HANYANG UNIVERSITY

Hanyang International Winter School

[Calculus 2]

Professor:	**Taejung Kim**
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Home Univ.:	Hanyang University
Dept.:	Mathematics

Description:	This course is the sequel of Calculus I. This course presents the more advanced parts of Calculus and analytic geometry which include vector equations (dot and cross product, lines, and planes), curvatures of space curves, functions of several variables and their continuity and limits, partial derivatives, double integrals, vector fields, line integrals, and Green's theorem.

Objective:	As a continuation of Calculus I, the aim of this course is to make students familiar with the more advanced techniques to study their major subjects in natural sciences, engineering, economics, etc. Acquiring these materials such as partial derivatives, line integrals covered in Calculus II will enable them to take logical and mathematical approaches for solving various problems occurred in their respective areas.
Preparations:	Textbook: Calculus: Early Transcendentals 8th Edition By James Stewart.

Credits	3	Contact Hours	45

Schedule:	Week 1	12.3 The Dot Product (Exercises:23,27,45,47,55) 12.4 The Cross Product (Exercises:1,7,11,16,19,28,29,53) 12.5 Equations of Lines and Planes (Exercises:5,7,13,17,19,31,48,51,59,75) 12.6 Cylinders and Quadric Surfaces (Exercises:3,8,11,19,21,22,23,24,25,26,27,28,52) 13.1 Vector Functions and Space Curves (Exercises:3,5,7,9,11,13,23,27,31,41,45,50) 13.2 Derivative and Integral of Vector Functions (Exercises:3,11,15,19,25,27,39,55) 13.3 Arc Length and Curvature (Exercises:3,5,11,14,19,23,25,33,45,50) 14.1 Functions of Several Variables

	(Exercises:15,25,49,67) 14.2 Limits and Continuity (Exercises:9,13,15,17,21,25,37,39) 14.3 Partial Derivatives (Exercises:5,21,29,42,52,73,83,97,103) 14.4 Tangent Planes and Linear Approximation (Exercises:1,15,17,19,21,29,31,43) 14.5 The Chain Rule (Exercises:5,6,8,11,17,23,30,45,47)
Week 2	14.6 Directional Derivatives and the Gradient Vector (Exercises:7,10,11,17,19,23,29,41,51) 14.7 Maximum and Minimum Values (Exercises:1,5,7,15,21,33,41,43) 15.1 Double Integrals over Rectangles (Exercises:1,11,15,19,21,29,31,39,49) 15.2 Double Integrals over General Regions (Exercises:5,7,9,15,17,21,25,35,49,51,55,57,66) 15.3 Double Integrals in Polar Coordinates (Exercises:2,4,6,11,13,15,25,29,39,40,41) 15.5 Surface Area (Exercises:1,3,5,7,9,12,14) 16.6 Parametric Surfaces and Their Areas (Exercises:13,17,19,23,33,39,49,61) 16.1 Vector Fields (Exercises:1,5,11,14,16,17,23,25,29) 16.2 Line Integrals (Exercises:3,7,11,14,18,21,39,41) 16.3 The Fundamental Theorem for Line Integrals (Exercises:2,3,5,7,15,18,20,29,30,32,35) 16.4 Green's Theorem (Exercises:3,7,9,13,17,21,27,29)

Evaluation(%)	Midterm	Final	Attendance	Assignments	Participation	Etc.
	40	40	10	10	0	0