



蘇州大學
Soochow University

MAT 260 Calculus III

Summer 2024

Course Credits: 4

Contact Hours: 56 hours

Instructor: TBA

Email:TBA

COURSE OBJECTIVES

Calculus III is an advanced course that builds upon the concepts introduced in Calculus I and II, focusing on multivariable calculus. This course delves into the study of functions of several variables, including multiple integration, vector fields, line and surface integrals, first-order differential equations, parametric equations and polar coordinates, partial derivatives, second-order differential equations. Through theoretical exploration and practical application, students will develop a deep understanding of multivariable calculus and its relevance in various fields such as physics, engineering, and economics.

Upon Completion of this Course, students will be able to:

1. Understand and apply the concepts of extrema of functions of several variables;
2. Compute line integrals along curves and surface integrals over parametric surfaces;
3. Analyze and manipulate vector fields and their derivatives;
4. Apply fundamental theorems such as Stokes' theorem and Gauss' theorem to evaluate line and surface integrals;
5. Perform multiple integration and apply them to various problems in physics, engineering, and other fields.

PREREQUISITES

MAT 120 Calculus II



GRADING

Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

ITEM	POINTS
4 Assignments	20 Points
2 Quizzes	20 Points
Midterm Exam	25 Points
Final Exam	35 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

$$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F.$$

We reserve the right to make adjustments to the overall grading policy.

COURSE MATERIALS

Required Texts:

George B. Thomas Jr., Maurice D. Weir, Joel R. Hass. Thomas, *Calculus: Early Transcendentals*, Pearson, 13th edition, 2015.

Recommended (Optional) Texts or Other Materials:

None

COURSE TOPICS

MODULE	TASKS
Module 1	<p>Topics: Topic 1: Techniques of Integration Topic 2: First-Order Differential Equations Topic 3: Infinite Sequences and Series Topic 4: Parametric Equations and Polar Coordinates</p> <p>Assessments: Assignment #1</p>



Module 2	Topics: Topic 5: Vectors Topic 6: The Dot Product/The Cross Product Topic 7: Lines and Planes in Space Topic 8: Cylinders and Quadric Surfaces Assessments: Assignment #2 Quiz #1
Module 3	Topics: Topic 9: Curves in Space and Their Tangents Topic 10: Integrals of Vector Functions Topic 11: Functions of Several Variables Topic 12: Partial Derivatives Assessments: Assignment #3 Midterm Exam
Module 4	Topics: Topic 13: Multiple Integrals Topic 14: Vector Fields and Line Integrals Topic 15: Green's Theorem in the Plane Topic 16: Stokes' Theorem Assessments: Assignment #4 Quiz #2
Module 5	Topics: Topic 17: The Divergence Theorem and a Unified Theory Topic 18: Second-Order Linear Equations Topic 19: Euler Equations Topic 20: Power Series Solutions Assessments: Final Exam

ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow University Academic Administration Office, the student might get a written warning



and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.

LEARNING REQUIREMENTS

- 1) Late assignments are not acceptable and are subjected to grade deductions.
- 2) Assignments submitted in the wrong format will be counted as not submitted.
- 3) Failure to submit or fulfill any required course component results in failure of the class.
- 4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
- 5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.

TECHNOLOGY POLICY

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).

ACADEMIC INTEGRITY POLICY

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.



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DISABILITY ACCOMMODATION

Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.