



Mathematics
MATH 1810 Course Syllabus

Course Title: Applied Calculus I

Description: Three credits. This course satisfies the General Education Mathematics requirement and meets specific requirements for programs as outlined in the MTSU Undergraduate Catalog. Topics include mathematical modeling applied to real-world problems, sets, functions, limits, continuity, single variable differentiation, implicit differentiation, exponential and logarithmic models and integration.

Prerequisites: Math Enhanced ACT of 19 or greater or MATH 1710

Semester: **Course: MATH 1810 -** **Room:** **Time:**

Instructor:

Office:

Office Hours:

E-Mail/Phone:

Attendance:

Attendance is required at each class meeting. Participation in University sanctioned activities or in military duties and situations where the institution's policy on inclement weather is applicable are considered excused absences. However, non-attendance does not relieve a student of the responsibility for work covered or assigned. The instructor will keep a record of attendance for each student.

Course Materials:

Required Text: *Calculus: An Applied Approach*, 10th Edition, Larson ISBN: 9781337652308

Required Calculator: A TI-83 or TI-84 Plus Graphing Calculator

Course Purpose:

This course is designed to help students develop basic skills and concepts in applied calculus. It introduces the notion of the limit of a function and applies the idea to the definition of derivative and integral.

Learning Outcomes:

Upon completion of this course with a passing grade, the student will:

- Have a clear understanding of functions.
- Have the ability to calculate the derivative of a function utilizing its definition, formulas derived from the definition of the derivative, and previously known derivatives of component functions.
- Have the ability to apply derivatives to the approximation of function values, to sketching (including increasing-decreasing behavior, optimization, concavity and inflection points) and to solving problems modeled by functions.
- Have a clear understanding of the definite integral-its definition, calculation and application using antiderivatives and the Fundamental Theorem of Calculus.

General Education Mathematics Goal and Learning Outcomes:

Goal:

The goal of mathematics is to expand students' understanding of mathematics beyond the entry-level requirements for college and to extend their knowledge of mathematics through relevant mathematical modeling with applications, problem solving, critical thinking skills, and the use of appropriate technologies.

Learning Outcomes:

Upon completion of this course, students will demonstrate the ability to:

- Use mathematics to solve problems and determine if the solutions are reasonable.
- Use mathematics to model real world behaviors and apply mathematical concepts to the solution of real-life problems.
- Make meaningful connections between mathematics and other disciplines.
- Use technology for mathematical reasoning and problem solving.
- Apply mathematical and/or basic statistical reasoning to analyze data and graphs.

Course Requirements:

In order to accomplish the learning outcomes of this course, the learner is required to:

- Attend class lectures
- Participate in class activities
- Read and study assignments
- Solve assigned problem sets
- Complete test, quizzes, homework, etc.
- Complete a comprehensive final exam

If you do not take the final exam, you cannot pass the course.

Course Topics: This course consists of selected topics from Chapters 1, 2, 3, 4, and 5 in the required text, including functions, limits and the derivative, differentiation and applications of the derivative, optimization and integration.

Sections to Be Covered:

Chapter:	Sections Covered:
1: Functions, Graphs and Limits	1.1, 1.2, 1.3, 1.4, 1.5, 1.6
2: Differentiation	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7*, 2.8*
3: Applications of the Derivative	3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8
4: Exponentiation and Logarithmic Functions	4.1, 4.2, 4.3, 4.4, 4.5, 4.6
5: Integration and Its Applications	5.1, 5.2, 5.3, 5.4

*Optional Topics

Course Evaluation and Grading:

- Attendance, homework, quizzes, and projects all total to no more than 25% of the final grade.
- In-class tests all carry the same weight and total to no more than 50% of the final grade.
- The comprehensive final exam accounts for 25% of the final grade. The final will only be given at the time noted below (under important dates) in the regular class meeting room.

Grading Scale:

Percentage	Grade
90 - 100	A
80 - 89	B
70 - 79	C
60 - 69	D
Below 60	F

NOTE: In order to receive a passing grade for the course, you must take the final exam and achieve a passing grade (60%) on the exam. If this is accomplished, then the final grade assigned for the course will be based on the total points earned.

Incomplete grades are given rarely and only in extenuating circumstances. Page 56 of the MTSU [Undergraduate Catalog](#) states: "The grade I indicates that the student has not completed all course requirements because of illness or other uncontrollable circumstances, especially those which occur toward the end of the term. Mere failure to make up work or turn in required work on time does not provide the basis for the grade of "I" unless extenuating circumstances noted above are present for reasons acceptable to the instructor." Please refer to the Undergraduate Catalog for the complete Incomplete Grade Policy.

Important Academic Dates:

Last Day to Drop Without a Grade:

Last Day to Drop With a W:

Final Exam Time and Date:

Tentative Exam Dates:

Exam 1 – Chapter 1	Date:
Exam 2 – Chapter 2	Date:
Exam 3 – Chapter 3	Date:
Exam 4 – Chapter 4	Date:
Exam 5 – Chapter 5	Date:

Math Tutoring Lab (MTL):

Math tutoring for this course is available as a free service to MTSU students in KOM 252. Tutoring is conducted by Graduate Teaching Assistants (GTAs), work study students, and a faculty coordinator. The lab is closed on weekends and scheduled MTSU holidays. The hours of operation are posted in the lab. More information is available at <http://mtsu.edu/math/students.php#tutoring>.

Academic Integrity/Misconduct:

Please review the [information on Academic Integrity and Misconduct](#). Academic integrity is a hallmark of Middle Tennessee State University. We expect students to present original work for all academic assignments turned in for credit and appropriately credit all sources used.

Academic misconduct includes, but is not limited to:

1. Plagiarism: The adoption or reproduction of ideas, words, statements, images, or works of another person as one's own without proper attribution. This includes self-plagiarism, which occurs when an author submits material or research from a previous academic exercise to satisfy the requirements of another exercise and uses it without proper citation of its reuse.
2. Cheating: Using or attempting to use unauthorized materials, information, or study aids in any academic exercise. This includes unapproved collaboration, which occurs when a student works with others on an academic exercise without the express permission of the professor. It also includes purchasing assignments or paying another person to complete a course for you.
3. Fabrication: Unauthorized falsification or invention of any information or citation in an academic exercise.

Going online and using information without proper citation, copying parts of other students' work, creating information to establish credibility, or using someone else's thoughts or ideas without appropriate acknowledgment is academic misconduct. If you have a question about an assignment, please ask me to clarify. All cases of academic misconduct will be reported to the Director of Student Academic Ethics and may result in failure on the test/assignment or for the course.

Students guilty of academic misconduct are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions (including suspension from the university), which may be imposed through the regular institutional procedures as a result of academic misconduct, the instructor has the authority to assign an "F" or zero for an activity or to assign an "F" for the course. Students accused of plagiarism will be immediately reported to the Director of Student Academic Ethics.

Drop/Withdrawal Policy and Dates:

Please note the Drop Policy and Withdrawal Procedures as they are stated in the Current Registration Guide. A grade of “I” will be given only in accordance with University Policy. No grade of “W” will be assigned after the official drop date except in situations involving extreme extenuating circumstances beyond the student’s control. In particular, a “W” will not be granted merely because the student is failing. Students should be aware that missing the official drop date and thereby receiving an “F” can have ramifications on financial aid.

General conduct in class:

The instructor has primary responsibility for control over all classroom behavior and can direct the temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or conduct which otherwise violates the general rules and regulations of MTSU.

Lottery Scholarship Policy:

Do you have a lottery scholarship? To retain the Tennessee Education Lottery Scholarship eligibility, you must earn a cumulative TELS GPA of 2.75 after 24 and 48 attempted hours and a cumulative TELS GPA of 3.0 thereafter. A grade of C, D, F, FA, or I in this class may negatively impact TELS eligibility. If you drop this class, withdraw, or if you stop attending this class you may lose eligibility for your lottery scholarship, and you will not be able to regain eligibility at a later time.

For additional Lottery rules, please refer to your Lottery Statement of Understanding form (<http://www.mtsu.edu/financial-aid/forms/LOTFOD.pdf>) or contact your MT One Stop Enrollment Counselor (<http://www.mtsu.edu/one-stop/counselor.php>).

Students with Disabilities:

Middle Tennessee State University is committed to campus access in accordance with Title II of the Americans with Disabilities Act and Section 504 of the Vocational Rehabilitation Act of 1973. Any student interested in reasonable accommodations can consult the [Disability & Access Center \(DAC\)](#) website and/or contact the DAC for assistance at 615-898-2783 or dacemail@mtsu.edu.

Mental Health:

As a college student, you may experience a range of challenges and issues that can interfere with your physical and mental well-being, hinder your academic experience, and negatively impact your daily life. Some of these experiences may include overwhelming depression/sadness, anxiety, high levels of stress, use of alcohol/drugs, difficulty sleeping, difficulty concentrating, and/or loss of motivation. These challenges and issues can lead to thoughts of self-harm and suicide. If you or any of your classmates are experiencing these issues, it is important to reach out and ask for help. Discuss your situation with a friend, a family member, your instructor, or an academic advisor. Remember: Everyone struggles. It's okay to talk about it. Ask for help. YOU ARE NOT ALONE!

Title IX:

Students who believe they have been harassed, discriminated against or been the victim of sexual assault, dating violence, domestic violence or stalking should contact a Title IX/Deputy Coordinator at 615-898- 2185 or 615-898-2750 for assistance or review [MTSU's Title IX website](#) for resources. MTSU faculty are concerned about the well-being and development of our students and are legally obligated to share reports of sexual assault, dating violence, domestic violence and stalking with the University's Title IX coordinator to help ensure student's safety and welfare. Please refer to [MTSU's Title IX website](#) for contact information and details.

The True Blue Pledge:

[I am True Blue](#)

As a member of this diverse community, I am a valuable contributor to its progress and success. I am engaged in the life of this community. I am a recipient and a giver. I am a listener and a speaker. I am honest in word and deed. I am committed to reason, not violence. I am a learner now and forever. I am a BLUE RAIDER. True Blue!

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