

# Syllabus

## Queueing Theory

Course Name	Course type (credit/hours)		전선(3/3)		Course code	
	Target students Division/major/grade		/		Opening semester	
	Class time and classroom					
Reference to this course	Related basic courses					
	Recommended concurrent courses					
	Related advanced courses					
Instructor	Name (title/division)					
	Office Room Number		Office phone Number	2841	e-mail	sunkyo@ajou.ac.kr
	Office hours		Homepage address			
Teaching Assistant	Name (title/division)					
	Office Room Number		Office phone Number		e-mail	

### 1. Introduction

This is a first graduate course in stochast process and queueing theory. Topics include basic probability theory, discrete-time and continuous-time Markov chain, stochastic processes, birth-death processes, renewal theory, Brownian motion. We also discuss queueing network analysis as well as simulation.

### 2. Course Objectives

### 3. Class types and activities

#### 4. Teaching Method

Lecture and discussion.

#### 5. Knowledge and ability required for taking this course

#### 6. Method of Evaluation

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

Homework and quiz: 10%  
Mid-term: 45%  
Final: 45%

## 7. Textbooks

Main/Sub	Title	Writer	Publisher	Publication year
부교재	Introduction to probability models	S.Ross	Academic press	2014
부교재	Introduction to operations research	Hillier and Lieberman	McGraw Hill	2014
참고자료	Fundamentals of Queueing Theory	Gross, Donald/ Shortle, John F./ Thompson, James M	Wiley	2008

## 8. Lecture Schedule

Week	Lecture contents	Lesson type	Remark
1	Probability theory		
2	Discrete-time Markov chain		
3	Continuous-time Markov chain		
4	Exponential distribution and Poisson process		
5	Markov modulated Poisson process and Markovian arrival process		
6	Birth-death process		
7	Mid-term		
8	Renewal process and regenerative process		
9	Queueing theory-Exponential model		
10	Queueing theory-Exponential model		
11	Queueing theory-Exponential model		
12	Queueing theory-Non-exponential model and approximation		
13	Queueing theory-Non-exponential model and approximation		
14	Queueing network and approximation		
15	Queueing network and approximation		
16	Final exam		

9. Others

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