

# 강 의 계 획 안

교과목명 : 미분적분학 II (학수번호:20408-02)      자연과학부 1학년 2학기  
강의시간 : 수6(3:30-4:45), 금4(12:30-1:45)      포453호  
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Office Hour : 수/금 2:00-2:45 or by e-mail appointment  
참고자료 : <http://math.ewha.ac.kr/~jyllee> 또는 <http://cyber.ewha.ac.kr>  
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## 1. 교과목표

본 교과목은 수학의 여러 분야들의 기초가 됨은 물론이고, 자연과학의 도구로 널리 활용되는 미적분학의 두번째 학기 강의이다. 이전 학기 강의에서 학습한 일변수 실수함수의 미분과 적분을 확장하여, 하나 이상의 변수를 가지는 벡터함수들의 성질에 대하여 공부한다. 그 주된 학습 내용은, 해석기하, 극좌표, 행렬과 벡터, 벡터함수, 편도함수, 중적분 등이다. 이러한 학습을 통하여, 수학에 대한 이해를 높이고, 전공 결정 이후 전공과목 공부에 도움이 되도록 한다.

## 2. 주교재

Essential Calculus (Early Transcendentals) by James Stewart (2nd Ed.)

## 3. 참고문헌

*Thomas/Finney, Calculus and Analytic Geometry*, Addison-Wesley  
*S. Lee et. al. Calculus with Analytic Geometry*

## 4. 평가기준 및 참고사항

평가방법 : 출석 (10), HW (15), Midterm (20/20), Final (35)  
Homework Policy : 매주 학습내용을 다음주 수요일 수업시간 전까지  
Late Homework : 50% Decay each week  
연습시간 및 장소 : 월7(포453) 또는 수1(포451)

## 5. 강의 내용

주	교과서 장/절	학습내용	비 고
1	10.1-10.3	Vectors and the Geometry of Space: Coordinate systems, Vectors, The Dot Product	
2	10.4-10.6	The Cross Product, Equations of Lines and Planes, Cylinders and Quadratic Surfaces	
3	10.7-10.8	Vector Functions and Space Curves, Arc Length, Curvature,	
4	10.9-11.1	Vector Functions (Applications: Motion in Space), Functions of Several Variables	
5	11.2-11.3	Limits, Continuity, Partial Derivatives	Midterm-1 (Chap 10)
6	11.4-11.5	Tangent Plane, Linear Approximation, Chain Rule	10/9(금)
7	11.6	Partial Derivatives : Directional Derivatives and the Gradient Vector	
8	11.7	Optimization: Maximum and Minimum Values	
9	11.8-12.1	Lagrange Mulutpliers Multiple Integrals : Double Integrals over Rectangles	
10	12.2-12.4	Double Integrals on General Regions and over Polar Coordinates Applications of double Integrals	Midterm-2 (Chap 11)
11	12.5-12.6	Triple Integrals Triple Integrals in Cylindrical Coordinates	
12	12.7	Triple Integrals in Spherical Coordinates	
13	12.8	Change of Variables in Multiple Integrals,	
14	13.1-13.2	Vector Fields, Line Integrals	
15	13.3-13.5	The Fundamental Theorem for Line Integrals Green's Theorem Vector Fields and Line Integrals Curl, Divergence, and Surface Integral	
16	기 말 고 사	Review and Final exam	Final Exam (Chap 12-13)

## 2015 Fall Semester – Calculus II : Homework Assignment (Updated)

Chap	Sec	HW list	Practice
10. Vectors & Geometry of space	10.1	5, 9, 19, 32, 35	3, 11, 15, 27, 33
	10.2	15, 17, 21, 35, 38	7, 11, 13, 18, 22, 27
	10.3	1(a,c,e), 17, 19, 29, 33, 37, 41	7, 9, 21, 23, 35, 39
	10.4	5, 13(a)(c)(e), 18, 19, 33, 37	15, 16, 22, 35, 38
	10.5	13, 17, 24, 29, 37, 39, 43, 52	7, 14, 19, 27, 45, 49
	10.6	3, 19, 29	5, 13, 15
	10.7	2, 4, 17, 19, 29, 42, 63	3, 21, 23, 45, 49, 51, 61, 65
	10.8	2, 10, 13, 19, 20, 24	3, 15, 21, 25, 37, 39
	10.9	10, 11, 15, 17, 21	7, 13, 19, 23
11. Partial Derivatives	11.1	7, 9, 11	5, 8, 10
	11.2	5, 9, 10, 11, 21, 23, 27	7, 8, 12, 25, 28
	11.3	3, 11, 31, 34, 39, 46, 51	4, 13, 15, 17, 25, 41, 49
	11.4	3, 13, 17, 19, 21, 25, 27	1, 5, 11, 18, 29
	11.5	3, 8, 9, 17, 24, 27	5, 7, 11, 19, 23, 25
	11.6	6, 7, 13, 17, 21, 35, 43	3, 9, 11, 15, 23, 31, 42
	11.7	10, 23, 25, 27, 29, 31, 33, 41	5, 9, 13, 33, 39, 41
	11.8	3, 7, 19, 27, 29, 37	1, 5, 9, 28, 43
12. Multiple Integrals	12.1	11, 16, 21, 23, 31, 33, 34, 35	13, 15, 17, 25, 29
	12.2	10, 31, 39, 41, 43, 47, 49	15, 19, 21, 23, 27, 29, 37, 44
	12.3	11, 14, 16, 19, 21, 23, 25	7, 9, 13, 15, 17, 22, 24
	12.4	1, 5, 12	--
	12.5	7, 11, 12, 14, 16, 17, 20	3, 5, 8, 23, 26
	12.6	3, 7, 17, 20, 21, 25(a), 29	9, 19, 21, 26(a)
	12.7	5, 22, 23, 27, 28, 37	3, 9, 19, 21, 22, 24, 33, 38
	12.8	4, 6, 7, 9, 16, 17, 25	3, 5, 10, 15, 19, 23, 27
13. Vector Calculus	13.1	5, 13, 17, 23	4, 26
	13.2	7, 16, 17, 19, 21, 27(a)	3, 9, 11, 13, 14, 39
	13.3	6, 7, 13, 15, 16, 17, 19	3, 5, 7, 11, 18
	13.4	1, 5, 7, 10, 13, 19	2, 3, 6, 9, 12, 17
	13.5	3, 6, 10, 13, 14, 17	15, 18