

Syllabus for System Performance Evaluation

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- Instructor
 - Prof. Wha Sook Jeon
- Course Meeting Time
 - 2 sessions/week, 1.5 hours/session
- Level:
 - graduate

Learning Objectives

The goal of this course
is to provide various mathematical tools

for analyzing the performance of communication system
and

for optimally designing wireless communications systems

- Textbook

- Lecture notes

- Reference

- Probability and Stochastic Process

- Stochastic process (author: Sheldon M. Ross)

- Fundamentals of Queuing Theory

- (author: D. Gross, C. M. Harris)

- Markov Process for Stochastic Modeling

- (author: Oliver C. Ibe)

- G. Monahan, " State of the art: a survey of partially observable Markov Decision Process: theory, models, and algorithms," Management Science, vol. 28, no. 1, Jan. 1982

■ Reference

— Convex Optimization

■ Convex Optimization

(authors: Stephen Boyd and Lieven Vandenberghe)

— Game Theory

■ Game Theory for Wireless Engineers

(authors: Allen MacKenzie and Luiz DaSilva)

Calendar

Week #	TOPICS
1	Introduction
2	Probability distribution
3	Probability generating function and Laplace transform
4	Discrete time Markov chain
5	Discrete time Markov chain
6	Birth and death process
7	Poisson process
8	Spatial Poisson process , Midterm Exam.
9	Single queue system: M/M/c, M/M/1/k
10	Single queue system: M/G/1, M/G/ ∞
11	Queuing networks
12	Hidden Markov Model
13	Markov Decision Process
14	Convex optimization
15	Game theory
16	Final Exam