

MATH 121 A: Calculus 1
Fall 2022, MWF 12:00 - 1:00, Trexler Hall 374

Instructor: Michael Weselcouch

Office: Trex #270

Student Hours: Tu 1:00 - 3:00, W 3:30 - 4:30, or by appointment.

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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 tool and learning aid.

Learning Outcomes. By the end of this 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.

Course Materials.

- (1) *Textbook:* *Calculus: Early Transcendental Functions*; Smith and Minton, 4th Edition
- (2) *Calculator:* Any scientific or graphing calculator.
- (3) *Computer:* A laptop computer with Mathematica installed, or access to Mathematica.
- (4) *YouTube:* I will be posting supplementary videos to my YouTube channel.

Attendance Policy. 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 missed content and assignments. If you have a temperature of 100.4 or higher or other COVID symptoms, don't come to class. Call Health Services IMMEDIATELY. Do not come to class or go to any public area on campus. In order for your absence to be excused, you must give Health Services permission to notify me that you have consulted them about COVID symptoms. If Health Services informs you that you should isolate and not attend class for multiple days, inform me so that we can make a plan to keep you current in the course. All absences caused by consultation with Health Services about coronavirus symptoms or isolation ordered by Health Services will be excused but you will need to do the work and graded assignments even if we extend a deadline for you.

Structure and Grading. A grade scale will be determined after final grades are computed, but will be no worse than the scale given below. Attendance and class participation will be considered when determining marginal grades.

Grading Scale

	93-100 A	90-92.99 A-
87-89.99 B+	83-86.99 B	80-82.99 B-
77-79.99 C+	73-76.99 C	70-72.99 C-
67-69.99 D+	63-66.99 D	60-62.99 D-

The final course grade is determined in the following way:

Problem Sets	25%	Tests	40%
Mathematica Assignments	10%	Final Exam	15%
Recitation	10%		

Recitations. You must be enrolled in the recitation portion (MATH 121R) in addition to the current course. MATH 121R will review important concepts needed for calculus (such as trigonometry, exponential and logarithmic functions, and graphing) as well as provide time to practice with new concepts encountered in MATH 121. MATH 121R operates as a separate course, but it counts as 10% of the course grade for MATH 121. Please consult the recitation course syllabus for additional information on policies and grading.

Problem Sets. A problem set will be due about once a week. These will be assigned well in advanced and each are worth a total of 25 points. There are two parts to each problem set. The first part of each problem set is worth 20 points and will be graded based on correctness. Each week you will complete 5 problems which will be carefully graded, with each problem worth 4 points. The second portion of the problem set is based on presentation, and worth 5 points. Make sure your homework is neat and organized so that I can easily read it. You can collaborate on the problem sets, but you must write up your own solutions. If you are looking at another person's work when you are writing up your problem set, then you are in violation of the academic integrity policy of Roanoke College.

Mathematica Assignments. In addition to the problems sets, we will have questions and assignments based in Mathematica. Mathematica is a powerful software package that we will use throughout class to help emphasize calculus concepts over needing to compute, say, derivatives and integrals by hand every time we need them. This software will let us spend more time on the "how and why" of calculus and what it can potentially be used for in the future. As part of this class, we will spend a few full days using this technology, done as a combination class discussion, work with a partner, and homework. You must bring a laptop (with Mathematica installed) to class on the days listed in the schedule on the last page. Mathematica Assignments will be submitted through Inquire. They will be due roughly two days following the class in which the topic was introduced.

Tests. There will be four tests this semester. Homework and class notes are absolutely the best sources of review! The tests will not be designed to be cumulative, but as with any course involving mathematics, material from previous tests can be thought of as a prerequisite for future tests.

Test #1: Friday, September 16, covering Sections 1.1 - 1.5

Test #2: Friday, October 14, covering Sections 2.1 - 2.7, 3.2

Test #3: Friday, November 11, covering Sections 2.8, 3.1, 3.3 - 3.8

Test #4: Friday, December 2, covering Sections 4.1 - 4.6 **Final**

Exam: Friday, December 16 2:00 PM

Test Make-up Policy. Test make-ups are administered in accordance with College policy. Anticipated, excused absences must be reported to the instructor with appropriate certification *well before* the scheduled test date. Legitimate emergency absences must be reported with appropriate documentation within one week of returning to class. No other make-ups will be given.

Corrections to Grading. If you think an error may have been made in the grading of your test, carefully review the answer key posted on Inquire and then contact the instructor **within 1 week of the test's return** with your question. **Do NOT alter the original work.** The entire test may be re-graded and the test grade is *subject to remain the same, increase or decrease* at the discretion of the instructor.

Final Exam. The final exam will be comprehensive. As with the tests, it will emphasize critical thinking and writing. The best way to review for the final is to review your performance on the four tests; focus on material that you did not master the first time around and review the topics that you did master.

MCSP Conversations. The MCSP department offers a series of talks designed to appeal to a broad audience. Members of this class are encouraged to attend many of these meetings, however attending at least one session is mandatory. The schedule for the talks is posted on Inquire. Within one week of attendance you must submit a response to the talk. This will count towards your Problem Set grade.

Expected Work Policy. This course expects you to spend at least 12 hours of work each week inside and outside of class.

Inquire Policy. Students are required to be knowledgeable of all postings on Inquire. It is each student's responsibility to consistently monitor Inquire for course information. This means every day! Any assignment that requires an Inquire upload will not be accepted in any other form. Also, to receive credit for uploads, the file must be readable on the instructor's college computer. It is the student's responsibility to make successful submissions. It is the student's responsibility to resolve technology problems through the college's IT department.

Academic Integrity. I expect all of you to follow the Academic Integrity policies of Roanoke College. All work submitted for a grade must be your own (for instance, you cannot use internet resources aside from my own YouTube videos or other videos linked on Inquire and, if you do work and study with others, the final write-up must be done by yourself). If you ever have questions about how these policies apply to our class please contact me. Any

violations of our AI policies will automatically be turned over to the Academic Integrity Council.

Subject Tutoring. Subject Tutoring, located on the lower level of Fintel Library (Room 5), is open 4 pm – 9 pm, Sunday – Thursday. We are a Level II Internationally Certified Training Center through the College Reading and Learning Association (CRLA). Subject Tutors are friendly, highly-trained Roanoke College students who offer free, one-on-one tutorials in a variety of general education and major courses such as: Business, Economics, Mathematics, INQ 240, Modern Languages, Lab Sciences, INQ 250, and Social Sciences (see all available subjects at www.roanoke.edu/tutoring). Tutoring sessions are available in 30 or 60-minute appointments. Schedule an appointment at www.roanoke.edu/tutoring, or contact us at (540)375-2590 or subject_tutoring@roanoke.edu. We hope to see you soon!

AES. Accessible Education Services (AES) is located in the Goode-Pasfield Center for Learning and Teaching in Fintel Library. AES provides reasonable accommodations to students with documented disabilities. To register for services, students must self-identify to AES, complete the registration process, and provide current documentation of a disability along with recommendations from the qualified specialist. To schedule an appointment, call (540)375-2247 or e-mail aes@roanoke.edu. If you have registered with AES in the past and would like to receive academic accommodations for this semester, please contact the AES at your earliest convenience to schedule an appointment and/or obtain your accommodation letter for the current semester.

Tentative Course Schedule. The following schedule is approximate and subject to change except for the test dates. It should give you an idea of the timing of the topics covered and assignments.

Course Schedule

Week	Dates	Lecture Material	Assignments
1	8/31, 9/2	Section 1.1, 1.2	
2	9/5, 9/7, 9/9	Section 1.3, 1.4	PS1 (9/7) M1 (9/9)
3	9/12, 9/14, 9/16	Section 1.5	PS2 (9/14) Test 1 (9/16)
4	9/19, 9/21, 9/23	Section 2.1, 2.2	PS3 (9/21)
5	9/26, 9/28, 9/30	Section 2.3, 2.4, 2.5	M2 (9/26) PS4 (9/28)
6	10/3, 10/5, 10/7	Section 2.6, 2.7	PS5 (10/5)
7	10/10, 10/12, 10/14	Section 3.2	M3 (10/10) PS6 (10/12) Test 2 (10/14)
8		Fall Break	

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9	10/24, 10/26, 10/28	Section 3.3, 3.4, 3.5, 3.6	
10	10/31, 11/2, 11/4	Section 3.7, 3.1, 2.8	M4 (10/31) PS7 (11/2)
11	11/7, 11/9, 11/11	Section 3.8	PS8 (11/9) Test 3 (11/11)
12	11/14, 11/16, 11/18	Section 4.1, 4.2, 4.3, 4.4	Final WA Data (11/18)
13	11/21	Section 4.5	PS9 (11/21)
14	11/28, 11/30, 12/2	Section 4.6	PS10 (11/30) Test 4 (12/2)
15	12/5, 12/7, 12/9	Section 7.1, 7.2	M5 (12/7)
	12/16	2:00 - 5:00	Final Exam