education: This course teaches and assesses the General Education student learning objectives that correspond to the Foundation – Mathematical Sciences as outlined in the General Education handbook. <https://www.gvsu.edu/gened/>

Objectives: After successful completion of the course, students will be able to...

1. Students will be able to apply the definite integral to compute the total change of a function from the rate of change and to compute area.
2. Students will know the Fundamental Theorem of Calculus.
3. Students will be able to describe the relation between the definite integral of a function and areas between the graph of that function and the horizontal axis.
4. Students will understand the definition of the definite integral as the limit of a Riemann sum.
5. Students will be able to compute derivatives using the product rule, quotient rule, and chain rule.
6. Students will be able to conceptually understand and evaluate limits, including L'Hopital's Rule.

7. Students will be able to state the formal definition of the derivative of a function and the purpose of each symbol in that definition.
8. Students will be able to discuss the interpretations of the derivative as the slope of a tangent line and an instantaneous rate of change of a function.
9. Students will be able to determine the tangent line to a function at a specific point on the graph of the function.
10. Students will be fluent with the concept of function and be able to determine information about a function through the processes of differentiation and integration.

Topics

1. Limits and continuity (approx 1 week).
2. The concept of a derivative including the derivative at a point, the derivative of a function, the second derivative, interpretations of the derivative and second derivative, and linear approximations using derivatives (approx 2-3 weeks).
3. Derivatives of basic functions including polynomial functions, exponential and logarithmic functions, trigonometric and inverse trigonometric functions (approx 3-4 weeks).
4. Rules for differentiation including the product rule, the quotient rule, the chain rule, and implicit differentiation. (approx one to two weeks).
5. Use first and second derivatives to help solve optimization problems, to study families of functions, to solve related rates problems, and to use L'Hopital's rule for evaluating limits (approx 3-4 weeks).
6. The definite integral, the Fundamental Theorem of Calculus, and theorems about definite integrals (approx 2-3 weeks).

3. Evaluation policy

Exams, Final Exam : There will be 2 midterms and a final exam, both in-class. Dates of these exams will be announced in due time. These exams will check the level of mastery of course content through **variations** of the problems covered in the course (class, HW, Quiz, Group Work, etc.)

No makeup exam will be given without the proof of acceptable reason. If you are unable to attend an exam, it is your responsibility to notify the instructor prior to the exam so that suitable arrangements may be made. Of course, if emergency case arises on the same day to prevent you from attending the exam, contact the Math Main office when you can, and wait for me to contact you back.

HW, Quiz, Group Work : A list of book questions for each section will be suggested for further practice. This practice is not collected. There may be occasional HW worksheets to be graded. Weekly Quiz or Group work will assess the mastery of the content covered in the class and the practice of those suggested problems outside of the class.

Attendance : Students are expected to attend all classes and will be responsible for content or announcements covered on the day that he/she is absent. Announcements made in the class may **not** be reannounced on BB. Each class hour attendance will be recorded.

Paperwork : Any papers due on the day must be turned in **at the beginning of the class**. If you are going to be absent on the day an assignment is due, turn the paper in to the instructor (or to Math Main Office) earlier. Full statement of the question and solutions must be written neatly, show all significant work, with great attention paid to logical reasoning. Students need to practice writing full mathematical reasoning leading to final answers to prepare for the formal assessments (Quiz, Group Work, Exams). One important part of mathematics is its emphasis on the clear and careful presentation of reasoning. This includes, clearly stating the problem, making important observations in complete sentences, writing additional thoughts to clarify symbolic expressions, and showing a clear overall progression from problem to solution. Note that I am not asking for "good writing", but the **clear presentation of correct mathematical reasoning**.

Grading : Points will be awarded (first table) then converted into letter grade (second table) :

50 min. exams (two)	each 20 %
Final exam (cumulative)	25 %
HW, Quiz, Group work, Attendance	35 %
Total	100 %

A	A-	B+	B	B-	C+	C	C-	D+	D	F
≥ 93	≥ 90	≥ 87	≥ 83	≥ 80	≥ 77	≥ 73	≥ 70	≥ 67	≥ 63	< 63

4 Other "codes"

Work load: To be successful in this course, you will need to work effectively and consistently. A good rule of thumb is that you should spend at least two hours working outside of class to review and practice every hour of class time. Besides working on homework and other assignments, you should also keep a well-organized record of all your study notes and completed problems for future reference. You need to bring this record to the class and office hours. In spite of the fact that we will discuss the most of the key concepts in detail during class, you will be expected to learn and assimilate many other ideas independently.

Participation: In every class meeting, you will be expected to participate actively and to share your understanding with your group and the whole class. To do so effectively, **you must come to class prepared**. I expect that everyone will share in this important aspect of our learning process.

Late work: Late work will not be accepted. Any assignment is due on the stated date at the beginning of class.

Make up Exam : Make up exam will be given **only** when the student provide the proper document or exlanation about the situation **and** also if the instructor accepts the reason to be significant enough. Instructor has to be informed of the absence for the exam **before** the Exam. Leave messages at Math Office if you can't contact the instructor.

Emergency procedure : For the case of predicted class cancellation, proper notification will be made through the department. For the case of sudden class cancellation, if the instructor doesn't appear after the first 20 minutes of the class, students are automatically dismissed and they will be notified afterwards as soon as the instructor is able. Students are responsible for checking their emails (gvsu address) for the possible notification about the change in the course.

Phones : Out of respect for your fellow students and the instructor and to reduce unnecessary distraction, all phones silenced and stay inside of the bag during the class period.

Asking questions : Students are strongly encouraged to ask questions for the contents, never hesitate to ask for clarification, to repeat the statement, etc. Use your own discretion though to decide the properness or relevancy of your question with the class content. I may tell you to remind me of your question later during the class or postpone it till after the class due to the time limitation. But I will try hard to address all

your questions as well as I can. And try to refrain from asking "Is this correct?" but see whether you can answer it yourself first. (This will be a challenge to some of you to break old habit.) All the materials in the class will be eventually clearly presented in the class or the next class. Students are strongly encouraged to remember that they are also learning to figure out themselves whether their(or other's) work is correct or wrong.

5. Academic Integrity

From the GVSU catalog ;

Any student who fails to give credit in written or oral work for the ideas or materials that have been taken from another is guilty of plagiarism. Such activity may result in failure of a specific assignment, an entire course, or, if flagrant, dismissal from Grand Valley.

It is recommended that you form a study group to assist in learning the material and completing daily homework problems. However, there is a difference between collaboration and plagiarism. Collaboration requires you to contribute to solutions. Representing someone else's work, no matter how small, as your own is plagiarism, a serious offense that will be met with a grade of zero and possible action under GVSU's guidelines. You are expected to be honest in all your work and to encourage the same in your colleagues to avoid any waste of time first of all.

6. Student Concerns: Any student who requires accommodation because of a physical or learning disability must contact Disability Support Resources (<http://www.gvsu.edu/dsr>) at (616) 331-2490 as soon as possible. After you have documented your disability, please make an appointment or see me during office hours to discuss your specific needs. Confidentiality will be maintained of your special needs. If you are not satisfied with my effort to resolve your issues and concerns, please contact the Math Main Office to discuss the matter with the head of the department.