

## Syllabus : Calculus II (Fall, 2023)

Class	Calculus II	Major	Mathematics
Schedule Line #	20408 (01)	Credit Hours	Credit
Professor	Yoonjin Lee	3	3
Phone	02-3277-6653	Office	Science Complex Building B, 313
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**1. Textbook and References:**

Textbook : Essential Calculus : Early Transcendentals (second edition)  
 Author : James Stewart

**2. Home, Quizzes and Grade:**

Homework(10%), Quizzes(10%), Mid-term Exam(35%),  
 Final Exam(40%), Attendance and Attitude(5%)

**3. Prerequisite :** Calculus I

**4 Exam Date :**

Mid-term Exam : Oct. 16 (Mon.), 2023

Final Exam : Dec. 18 (Mon.), 2023

**5. Make-up classes due to holidays:**

Video-recorded class on October 2 (Mon.), 2023

Video-recorded class on October 9 (Mon.), 2023

**6. TA session :** TBA

**Course Outline:**

This course studies curves, polar coordinates, matrices and vectors, vector-valued functions, partial derivatives, multiple integrations, Green's theorem, Divergence theorem, Stokes theorem, etc.

**Lecture Schedule (tentative):**

Week	Contents	Section
1-2	Vectors and the Geometry of Space: Coordinate systems, Vectors, The Dot Product	10.1-10.3
	The Cross Product, Equations of Lines and Planes, Cylinders and Quadratic Surfaces	10.4-10.6
	Vector Functions and Space Curves, Arc Length, Curvature,	10.7-10.8
3	Vector Functions (Applications: Motion in Space), Functions of Several Variables	10.9-11.1
4	Limits, Continuity, Partial Derivatives	11.2-11.3

5	Tangent Plane, Linear Approximation, Chain Rule	11.4–11.5
6	Partial Derivatives : Directional Derivatives and the Gradient Vector	11.6
7	Optimization: Maximum and Minimum Values	11.7
	<b>Midterm Exam</b>	

**Lecture Schedule (tentative) - continued:**

Week	Contents	Section
8	Lagrange Multipliers Multiple Integrals : Double Integrals over Rectangles	11.8–12.1
9	Double Integrals on General Regions and over Polar Coordinates Applications of double Integrals	12.2–12.4
10	Triple Integrals Triple Integrals in Cylindrical Coordinates	12.5–12.6
11	Triple Integrals in Spherical Coordinates	12.7
12	Change of Variables in Multiple Integrals,	12.8
13	Vector Fields, Line Integrals	13.1–13.2
14	The Fundamental Theorem for Line Integrals Green's Theorem Vector Fields and Line Integrals Curl, Divergence, and Surface Integral	13.3–13.5
15	<b>Final exam</b>	