

MA 131: Calculus for Life and Management Sciences A

Section: 001

Summer Session I 2020

INSTRUCTOR: Zheming Gao

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OFFICE HOURS: Tuesday/Thursday 4pm-5pm, or by appointment.

RECITATION HOURS (OPTIONAL): Tuesday/Thursday 3:10-4:00 pm

COURSE DESCRIPTION:

MA 131 is the first semester of a two-semester sequence in calculus for students in the life and management sciences. The main topics are first order linear difference equations, with a focus on financial models; differential calculus: limits, first and second derivatives and their interpretations, differentiation rules, graphing, and optimization; trigonometric, exponential and logarithmic functions; integral calculus: rules for anti-differentiation, fundamental theorem of calculus, computation of area, solids of revolution. The course will also cover applications in life, management, and social sciences.

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.

RESTRICTIONS: Credit is not allowed for both MA 131 and MA 121 or MA 141.

LECTURE NOTES & VEDIOS:

The links for each lecture will be available in the learning management system -- Moodle. The web address for the course site is <http://moodle.wolfware.ncsu.edu>. There is no fee for using Moodle. It is free for you to use while you are in this class. You will have access to the course content in Moodle and WebAssign (used for homework – see below) as of the first day of classes. (You might not be able to view course content before the first day of classes.)

REQUIRED MATERIALS:

- 1) Textbook: Calculus and its Applications (Goldstein, Lay, Schneider and Asmar).
(Either 11, 12, 13 or 14th edition works)
- 2) WebAssign access: <http://webassign.ncsu.edu>

GRADING POLICY:

Homework	20%
Tests (4 in total)	60% (15% each)
<u>Cumulative Final Exam</u>	<u>20%</u>
Total	100%

Letter grades will be determined from numerical grades based the following scale:

A+	>= 97	A	[93, 97)	A-	[90, 93)
B+	[87, 89)	B	[83, 87)	B-	[80, 83)
C+	[77, 79)	C	[73, 77)	C-	[70, 73)
D+	[67, 69)	D	[63, 67)	D-	[60, 63)
F	< 60				

EXAM DATES:

Test 1: May 21 (Thursday)

Test 2: May 29 (Friday)

Test 3: June 5 (Friday)

Test 4: June 12 (Friday)

Final Exam: June 17 (Wednesday) or June 18 (Thursday). Select either one.

HOMEWORK:

Homework will be assigned online through WebAssign (<http://webassign.ncsu.edu>). Students are supposed to check WebAssign regularly for the due dates.

Each assignment must be submitted through WebAssign through the due date. You have five submissions for each question. The final submission is the grade you receive on the assignment. WebAssign problems make up a large portion of your final grade, so do not fall behind or skip ANY of these. There is no make-up available for missed assignments, so keep track of the due dates and **START WORK EARLY** on the problems.

Students are allowed get help from your classmates or other online learning resources. Please **DO NOT COPY** others' answers. No late submission is allowed.

GETTING HELP:

(Available online) Undergraduate Tutorial Center: <https://tutorial.dasa.ncsu.edu/>

ACADEMIC INTEGRITY AND HONESTY:

Students are required to comply with the university policy on academic integrity and honesty outlined in the NCSU Code of Student Conduct. Students are responsible for reading the explanation of the policy found at <http://policies.ncsu.edu/policy/pol-11-35-01>.

ACCOMMODATIONS FOR DISABILITIES:

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with the Disability Resource Office at Holmes Hall, Suite 304, Campus Box 7509, 919-515-7653. For more information on NC State's policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation (REG02.20.01) <https://policies.ncsu.edu/regulation/reg-02-20-01/>.

NON-DISCRIMINATION POLICY:

NC State provides equal opportunity and affirmative action efforts, and prohibits all forms of unlawful discrimination, harassment, and retaliation ("Prohibited Conduct") that are based upon a person's race, color, religion, sex (including pregnancy), national origin, age (40 or older), disability, gender identity, genetic information, sexual orientation, or veteran status (individually and collectively, "Protected Status"). Additional information as to each Protected Status is included in NCSU REG 04.25.02 (Discrimination, Harassment and Retaliation Complaint Procedure). 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 <https://oied.ncsu.edu/divweb> . 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.

COURSE SCHEDULE:

Week 1 05/13 – 05/15	Sections 10.1 – 10.4 on online supplement. (Difference Equations, Simple/Compound Interest, Graphing Difference Equations)
Week 2 05/18 – 05/22	Sections 1.1-1.8 (Slopes of Lines and Curves, Derivatives, Equation of Tangent Line, Limits, Connecting Derivatives and Limits, Differentiability, Continuity, Differentiation Rules, Applications of Derivatives)
Week 3 05/26 – 05/29	Sections 2.1-2.5 (First Derivative Test, Second Derivative Test, Curve Sketching, Optimization)
Week 4 06/01 – 06/05	Sections 3.1-3.2, 4.1-4.6, 5.1, 6.1 (Product Rule, Quotient Rule, Chain Rule, General Power Rule, Exponential/Natural Log Functions, Antidifferentiation/Indefinite Integral)
Week 5 06/08 – 06/12	Sections 6.2-6.4, 9.1-9.3 (Antidifferentiation, Indefinite Integral, Definite Integral, Area Under Curves, Area Between Two Curves, U-Substitution)
Week 6 06/15 - 06/16	Sections 9.4-9.6 (Approximation of Definite Integrals, Solids of Revolution, Improper Integrals)