MATH 0240: Analytic Geometry and Calculus 3

Fall, 2025-2026

Instructor: Kunpeng Wang

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Office hours: Wed. 9 - 11 am & 12 - 4 pm, Thu. 10 - 11 am & 2 - 4:30 pm, Fri. 9 - 11 am

Office: Room **515** SCUPI New Building

Course Description

Topics include functions of several variables and partial derivatives, directional derivatives and double and triple integrals, multiple integrals and changes of variables, and vector calculus, with an emphasis on Green's and Stokes' theorems.

Section: 02

Class Room: Room **S-206** Jiang'an South Campus

Class Hours: Tuesday 10:15-11:00 am, 11:10-11:55 am, Thursday 8:15-9:00 am, 9:10-9:55 am

Teaching Assistant: Kaifeng Shi

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Teaching Assistant: Ningyuan Li

Email: **2023141520139@stu.scu.edu.cn**

QQ Group: 819322908

Tutorials: TBA

Section: 05

Class Room: Room **S-206** Jiang'an South Campus

Class Hours: Tuesday 4:45-5:30 pm, 5:40-6:25 pm, Thursday 4:45-5:30 pm, 5:40-6:25 pm

Teaching Assistant: Yuchen Wang

Email: **wangyuchen6@stu.scu.edu.cn**

QQ Group: 1049443547

Tutorials: TBA

Prerequisites

MATH 0220 & 0230 Analytic Geometry and Calculus 1 & 2

Course Objectives

We will cover most of the material from Chapters 11-13 in the textbook.

Learning Outcomes

At the completion of this course, students will be able to:

1. Extend many of the concepts learned in MATH 0220/0235 to three dimensions.
2. Have a clear understanding of vector fields, and how they apply to geometric and physical problems.
3. Understand what is meant by the partial derivative of a function of several variables, and be able to apply this to the concept of maximum and minimum points.
4. Set up and compute double and triple integrals over general regions.
5. Learn about generalizations of the Fundamental Theorem of Calculus and how to employ them in applications.

Class Structure

Lectures.

Tutorials

Tutorials run by our TAs will start in Week 03.

Course Materials

Textbook: Essential Calculus, 2nd Edition, by James Stewart.

Blackboard

Please regularly log on and check https://learn.scupi.cn/. We will upload there lecture notes, assignments, projects, announcements and your grades.

Course Assessment

Weekly assignments, quizzes, tests and the final exam.

Schedule of Exams, Assignments and Quizzes

Exams

Date	Time	Component
Week 8	2 hours	Midterm 1
Week 14	2 hours	Midterm 2
Final exam week	2 hours	Final exam

Assignments

Homework assignments will be given out weekly. They will be due by the following week on Thursday at the beginning of the class. Plagiarism will not be tolerated. However, discussions of the assignment problems will be permited. Please also note each student must submit his/her individual assignment.

Quizzes

Students will be asked to complete a quiz after each tutorial. The same tutorial content will apply to students in my sections.

Grading Policy

The final grade will be computed according to the following scheme:

Scheme: Total grade = 10 % Assignments +20 % Midterm 1 + 20 % Midterm 2 + 35 % Final Exam + 10 % Quizzes + 5% Attendance.
Note: All exams will be closed-book.

Conversion of Numerical Grades to Final Letter Grades Follows the SCUPI Common Grade

A $[90,100]$ A- $[85,90)$ B+ $[80,85)$ B $[76,80)$ B- $[73,76)$ C+ $[70,73)$ C $[66,70)$
C- $[63,66)$ D+ $[61,63)$ D $[60,61)$ F $(60,0)$

Schedule and weekly learning goals

The schedule is tentative and subject to change. The listed objects below should be viewed as the key concepts you should grasp after each week, and also as a study guide before each exam, and at the end of the semester. Each test will base on material that

was taught up until the second last week prior to the test, namely, Midterm covers Week 01-06. The final exam will cover all topics taught in this semester.

Week 01, 09/08-09/12

- Cover Sections 11.1-11.2.
- Course introduction.
- Functions of several variables.
- Limits and continuities.

Week 02, 09/15-09/19

- Cover Sections 11.3-11.4.
- Partial derivatives.
- The tangent plane and linear approximation.

Week 03, 09/22-09/26

- Cover Section 11.5.
- Chain rule and the applications.

Week 04, 09/28-10/03

- Cover Section 11.6.
- Directional derivatives and the gradient vector.

Week 05, 10/06-10/10

- National Day Holiday.
- Cover Section 11.7.
- Maximum and minimum values.

Week 06, 10/13-10/17

- Cover Sections 11.8.
- Lagrange multipliers.

Week 07, 10/20-10/24

- Cover Sections 12.1-12.2.
- Double integrals over rectangular regions.

Week 08, 10/27-10/31

- **Midterm 1**
- Cover Sections 12.3-12.4.
- Double integrals over general regions.

Week 09, 11/03-11/07

- Cover Sections 12.5-12.6.
- Double integrals in polar coordinates.
- Triple integrals.

Week 10, 11/10-11/14

- Cover Section 12.7
- Triple integrals in cylindrical coordinates.

Week 11, 11/17-11/21

- Cover Sections 12.8
- Triple integrals in spherical coordinates

Week 12, 11/24-11/28

- Cover Sections 13.1-13.2.
- Vector fields
- The line integral.

Week 13, 12/01-12/05

- Cover Sections 13.3-13.4.
- The fundamental theorem for the line integral.
- Green's Theorem.

Week 14, 12/08-12/12

- **Midterm 2**
- Cover Section 13.5-13.6.
- Curl and divergence.
- Parametric surfaces and their areas.

Week 15, 12/15-12/19

- Cover Section 13.7.
- Surface Integrals.

Week 16, 12/22-12/26

- Cover Section 13.8.
- Stoke's Theorem.

Week 17, 12/29-01/02

- Cover Section 13.9.
- The Divergence Theorem.

Week 18, 01/05-01/09

- **Final Exam Week**.

Course Policies

There will be no special treatments for any students in this course! For example, if you have a heavy course load, you should expect a steep learning curve and be prepared for it. You will not be exempted from any assignments.

During Class

Computers may be allowed in class for the electronic recording of notes. But please refrain from using computers for any activities that are unrelated to the course. Phones are prohibited as they are rarely useful for anything in the course. Eating and drinking are allowed in class but please keep from it affecting the course.

Attendance Policy

Attendance is expected in all lectures. Valid excuses for absence will be accepted before class. In extenuating circumstances, valid excuses with proof will be accepted after class.

Policies on Late Assignments, Quizzes and Exams

Students should start their homework assignments immediately after the assignments are given, and DO NOT wait until the last minute to meet the deadlines. **Late assignments will be NOT accepted except for emergencies and health issues. Any other late assignments handed in will be marked but will be given 0**. At most **Two** extensions for assignments will be given in this course. All assignments will be counted in your total grade. **Late submission for previous assignments during the final exam period will NOT be accepted in any form for any excuses**.

There are no late quiz. At most one exemption may be given with valid excuses. Any other late quizzes will be recorded as 0.

All tests and the final exam are mandatory. There will be absolutely no makeup exam for each test. If you miss the final, a makeup exam may be given for the final exam if the student has the approval from the instructor or emergencies and health issues **with a valid proof**. I will not accept the student deceleration for absence form for the final exam.

Academic Integrity

At Sichuan University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do.

Everyone at SCUPI is expected to treat others with dignity and respect. The Code of Student Conduct allows Sichuan University to take disciplinary action if students don't follow this community expectation.