

Syllabus

Graph theory with applications

Course Name	Course type (credit/hours)	전선(3/3)			Course code	
	Target students Division/major/grade	/			Opening semester	2018년 2학기
	Class time and classroom	월A(팔621) 수A(팔621)(팔621)				
Reference to this course	Related basic courses					
	Recommended concurrent courses					
	Related advanced courses					
Instructor	Name (title/division)					
	Office Room Number		Office phone Number	2561	e-mail	borampark@ajou.ac.kr
	Office hours		Homepage address			
Teaching Assistant	Name (title/division)					
	Office Room Number		Office phone Number		e-mail	

1. Introduction

In this course, students will explore important concepts in graph theory, such as trees, colorings, Hamiltonian, planar graphs, connectivity, matchings, domination, network flows, etc., and relevant theorems about them, and then will see how these are related or applied to problems in other fields in mathematics, or in computer science, industrial engineering, and social sciences. Students will be expected to explain graphs and their related properties in the mathematical language of graph theory and to understand graphs as models for many problems in science, business, and industry.

2. Course Objectives

3. Class types and activities

4. Teaching Method

5. Knowledge and ability required for taking this course

6. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance		10	
midterm exam		35	
final exam		35	
quiz			
presentation			
discussion			
homework		20	
etc			

7. Textbooks

Main/Sub	Title	Writer	Publisher	Publication year
주교재	Graph Theory	Bondy and Murty	Springer	2008
부교재	Graph Theory (3rd edition)	Reinhard Diestel	Springer	2005

8. Lecture Schedule

Week	Lecture contents	Lesson type	Remark
1	Basic Concepts: Graphs and subgraphs	Lecture	
2	Basic Concepts: Graphs and subgraphs	Lecture	
3	Trees (Selected topics in Chap 3–6)	Lecture	
4	Trees (Selected topics in Chap 3–6)	Lecture	
5	Connectivity, Hamilton Cycles (Chap 9, Chap 18)	Lecture	
6	Connectivity, Hamilton Cycles (Chap 9, Chap 18)	Lecture	
7	Planar Graphs	Lecture	
8	Midterm Exam		
9	Stable sets and Cliques	Lecture	
10	Vertex Coloring	Lecture	
11	Edge Coloring	Lecture	
12	List Coloring	Lecture	
13	Matchings	Lecture	
14	Flows in Networks	Lecture	
15	Introduction of Matroid	Lecture	
16	Final Exam		

9. Others