

Math 3110 Course Syllabus

Course Title:

Calculus III

Course Description:

Adjusts calculus techniques developed in the plane (Calculus I and II) to make them applicable in three-dimensional space. Introductory study of the nature of three-dimensional space definition of the algebraic calculations in three-dimensional space. Differential and integral calculus definitions and techniques revised to appropriately transfer into this new space. Topics include multivariate functions, partial differentiation, partial integration, multiple integration, and multidisciplinary applications.

Course Prerequisites:

This course requires a grade of C or better in Math 1920 or its equivalent. Familiarity with graphing calculators (TI-83, 84, etc) is required. You may not use graphing calculators with symbolic manipulation software (DERIVE, MAPLE, etc.) on exams.

Instructor Information:

Instructor:

Office:

E-mail/Phone:

Office Hours:

Webpage:

Required Materials:

Textbook: Calculus: Early Transcendentals (With WebAssign Access), 9th Edition, by James Stewart

Course Purpose:

This is a course on multivariable calculus and its part of the mathematics core. It is the last in a sequence of three courses designed to provide the tools necessary for continued work in more advanced mathematics, physics and engineering.

Learning Outcomes:

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

1. Vectors in the plane, vectors in three dimensions.
2. Dot and cross products.
3. Lines and curves in space.
4. Calculus of vector-valued functions, motion in space length of curves, curvature and normal vectors.
5. Planes and surfaces, graphs and level curves.
6. Limits, continuity and chain rule of functions of several variables.
7. Partial derivatives, directional derivatives and the gradient.
8. Tangent planes and linear approximation of functions several variables.
9. Maximum and minimum problems in several variables, Lagrange multipliers.
10. Double integrals over rectangular regions and general regions.
11. Double integrals in polar coordinates, triple integrals.
12. Triple integrals in cylindrical and spherical coordinates.
13. Integrals for mass calculations, change of variables in multiple integrals.
14. Vector fields, line integrals.
15. Conservative vector fields, Green's Theorem.
16. Divergence and curl, surface integrals, Stoke's Theorem and divergence Theorem.

Course Requirements:

In order to complete this course successfully, the learner is required to:

- Attend class lectures
- Participate in class activities
- Read and study class assignments
- Solve assigned problem sets
- Successfully complete quizzes and tests
- Use technology where appropriate

Sections To Be Covered:

Chapter:	Sections Covered:
12	12.1 - 12.15
13	13.1 – 13.4
14	14.1 – 14.8
15	15.1 – 15.9 (15.5 optional)
16	16.1 – 16.9

Course Evaluation:

Grading Scale:

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

Important Dates:

Last Day to drop without a grade:

Last Day to drop with a W:

Final exam Time and Date:

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.

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](#) or contact your [MT One Stop Enrollment Counselor](#).

Reasonable Accommodations for Students with Disabilities:

Reasonable Accommodations for Students with Disabilities: Middle Tennessee State University is committed to campus access in accordance with the Title II of the Americans with Disabilities Act and Section 504 of the Vocational Rehabilitations 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 [email](#).

Free Tutoring:

Math tutoring for this course is available as a free service to MTSU students in KOM 252. Tutoring is fundamental to your success as a student. At every level of your academic journey, you will discover that tutoring assists your understanding, recollection, and application of what was presented in the classroom.

Take advantage of our FREE tutoring service and learn how to study, get help with understanding difficult course material, receive better test grades, or simply improve your grade point average. Tutoring is available in *study skills* and *learning strategies* that includes sessions on time management, notetaking, when and where to study, and memory principles. Tutoring is also available in over 200 courses including biology, history, computer information systems, physics, math, psychology, chemistry, economics, recording industry and many more. The central location for tutoring is the Tutoring Spot, located in Walker Library, but also conducted at various other campus sites. For available tutoring opportunities, visit the [Student Success](#) website. For questions, call the tutoring spot at 615-904-8014.