Jerash University
Faculty of Science
Department of Science/ Mathematics
Fall Semester 2014-2015

Course Information	
Course Title	**Calculus (3)**
Course Number	**303201**
Prerequisites	**Calculus (2)**
Instructor	**Dr. Mohammad Almomani**
Office Location	**Alkwarzmi 425**
Office Hours	**(Su. Tu. Th. 1:15-2:15) & (Mo. W. 11:00-12:30)**

Course Objectives and Description

- **Analyze real valued functions of several variables, realize their graphs: level curves, and level surfaces, and their analytical geometry.**
- **Solve optimization problems involving two and three variables.**
- **Evaluate volumes of bounded solids and areas of bounded regions using the ideas of double and triple integrals.**
- **Analyze vector calculus.**
- **Familiarize with the Green's theorem, Divergence theorem and the Stocks' theorem.**

Text Book	
Title	**Calculus Early Transcendental**
Author(s)	**Anton, Bivens, and Davis**
Publisher	**Wiley, New York**
Year	**2011**
Edition	**10^{th} Edition**
References	**1. Calculus, Smith and Minton, Third Edition, McGraw-Hill, 2007.** **2. Calculus, Thomas and Finney, Ninth Edition, Addison Wesley, Reading, Massachusetts, 1996.** **3. Calculus, Salas and Hill's, One and Several Variables, Seventh Edition, Wiley, New York, 1995.**

Assessment Policy	
Assessment Type	**Weight**
First Exam	**20%**
Second Exam	**20%**
Participation	**10%**
Final Exam	**50%**
Over all	**100%**

Course Content		
Week	**Topics**	**Covered Sections**
1	**Parametric Equations of Lines, Planes in 3-Space**	**11.5, 11.6**
2	**Introduction to Vector Valued Functions, Calculus of Vector Valued Functions**	**12.1, 12.2**
3	**Change of Parameter; Arc Length**	**12.3**
4	**Unit Tangent; Normal; and Bi-Normal Vectors**	**12.4**
5	**Curvature, Motion Along a Curve**	**12.5, 12.6**
First Exam		
6	**Quadric Surfaces**	**11.7**
7	**Functions of Two or More Variables, Limits and Continuity**	**13.1, 13.2**
8	**Partial Derivatives, Differentiability and Local Linearity**	**13.3, 13.4**
9	**The Chain Rule, Directional Derivatives and Gradients**	**13.5, 13.6**
10	**Tangent Planes and Normal Vectors**	**13.7**
11	**Maxima and Minima of Functions of two Variables, Lagrange Multipliers**	**13.8, 13.9**
Second Exam		
12	**Double Integrals, Double Integrals over Nonrectangular Region**	**14.1, 14.2**
13	**Double Integrals in Polar Coordinates, Surface Area, Triple Integrals**	**14.3, 14.4, 14.5**
14	**Triple Integral in Cylindrical and Spherical Coordinates, Vector Fields, Line Integral**	**14.6, 15.1, 15.2**
15	**Independence of Path; Conservative Vector Fields, Green's Theorem**	**15.3, 15.4**
Final Exam		

تعليمات إضافية	
الغش	الغش مخالف لقواعد وقوانين الجامعة لذلك ستعرض نفسك للعقوبات حسب قوانين الجامعة إن حاولت الغش.
حضور المحاضرات	حضور المحاضرات أمر أساسي وإذا وصل غيابك عن محاضرات المادة إلى 15% من المجموع الكلي للمحاضرات ستحرم من المادة تبعاً لقوانين الجامعة.