暨南大学
JINAN UNIVERSITY

0701M375
Multivariable Calculus

Instructor: TBA
Time: Monday through Friday (June 14, 2021-July 16, 2021)
Office Hours: 2 hours (according to the teaching schedule)
Contact Hours: 60 (50 minutes each)
Credits: 4
Location: Huiquan Building
Office: Huiquan Building 518
E-mail: TBA

Course Description
Vectors and the geometry of three-dimensional space. Vector-valued functions. Real-valued functions of many variables and optimization. Multiple integrals. Vector fields, Green's, Stokes', and the divergence theorems.

Required Textbook(s)

Calculus, 11e Larson/Edwards (2016)
We will study selected sections from Chapters 11-15

Prerequisites

Students must have basic knowledge of differentiation and integration of a function of single variable. Certain mathematical maturity is expected due to more advanced content of the class. Although the majority of the class is computational, a small amount of theoretical problems will be studied.

Course Hours

The course has 25 sessions in total. Each class session is 120 minutes in length. The course meets from Monday to Friday.

Assignments

● **Homework**: Homework from the textbook will be assigned frequently. Students are expected to complete each homework assignment and are encouraged to work together on these assignments. The homework itself will not be graded, but problems from the homework assignment will be used for mid-week quizzes.

● **Mid-Week Quizzes:** Each Wednesday a quiz will be given at the end of the class. The quizzes will contain questions from the homework assignments. The main goal of the quizzes is to prepare students for weekly exams. There will be 4 quizzes.

● **Weekly Exams**: Each Friday for the first 4 weeks we will have a test on the topics of the week. The tests will be given during the second half of the class and a review by TA will be given during the first part. There will be 4 such tests.

● **Final Exam**: The all-inclusive final exam will be given on July 18, 2019. This exam will include every section we have studied during the semester. Solutions to the final exam will be given during the last class of the semester on Friday.

Course Schedule

Please note that the schedule is meant to give an overview of the major concepts in this course. Changes may occur in this calender as needed to aid in the student`s development.

Date	Sections
Week 1	
Mon.	11.1: Vectors in the plane 11.2: Space coordinates and vectors in space 11.3: The dot product of two vectors
Tue.	11.4: The cross product of two vectors in space 11.5: Lines and planes in space 11.6: Surfaces in space
Wed.	11.7: Cylindrical and spherical coordinates 12.1: Vector-valued functions, 12.2: Differentiation and integration of vector valued functions, QUIZ 1
Thur.	12.3: Velocity and acceleration 12.4: Tangent and normal vectors 12.5: Arc length and curvature
Fri.	Review, TEST 1

Week 2	
Mon.	13.1: Intro. To functions of several variables 13.2: Limits and continuity 13.3: Partial derivatives
Tue.	13.4: Differentials 13.5: Chain rules for multivariable functions
Wed.	13.6: Directional derivatives and gradients 13.7: Tangent planes and normal lines QUIZ 2
Thur.	13.8: Extrema of functions of two variables 13.9: Applications of extrema
Fri.	Review, TEST 2
Week 3	
Mon.	13.10: Lagrange multipliers
Tue.	14.1: Iterated integrals and area in the plane 14.2: Double integrals and the volume
Wed.	14.3: Change of variables(polar coordinates) 14.4: Center of mass and moments of inertia QUIZ 3
Thur.	14.5: Surface area 14.6: Triple integrals and applications
Fri.	Review, TEST 3
Week 4	
Mon.	14.7: Triple integrals in other coordinates 14.8: Change of variables (Jacobians)
Tue.	15.1: Vector fields
Wed.	15.2: Line integrals 15.3: Conservative vector fields and independence of path QUIZ 4
Thur.	15.4: Green's Theorem 15.5: Parametric surfaces
Fri.	Review, TEST 4
Week 5	
Mon.	15.6: Surface integrals 15.7: Divergence theorem
Tue.	15.8: Stokes' theorem
Wed.	Comprehensive Review
Thur.	FINAL EXAM
Fri.	Solutions of Final Exam & further discussions

Course Requirements

Attendance and in-class work

Attendance is mandatory and students are expected to be in class every day for the full class period. We will be covering a lot of material very quickly, so if you get behind it will be very difficult to catch up.

Make-Ups

This class will go by very quickly. I strongly recommend that you never miss class, since it will be very hard to make up the material you missed and, since mathematics is cumulative, you will run the risk of getting hopelessly behind. However, I understand that life happens, so up to two missed classes will not count against you. If you miss a midterm with an excellent documented reason and the dean's approval, you have only the following weekday to make up (Test maybe different from the actual test).

Calculators

Students may use any type of calculators during lectures, but only calculators without differentiation and Integration capability are allowed during exams.

Note from Lecturer

I am committed to seeing that you succeed in this course. I put significant effort into my teaching. Your part is to put comparable effort into your learning. My goal is to do whatever I can to insure your success in this course. Y0ur goal should be the same. We are in this together! Together with hard work we can create a learning environment that will lead you to great achievement of mathematical skills, concepts, and problem solving to give a solid background for your mathematics courses.

Grading Policy

Quizzes (4)	30%
Weekly Exams (4)	40%
Final Exam	30%
Total	100%

Grading Scale

The instructor will use the grading system as applied by JNU:

Definition	Letter Grade	Score
Excellent	A	90~100
Good	B	80~89
Satisfactory	C	70~79
Poor	D	60~69
Failed	E	Below 60

Attendance

Attendance is mandatory in the class. It would be recorded each class and forms part of students' participation record. Students should inform the instructor at the earliest opportunity if they need to ask for a leave. All absences may have negative effect on students' final grades. Any students with more than three unexcused absences will automatically fail the course.

Academic Integrity

As members of the Jinan University academic community, students are expected to be honest in all of their academic coursework and activities. Academic dishonesty, includes (but is not limited to) cheating on assignments or examinations; plagiarizing, i.e., misrepresenting as one's own work any work done by another; submitting the same paper, or a substantially similar paper, to meet the requirements of more than one course without the approval and consent of the instructors concerned; or sabotaging other students' work within these general definitions. Instructors, however, determine what constitutes academic misconduct in the courses they teach. Students found guilty of academic misconduct in any portion of the academic work face penalties that range from the lowering of their course grade to awarding a grade of E for the entire course.