North Central State College

MASTER SYLLABUS	2025-2026

A. Academic Division: Liberal Arts

B. Discipline: Mathematics

C. Course Number and Title: MATH1150 Calculus I

D. Assistant Dean: Laura Irmer

E. Credit Hours: 5

F. Prerequisites: MATH 1130 (Minimum grade of C- required) or qualifying placement test score

G. Last Course/Curriculum Revision Date: Fall 2023 Origin date: 06/08/2011

H. Textbook(s) Title:

Calculus I w/Desmos (OHM Bundle) Access Code

- Author: Lumen Learning
- Copyright Year: 2024
- Edition:
- ISBN # 9781640873582

I. Workbook(s) and/or Lab Manual: Supplies: TI-83 or TI-84 required.

J. Course Description: A study of analytic geometry, limits, continuity, the derivative, basic differentiation rules, rates of change, the product and quotient rules, higher-order derivatives, the chain rule, implicit differentiation, related rates, extrema on an interval, Rolle's Theorem and the Mean Value Theorem. Function analysis includes increasing and decreasing functions and the first derivative test, concavity and the second derivative test, limits at infinity and curve sketching. Concluding topics include anti-derivatives, indefinite and definite integrals, the Fundamental Theorem of Calculus, and integration by substitution. Applications include optimization problems, Newton's method, differentials, and areas of planar regions. This course meets the requirements for OTM Calculus I TMM005. If combined with MATH1151, it will meet the requirements for OTM Calculus I & II sequence TMM017.

K. College Wide Learning Outcomes:

College-Wide Learning Outcomes	Assessments - - How it is met & When it is met
Communication – Written	
Communication – Speech	
Intercultural Knowledge and Competence	
Critical Thinking	
Information Literacy	
Quantitative Literacy	Quantitative Literacy VALUE Rubric, late in the term, test 3

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

Outcomes	Assessments – How it is met & When it is met
1. Determine the existence of, estimate numerically and graphically and find algebraically, the limits of functions, including limits at infinity.	Homework and Tests, early in the term; Final Exam.
2. Determine the continuity of functions at a point or on intervals.	Homework and Tests, early in the term; Final Exam.
3. Determine and interpret the derivative of a function using the limit definition and derivative theorems.	Homework and Tests, middle of the term; Final Exam.
4. Use the derivative to solve related rates and optimization problems, including implicitly defined functions.	Homework and Tests, middle of the term, Final Exam.
5. Assess a function's graph to determine which intervals are increasing, decreasing, concave up or concave down and to determine its extrema.	Homework and Tests, middle of the term; Final Exam.
6. Determine when Rolle's Theorem and the Mean Value Theorem can be applied and use those theorems to solve problems.	Homework and Tests, middle of the term; Final Exam.
7. Use differentials and linear approximations to analyze applied problems.	Homework and Tests, late in the term; Final Exam.
8. Determine antiderivatives (including using both the Fundamental Theorem of Calculus and integration by substitution) and use definite integrals to find areas of planar regions.	Homework and Tests, late in the term; Final Exam.

M. Recommended Grading Scale:

NUMERIC	GRADE	POINTS	DEFINITION
93–100	A	4.00	Superior
90–92	A-	3.67	Superior
87–89	B+	3.33	Above Average
83–86	B	3.00	Above Average
80–82	B-	2.67	Above Average
77–79	C+	2.33	Average
73–76	C	2.00	Average
70-72	C-	1.67	Below Average
67–69	D+	1.33	Below Average
63-66	D	1.00	Below Average
60-62	D-	0.67	Poor
00-59	F	0.00	Failure

N. College Procedures/Policies:

North Central State College believes that every student is a valued and equal member of the community.* Every student brings different experiences to the College, and all are important in enriching academic life and developing greater understanding and appreciation of one another. Therefore, NC State College creates an inclusive culture in which students feel comfortable sharing their experiences. Discrimination and prejudice have no place on the campus, and the College takes any complaint in this regard seriously. Students encountering aspects of the instruction that result in barriers to their sense of being included and respected should contact the instructor, assistant dean, or dean without fear of reprisal.

* *Inclusive of race, color, religion, gender, gender identity or expression, national origin (ancestry), military status (past, present or future), disability, age (40 years or older), status as a parent during pregnancy and immediately after the birth of a child, status as a parent of a young child, status as a foster parent, genetic information, or sexual orientation*

Important information regarding College Procedures and Policies can be found on the syllabus supplement located at
https://ncstatecollege.edu/documents/President/PoliciesProcedures/PolicyManual/Final%20PDFs/14-081b.pdf

North Central State College

SYLLABUS ADDENDUM

Academic Division:	Liberal Arts	**Discipline:**	Mathematics
Course Coordinator:	Sara K Rollo		
Course Number:	MATH 1150-CN1	**Course Title:**	Calculus I
Semester / Session:	Fall 2025	**Start / End Date:**	8/11/25 – 12/12/25

Instructor Information

Name:	Sara K. Rollo	**Phone Number:**	Reach me via email or Canvas message
		E-Mail Address:	srollo@ncstatecollege.edu
Office Location:	Kehoe	**Office Hours:**	T/Th – Kehoe – 10:15 am – 11:45 am and Friday – zoom – 7 am – 9:00 am

I. Topical Timeline (Subject to Change --- Check Canvas and Lumen for updated Due Dates):

(I will show what we will accomplish each week, rather than each class period. I may have to adjust on the "Daily" level but the weekly accomplishments will remain the same! Tests and Quizzes are due Sunday evenings via Lumen to accommodate busy schedules, you do not have to wait until Sunday to complete!)

Week 1 (8/11-8/17)– Topic 1 (1 week)
Homework Due: Create account with Lumen
Objectives: The limit of a function.
The limit of a function by use of the properties of limits.

Week 2 (8/18-8/24) – Topic 2 (1 week)
Homework Due: Topic 1 Homework
Objectives: The continuity of a function (including both removable and non-removable discontinuities).
Infinite limits.

Week 3 (8/25-8/31) – Topic 3-1.5 weeks (Maybe Week 4 instead and then pushed back 1 week)
Test Topic 1 and 2 due and Homework Due: Topic 2 Homework
Objectives: The derivative of a function by the definition.
The derivative of a function by the basic rules of differentiation.
Using the derivative to find the equation of a tangent line.
Use the derivative to calculate the instantaneous rate of change.

Week 4 (9/1-9/7): Topic 4 – 1 week
Homework due: Topic 3 homework
Objectives: Derivatives of a function by using the product and quotient rules.
Higher-order derivatives.

Week 5 (9/8-9/14): Topic 5- 1 week
Homework Due: Topic 4 Homework
Objectives: Derivatives by using the chain rule.
Derivatives by implicit differentiation.
Related rates by differentiation

Week 6 (9/15-9/21): Topic 6 – 1 week
Homework Due: Topic 5 homework and **Test Topics 3, 4 and 5**
Objectives: The extrema on an interval.
Rolle's Theorem and the Mean Value Theorem.

Week 7 (9/22-9/28): Topic 7 -1 week

Homework Due: Topic 6 Homework
Objectives: Problems involving increasing and decreasing functions and the first derivative test.
The concavity of a function.
Maximums and minimums of a function using the second derivative test.

Week 8 (9/39-10/5): Topic 8 – ½ week
Homework Due: Topic 7 Homework
Objectives: The limit of a function at infinity

Week 9 (10/13-10/19): Topic 9 – 1 week
Homework Due: Topic 8 Homework
Objectives: Optimization problems.
Problems using Newton's Method.
Differentials.

Week 10 (10/20-10/26): Topic 10 – 1 week
Test Due: **Topics 6, 7, 8, 9 Test** and Homework Due: Topic 9 Homework
Objectives: Anti-derivatives and Indefinite Integration.
Area and Riemann sums

Week 11 (10/27-11/2): Topic 11 – 1.5 week
Homework Due: Topic 10 Homework
Objectives: Definite Integrals and the Fundamental Theorem of Calculus.

.

Week 12 (11/3-11/9): Test topics 10 and 11
Homework Due: Topic 10 Homework Test Due: **Topics 10 and 11 Test due**

Week 13 (11/10-11/16): Review sessions for Final Exam

Week 14 – END (11/17-12/12) --- Final Exam

II. Course Assignments:

ALL completed through Lumen: Homework, Quizzes and tests

1. Quizzes (if assign)
2. Tests
3. Homework
4. Final Exam

III. Grading and Testing Guidelines:

Homework/Quiz (including Lumen): 25%, Tests: 50%, Final: 25%

IV. Examination Policy:

- You will take each test via Lumen
- If you miss a test's deadline, then you may receive 20% penalty to make it up
- After taking a test, if you want me to review your answers for partial credit, then let me know.
- You must send a picture of your work during the test to receive credit for the test. If you do not send me the worked out solutions of your answers, then you receive a 0 for the test.

V. Class Attendance and Homework Make-Up Policy:

- I take attendance each day
- Being in class and completing each homework assignment will benefit your test grades and your overall grade
- If you miss class, then it is your responsibility to check Canvas or to ask a classmate for the lesson and homework that you missed
- Check Canvas often for your up to date grades and for upcoming test and homework due dates
- Homework is completed via Lumen
- There may be a 20% penalty for all late homework
- Complete your homework. Homework shows that you are willing to complete tasks to accomplish the larger goal (in this case, helping to prepare for a test and to better understand the material). If you do NOT complete homework, it will bring down your overall grade, significantly
- You will get out of this class what you put into it. If you truly want to learn the material so that you can be successful in either future math courses or engineering courses, then take time to understand the processes for each problem and ask questions, as you have them!

VI. Classroom Expectations:

- No side conversations during lecture. Whispering and chatting disturbs the classmate(s) around you. Be respectful of other students. I may ask you to leave otherwise
- Take notes (you may get extra credit for this toward tests)
- No inappropriate conversations or behavior. Treat each other with respect and be respectful toward me
- Put electronic devices on silent
- Any students who requires accommodations related to a disability should inform the course instructor and the coordinator of specialized services (room 138 in Byron Kee Center and phone 419.755.4727)
- Students who encounter difficulty in any of their courses are encouraged to visit the tutoring resource center (room 119 Fallerius) for tutoring assistance, and the student resource center (room 136 Byron Kee Center) for academic assistance, advising services, referrals for personal counseling and learning disability testing