



暨南大學  
JINAN UNIVERSITY

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# JINAN UNIVERSITY

## Multivariable Calculus

**Lecturer:** Mohammad Ganjizadeh

**Time:** Monday through Friday (June 18, 2018-July 20, 2018)

**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:** [mganjizadeh@gmail.com](mailto:mganjizadeh@gmail.com)

### 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 Text:

Essential Calculus, 2nd edition, by Stewart.

ISBN-13: 978-1133112297

ISBN-10: 1133112293

### Course Hours:

The course has 25 sessions in total. Class will meet for 2 hours every day Monday through Friday for a total of 50 hours over the five-week period.

**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

**Grading Policy:**

Daily homework- Will be collected and graded.	15%
Quizzes 06/22 and 07/06 /2018	15%
Midterm exams 06/29 and 07/13/2018	40%
Classroom attendance and “pop” quizzes	5%
Final Exam	25%
Total	100%

**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. We will spend some time in class working on problems in groups. Some of this work may be presented or turned in. We will also have quizzes and “pop” quizzes which count toward classroom attendance and participations.

**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.

**Tentative Course Schedule:**

<b>WEEK 1</b>	<b>OBJECTIVES</b>
Monday	Vectors, Dot and Cross products
Tuesday	Equation of Line and plane in space
Wednesday	Cylindrical and Quadric Surfaces
Thursday	Vector Functions, space curves, and arc length
Friday	Review and answering questions- Quiz 1
<b>WEEK 2</b>	
Monday	Curvature Motion in Space- Velocity and Acceleration
Tuesday	Velocity and acceleration
Wednesday	Limits, Continuity, and partial Derivatives
Thursday	Tangent Plane, Linear approximation and Chain Rule
Friday	Mid-Term 1- Week 1 and Week 2 Objectives
<b>WEEK 3</b>	
Monday	Directional Derivatives, gradient and Normal vectors
Tuesday	Optimization of Multivariable Functions and Lagrange Multiplier(s)
Wednesday	Double integrals over Rectangular and Polar Coordinates
Thursday	Application of Double Integrals, Triple integral in Cartesian Plane
Friday	Review week's objectives- Quiz 2
<b>WEEK 4</b>	Triple Integrals in Cylindrical, and Spherical Coordinates
Monday	Change of variable in Multiple Integrals
Tuesday	Vector Fields, Conservative and Non-conservative Forces
Wednesday	Curl and Divergence of Vector Field
Thursday	Line Integral, Fundamental Theorem of Line integrals, and Green's Theorem
Friday	Mid-Term 2 (Week 3 and 4 objectives)
<b>WEEK 5</b>	
Monday	Parametric Surfaces and Their Area
Tuesday	Surface Integrals
Wednesday	Stokes' Theorem
Thursday	The Divergence Theorem
Friday	Final Exam- Comprehensive

**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. Your goal should be the same. We are in this together! Together with hard work we can create a learning enjoyment that will lead you to great achievement of mathematical skills, concepts, and problem solving to give a solid background for your mathematics courses.

**The instructor reserve the right to modify this syllabus at any time as deemed necessary. Any modification will be announced as soon as possible.**

**Academic Honesty:**

Jinan University defines academic misconduct as any act by a student that misrepresents the students' own academic work or that compromises the academic work of another scholastic misconduct 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 substantially similar papers, to meet the requirements of more than one course without the approval and consent of the instructors concerned; sabotaging another's work within these general definitions, however, Instructors 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 ranging from lowering of their course grade to awarding a grade of E for the entire course.