



# HANYANG UNIVERSITY

## 2018 HISS Syllabus [Calculus II]

Professor: **In Soo Pyung**  
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Home Univ.: Hang-Yang/Arizona State University(Ph.D)  
Dept.: Mathematics

Description: **This calculus course covers differentiation and integration of functions of one variable, and concludes with a brief discussion of infinite series. Calculus is fundamental to many scientific disciplines including physics, engineering, and economics. Furthermore, These mathematical tools and methods are used extensively in the applied mathematics, statistics, probability and computer graphics.**

Objective: **This course recovers differential, integral and vector calculus for functions of more than one variable. These mathematical tools and methods are used extensively in the physical sciences, engineering, economics and computer graphics. Calculus is fundamental to many scientific disciplines including physics, engineering, Statistics, Probability, Game Theory, insurance, Stocks and economics**

Preparations: Textbook needed: Calculus , Author : James Stewart (8<sup>th</sup> Edition)

Schedule:	Week 1	12.3 The Dot Product (Definition of Dot Product & p.811 Projection) (Review exercises:22,24,27,45,47,53,55,56)
		12.4 The Cross Product (Review exercises:1,7,11,16,19,28,29,39,45,53)
		12.5 Equations of Lines and Planes (Review exercises:5,7,13,17,19,22,31,35,48,51,59,63,75,83)
	Week 2	12.6 Cylinders and Quadric Surfaces (Review exercises:3,8,11,19,21,22,23,24,25,26,27,28,52)
		13.1 Vector Functions and Space Curves (Review exercises:3,5,7,9,11,13,23,27,31,41,46,50)
	Week 3	13.2 Derivative and Integral of Vector Functions (Review exercises:3,8,11,12,15,19,23,27,40,55)
		13.3 Arc Length and Curvature (Review exercises:3,5,7,9,11,14,16,19,23,25,33,45,50,55)
	Week 4	14.1 Functions of Several Variables (Review exercises:15,19,22,25,30,49,55,67)
		14.2 Limits and Continuity (Review exercises:9,13,15,17,21,25,36,37,39)

### Hanyang International Summer School

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	14.3 Partial Derivatives (Review exercises:5,6,7,21,29,39,40,42,52,68,73,77,83,88,97,99,103)
Week 5	14.4 Tangent Planes and Linear Approximation (Review exercises:1,15,18,19,21,29,31,40,43,46) 14.5 The Chain Rule (Review exercises:5,6,8,11,14,17,23,26,30,35,45,47,53,58)
Week 6	14.6 Directional Derivatives and the Gradient Vector (Review exercises:7,10,11,15,17,19,23,29,33,41,43,51,61,67)
Week 7	Midterm Exam
Week 8	14.7 Maximum and Minimum Values (Review exercises:1,5,7,15,21,33,37,41,43,49,59)
Week 9	15.1 Double Integrals over Rectangles (Review exercises:1,3,11,12,14,15,19,21,25,29,31,39,47,49 ) 15.2 Double Integrals over General Regions (Review exercises:5,7,9,15,17,21,25,32,35,39,49,51,55,54,58,64,66,69)
Week 10	15.3 Double Integrals in Polar Coordinates (Review exercises:2,4,6,8,9,11,13,15,18,21,25,29,32,37,39,40,41) 15.5 Surface Area (Review exercises:1,3,5,7,9,12,14,21,24)
Week 11	16.1 Vector Fields (Review exercises:1,5,11,14,16,17,23,25,29) 16.2 Line Integrals (Review exercises:3,8,11,14,18,21,33,39,41)
Week 12	16.3 The Fundamental Theorem for Line Integrals (Review exercises:2,3,5,7,9,15,18,20,29,30,32,35)
Week 13	16.4 Green's Theorem (Review exercises:3,7,9,13,17,21,22)
Week 14	13.3 The fundamental Theorem for Line Integral (Review exercises: 2,3,5,7,9,15,18,20,29,30,32,35)
Week 15	16.6 Parametric Surfaces and Their Areas (Review exercises:13,17,19,23,26,33,39,44,50,61,64)
Week 16	Final Exam

Evaluation:	Midterm (%)	Final (%)	Attendance (%)	Assignments (%)	Participation (%)	Etc. (%)
	40	40	5	00	5	10