

# MATH 121 Calculus I

## Spring 2024

**Instructor:** Roger Reakes  
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**Office Hours:** Tuesday 10:00 am to 12:00 pm and Thursday 12:00 pm to 2:00 pm  
All office hours are by appointment. To make an appointment, please use the link:  
<https://rreakes24.youcanbook.me>  
*If these hours do not work with your schedule, please call or email me to set up a Zoom Meeting appointment. I will do my very best to accommodate both of our schedules.*

**Course Description:** This course provides an introduction to calculus, including the study of limits, derivatives, graphing, and beginning integration. The course will also use technology as a learning aid.

**Learning Outcomes:** By the end of the course, successful students will be able to:

- apply techniques of differentiation and integration to model and solve problems
- understand the role of calculus and the infinitesimal in modern mathematics
- understand the concepts behind limits, derivatives, and integrals
- recognize the role of technology in Calculus, understand when it should be used, and be aware of its limitations

**Text:** Calculus: Early Transcendental Functions Smith and Minton, 4th edition

**Required Materials:** All students will need access to a graphing calculator. If you have a laptop, you may use an online version such as Desmos or an TI emulator. We will discuss these options in class.

**Technology:** Laptop running Mathematica recommended.

### **Attendance:**

Class attendance is a very important aspect of a student's success in this course. The student is expected to attend every class and is accountable for all work from missed classes.

**Late Work:** Unless specific permission is given in advance of the due date, no late work will be accepted.

**Policy on expected number of hours of work per week:** Per the Academic Catalog, "For each one-unit course, students are expected to complete 12 hours of work inside and outside of class each week." Realistically, this may vary due to the strength of the background of each individual student with respect to course content.

**Academic Integrity:** Students are expected to follow the integrity policy detailed in the handbook *Academic Integrity at Roanoke College*. Additionally, if you are ever uncertain as to how the College's policy pertains to any assignment or exam in this course, please ask me for clarification. The bottom line is that all work that a student submits for a grade must be *solely* the work of that student unless the instructor has given explicit permission for students to work together. You will have the opportunity on some quizzes and our main project to collaborate with another as you work in pairs. It is critical that you understand that collaboration means both parties are contributing equally and meaningfully to the assignment. Adding your name to the work of another, as well as using a divide-and-conquer approach, are both.

**Co-Curricular Engagement:** The MCSP Department offers a series of talks (MCSP Conversation Series) that appeal to a broad range of interests related to your fields of study. You are invited to be involved with all these meetings. After attending, submit a one-page paper reflecting on the discussion through email. These reflection papers earn **extra credit**, with .5% added to your course average for each attended, up to 2% total. In addition, individually you may request that other appropriate events can count. [Link to schedule.](#)

**Grading:**

|                                  |     |
|----------------------------------|-----|
| Video Completion:                | 5%  |
| Independent Practice Completion: | 10% |
| Graded Practice Accuracy:        | 15% |
| Recitation                       | 10% |
| Topics Mastered (Tests):         | 60% |

**Video Completion:** A video for most days will be posted. It will be checked prior to class to ensure you have watched the video at least once! You may not get credit for watching the video after class has begun without prior permission or written documentation from a college official.

**Independent Practice Completion:** These are problems assigned after each class to practice the skills and concepts discussed in class. You will upload your work using the Inquire Assignment link. This work will only be accepted by the end of class the day it is due. No late submissions will be accepted without arrangements approved prior to absence OR without written documentation from a college official. If you miss class for any reason you should submit the assignment to me the day it is due!

**Graded Practice Accuracy:** These problems selected will be selected (usually 1 or 2) from the independent practice problems each class and checked for accuracy and may be submitted until solved correctly. They will be accepted up to midnight the day before the final exam.

**Recitation:** You must be enrolled in the recitation portion (MATH 121R) of the course. The recitation will review important concepts needed for calculus (such as trigonometry and exponential functions) and provide practice time for concepts introduced in MATH 121. While MATH 121R operates as a separate course content-wise, please realize that grades from MATH 121R feed into MATH 121, counting 10% of the grade. Consult the recitation course syllabus for additional information on policies and grading.

**Testing Policy:** We will use Mastery-Based Testing rather than Points-Based Testing. Mastery-based testing is very different from what you are used to - do not hesitate to ask me questions! You will only receive credit for answers that demonstrate you completely understand (have mastered) a topic. But you will get MANY chances to display mastery throughout the semester with NO PENALTY for earlier attempts.

- The course has been summarized by 18 topics.
- Your mastery of questions on these topics is assessed through the working of problems in mastery opportunity classes and during the final exam period.

- Each problem submitted is graded as either “Mastered” or “Redo”. A grade of Mastery indicates that you have demonstrated a full understanding of the concept being tested and further work on the topic is unnecessary.
- Once you have mastered a topic, you need not attempt it again.
- There is no penalty for multiple attempts taken to achieve mastery.
- Mastery does not mean perfect! It means you understand and can demonstrate all fundamentals of the topic and are proficient at the level desired for the course.
- Your overall test grade is determined by the number of topics you have mastered illustrated in the table below:

|                   |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-------------------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| <b>#Mastered</b>  | 18  | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9  | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  |
| <b>Exam Grade</b> | 100 | 96 | 92 | 88 | 84 | 80 | 76 | 72 | 68 | 64 | 60 | 56 | 52 | 48 | 40 | 30 | 20 | 10 |

- Retrying to master the topics after the first attempt may be done any time after the first attempt either in class on mastery opportunity days or during office hours. To retry a topic during office hours, you must book an appointment during office hours. If my posted office hours do not work with your schedule, you may email me to set up a time that works for both of us.

**Subject Tutoring:** Subject Tutoring is a CRLA Nationally Certified Program located on the lower level of Fintel Library in room 005. Subject Tutoring offers individual appointments in 30-minute intervals for Lab Sciences, Modern Languages, Math and CPSC, Social Sciences, Business and Economics. Hours are Sunday - Thursday 4 p.m. - 9 p.m. For a list of tutorials or to make an appointment, go to [www.roanoke.edu/tutoring](http://www.roanoke.edu/tutoring).

**Tentative Course Schedule:** Use the following link: [Tentative Course Schedule](#)