

MA 131 Calculus for Life and Management Sciences A

Lecture Details

Section 003 | MWF 1:55-2:45 PM, KAM G20

Instructor: Suzanne Crifo | LAU 208 | secrifo@ncsu.edu | <https://secrifo.wordpress.ncsu.edu/>

Office Hours: W 3-5 PM, F 3-4 PM (may change), and by appointment

Recitation Leaders: Dylan Bates and Melissa Gaddy

Recitation Leaders' Office Hours: DB: MW 1-1:50, F 12:30-1:50 in SAS 3201; MG: TTh 11:00-12:30 in SAS 3217

Class Website: <https://moodle-courses1819.wolfware.ncsu.edu/course/view.php?id=2833>

Course Text and Materials

- *Calculus and its Applications* by Goldstein, Lay, Schneider and Asmar (11th, 12th, 13th, or 14th ed.) \$139.40 for new looseleaf and \$204.20 for new hardcover, both from the bookstore.
- Supplemental text accessible as a download via [WebAssign](#) under "Resources". The total cost for WebAssign is \$32.95.
- Each student will need to submit 6 blue books (two are for the final exam) to me before the first test. **Do NOT write anything in or on the blue books.** Students who fail to submit 6 blue books will lose two points on a test for each blue book missing. Blue books cost \$0.25 each.

Prerequisites

C- or better in MA 107 or MA 111, or 520 or better on the SAT Subject Test in Mathematics Level 2 or the NCSU Math Skills Test, or 2 or better on an AP Calculus exam.

Catalog Description

3 credit hours. Topics covered: First order finite difference models; derivatives - limits, power rule, graphing, and optimization; exponential and logarithmic functions - growth and decay models; integrals - computation, area, total change; applications in life, management, and social sciences. Credit not allowed for more than one of MA 121, 131, and 141. This course counts toward the GEP Mathematical Sciences requirement.

Course Structure

This course is mainly lecture based. "Lecture" in this context includes material presented by the instructor, discussion about this material, and both group and individual in-class work. We also hold recitations once a week (Thursdays). Your recitation section will be a portion of our entire class. This is an opportunity to work on examples, ask questions, and have extra practice. You should come prepared with questions for the teaching assistant.

Learning Objectives

Upon completion of this course, the successful student will be able to:

1. **Use Mathematical Notation and Terminology.** The students will demonstrate mastery in using the mathematical notation and terminology of calculus. Students will read, interpret, and use the vocabulary, symbolism and basic definitions.
2. **Understand and Describe the Fundamental Concepts and Tools of Calculus I.** Students will be comfortable applying the concepts and techniques listed above.
3. **Develop Problem-Solving Techniques to Formulate and Formally Present Arguments.** Students will demonstrate the ability to reason with abstract mathematical concepts. Students will acquire a level of proficiency in manipulating concepts in calculus, in analyzing and evaluating their applicability in their future studies, including in academic areas requiring calculus as a prerequisite for work and in occupational fields requiring a background in calculus.

Course Policies Mistakes are a necessary component of learning. I encourage you to try, make mistakes, and revise your answers. Each individual is expected to be actively engaged in classroom discussion. “Actively engaged” means sharing input with the entire class and listening when others speak.

Diversity in this classroom is a source of strength and should be respected and appreciated. We must all recognize the value that each individual brings to the class. Any speech or actions that do not serve this sense of community in our classroom will not be tolerated.

Any behavior that can be deemed distracting to others should be minimized. Please make every attempt to arrive on time for class. If you must arrive late or leave early, do so without disrupting the lesson.

Course Grade: According to NCSU policies, we will use the following grading system:

Grading Scale

97-100	A+	93-96.99	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-

Your final grade in this course will be determined by marks earned on the final exam, four term tests, and online homework assignments. The weighting of these components are as follows:

WebAssign = 15 %
 Four term tests = 60 %
 Final Exam = 25 %

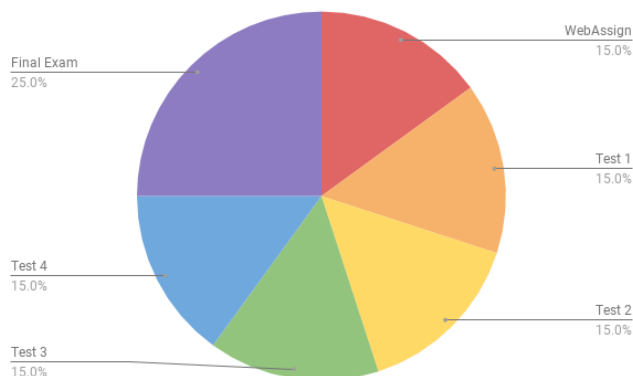
WebAssign 15% WebAssign homework assignments are obtained, submitted, and graded online at <http://www.webassign.net/ncsu/>. With the exception of assignments at the beginning and end of the course, WebAssign is due at **11pm** on the night before the corresponding exam. WebAssign composes a large portion of your final grade and no make-up work is available for missed assignments. While assignments are not due until the night before an exam, I **highly** recommend you start work on homework as soon as we cover the material in class. I also recommend that you print each assignment and work it with pencil and paper before submitting; you will be required to show all work on exams, and homework is great practice. I encourage collaboration among classmates on homework as long as you maintain academic integrity as defined in the NCSU Code of Student Conduct.

Four Term Tests 60% will be closed-book, closed-notes. A scientific calculator is permitted, but not required. Graphing calculators and calculators with the ability to derive and integrate will **not** be allowed. The dates are decided by the department and are *Friday, September 14, Monday, October 8, Friday, November 2* and *Wednesday, November 28*. Each exam will be worth 15% of your final grade. No re-tests will be given. If you miss a test because of an undocumented or unexcused absence, a zero will be entered for that test grade. Students who are unable to take the test at those times (with a documented excuse cannot, not just that you don't want to) will schedule an alternate time to take the exam.

Final Exam 25% is mandatory, cumulative and will be held in the usual classroom on Friday, December 14, 2018, 1:00-4:00 PM.

Corrections to Grading

If you believe an error has been made in grading on a test write a statement making your case and bring it to your instructor. I will give partial credit where appropriate. You have *1 week after the test is returned* to request re-grading. Do not alter the original work!



Test Make-Up Policy

All *anticipated absences* must be excused in advance of the test date. These include university duties or trips (certified by an appropriate faculty or staff member), required court attendance (certified by the Clerk of Court), or religious observances (certified by the Department of Parent and Family Services 515-2441). *Emergency absences* must be reported as soon as possible once returning to class and must be appropriately documented (illness by an attending physician or family emergencies by Parent and Family Services). If you are sick on a test day and decide not to come to class, go to the health center or other medical facility. Students who miss a test and have a university-approved excuse must submit appropriate documentation.

Attendance is expected every day as it is critical for the understanding of the material and not attending class serves as its own penalty because this material takes much longer to learn independently. You are responsible for keeping up with missed work so that you do not fall behind. Attendance will be taken at all classes (including recitation) per NCSU policy, but does not count towards the course grade. In addition, if you have 5 or fewer total absences (excused/unexcused) and attend all tests, your lowest test grade will be dropped.

Getting Help

My official office hours are designated solely for your class. Please come in or contact me with any questions as they arise. It is better to come each day for even five minutes with any new questions than only the day before the test with confusion about an entire unit. If you find that my office hours are inconvenient or impossible with your schedule, contact me to set up an appointment.

Use your classmates! If you need clarification on a topic, a different explanation from a peer is often helpful. If you feel you understand a topic really well and someone asks you for help, try explaining it. The process of organizing your thoughts to explain to someone else will not only help you learn to communicate mathematically, but also solidify the concept or expose any holes in your understanding. I will set up a Q&A forum on Moodle to facilitate this cooperation. The following statement is included since Moodle is a component of our course:

“Students may be required to disclose personally identifiable information to other students in the course, via electronic tools like email or web-postings, where relevant to the course. Examples include online discussions of class topics, and posting of student coursework. All students are expected to respect the privacy of each other by not sharing or using such information outside the course.”

Our lectures will also be recorded. I will post the links to the recorded lectures on our Moodle site. This is a great resource to review material! The following statement is included because of this:

“Please be advised this course is being recorded for current and potential future educational purposes. By your continued participation in this recorded course, you are providing your permission to be recorded.”

The Math Multimedia Center is a tutorial center for undergraduate students that need help in their mathematics courses (100- through 300-level), and is staffed by math graduate students familiar with the material taught in these courses.

Location: SAS Hall 2103/2105

Hours: Monday - Friday 8:00 am - 5:00 pm

You can also get help with your courses (not only math) at the NCSU Undergraduate Tutorial Center.

Add/Drop Regulation

Undergraduate students are expected to complete all courses for which they are enrolled as of census date (the official enrollment date defined as the 10th day of fall and spring terms and the 3rd day of summer terms). Undergraduate course drops after census date will now be considered to be course withdrawals and will result in W grades on the transcript. Undergraduates will be limited to a maximum of 16 hours of course withdrawals after census date and before the drop date October 19, 2018 for their entire undergraduate career at NC State. These course withdrawals will count as attempted hours for course repeat, financial aid satisfactory academic progress, and tuition surcharge calculations.

Students with Disabilities

“Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653. For more information on NC State’s policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation (REG02.20.1)”

Student Evaluations

Online class evaluations will be available for students to complete during the last three weeks of classes. You will receive an email message directing you to a website where you can login using your Unity ID and complete the evaluation. All evaluations are confidential; instructors will not know how any one student responded to any question, and students will not know the ratings for any instructors. We may also have mid-semester evaluations to determine if instruction should change in any way to meet students' needs.

Academic Integrity Statement and Academic Dishonesty

Both faculty and students at North Carolina State University have a responsibility to maintain academic integrity. An informational brochure about academic integrity is available from the university and students are encouraged to obtain a copy. Your signature on any test or assignment indicates "I have neither given nor received unauthorized aid on this test or assignment."

"Academic dishonesty is the giving, taking, or presenting of information or material by a student that unethically or fraudulently aids oneself or another on any work which is to be considered in the determination of a grade or the completion of academic requirements or the enhancement of that student's record or academic career." (NCSU Code of Student Conduct)

Scholarly activity is marked by honesty, fairness and rigor. A scholar does not take credit for the work of others, does not take unfair advantage of others, and does not perform acts that frustrate the scholarly efforts of others. The violation of any of these principles is academic dishonesty. Penalties for a violation: For the first violation, you will receive a zero for your work and be put on academic integrity probation for the remainder of your stay at NCSU. The second violation may result in your suspension from NCSU. Both situations will involve the Office of Student Conduct.

Non-Discrimination Policy

NC State University provides equality of opportunity in education and employment for all students and employees. Accordingly, NC State affirms its commitment to maintain a work environment for all employees and an academic environment for all students that is free from all forms of discrimination. Discrimination based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is a violation of state and federal law and/or NC State University policy and will not be tolerated. Harassment of any person (either in the form of quid pro quo or creation of a hostile environment) based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation also is a violation of state and federal law and/or NC State University policy and will not be tolerated. Retaliation against any person who complains about discrimination is also prohibited. NC State's policies and regulations covering discrimination, harassment, and retaliation may be accessed at <http://policies.ncsu.edu/policy/pol-04-25-05> or http://www.ncsu.edu/equal_op/. Any person who feels that he or she has been the subject of prohibited discrimination, harassment, or retaliation should contact the Office for Equal Opportunity (OEO) at 919-515-3148.

MA 131 Tentative Schedule

August 22	W	Supp. §10.1	Introduction to Difference Equations
August 23	Th	No Class	Usually Recitation
August 24	F	Supp. §10.1-10.2	Introduction to Difference Equations
August 27	M	Supp. §10.2-10.3	Introduction and Graphing Difference Equations
August 29	W	Supp. §10.3-10.4	Mathematics of Personal Finance
August 30	Th	Supp. §10.1-10.4	Recitation
August 31	F	§1.1	The Slope of a Straight Line
September 3	M	No Class	Labor Day
September 5	W	§1.2-1.3	The Slope of a Curve at a Point and The Derivative and Limits
September 6	Th	§1.1-1.3	Recitation
September 7	F	§1.4	Limits and the Derivative
September 10	M	§1.4	Limits and the Derivative
September 12	W	Review	Review for Test 1
September 13	Th	Supp. §10.1-10.4, 1.1-1.4	Review for Test 1
September 14	F	Supp. §10.1-10.4, 1.1-1.4	Test #1
September 17	M	§1.5	Differentiability and Continuity
September 19	W	§1.6	Rules for Differentiation
September 20	Th	§1.5-1.6	Recitation
September 21	F	§1.6-1.8	Rules for Differentiation, Derivative as a Rate of Change
September 24	M	§1.8-2.1	Examples, Describing Graphs of Functions
September 26	W	§2.1-2.2	First Derivative Rule, Second Derivative Rule
September 27	Th	§1.6-2.2	Recitation
September 28	F	§2.2-2.3	First and Second Derivative Tests and Curve Sketching
October 1	M	§2.4-2.5	Curve Sketching, Optimization Problems
October 3	W	Review	Review for Test 2
October 4	Th	No Class	Fall Break
October 5	F	No Class	Fall Break
October 8	M	§1.5-2.5	Test #2
October 10	W	§2.5-2.7	Optimization, Applications of Derivative
October 11	Th	§2.5-2.7	Recitation
October 12	F	§3.1	Product and Quotient Rules
October 15	M	§3.1-3.2	Chain and General Power Rules
October 17	W	§3.2-4.1	Chain Rule, Exponential Functions
October 18	Th	§3.1-4.1	Recitation
October 19	F	§4.2-4.4	Exponential Function, Differentiation, Natural Logarithm Function

October 22	M	§4.5	Differentiation of Natural Logarithm Function
October 24	W	§4.6	Properties of the Natural Logarithm Function
October 25	Th	§4.2-4.6	Recitation
October 26	F	§5.1	Exponential Growth and Decay
October 29	M	§5.1-5.2	Compound Interest
October 31	W	Review	Review for Test 3
November 1	Th	§3.1-5.2	Review for Test 3
November 2	F	§3.1-5.2	Test #3
November 5	M	§6.1	Antidifferentiation
November 7	W	§6.2	Definite Integral and Net Change of a Function
November 8	Th	§6.1-6.2	Recitation
November 9	F	§6.2-6.3	Definite Integral and Area under a Graph
November 12	M	§6.3-6.4	Area under a Graph, Areas in xy -Plane
November 14	W	§6.4-6.5	Areas between Curves, Applications of the Definite Integral
November 15	Th	§6.3-6.5	Recitation
November 16	F	§6.5-9.1	Solids of Revolution, Integration by Substitution
November 19	M	§9.3-9.4	Evaluation of Definite Integrals, Approximation of Definite Integrals
November 21	W	No Class	Thanksgiving Vacation
November 22	Th	No Class	Thanksgiving Vacation
November 23	F	No Class	Thanksgiving Vacation
November 26	M	Review	Review for Test 4
November 28	W	§6.1-9.4	Test #4
November 29	Th	TBD	Recitation
November 30	F	§9.4, 9.5	Some Applications of the Integral
December 3	M	§9.6	Improper Integrals
December 5	W	Review	Review for Final
December 6	Th	Review	Review for Final
December 7	F	Review	Review for Final
December 14	F	Supp. §10.1-10.4, 1.1-9.6	Final Exam 1:00-4:00 PM