

OR 647: Queueing Theory

Spring 2012

Course Overview

We are all familiar with waiting in lines (or queues) – at the grocery store, at the airport, in traffic, on the telephone, and so forth. A fundamental issue for any service-provider is whether or not to spend more money on resources in order to reduce waiting times for the customers. Queueing theory is the analytical study of these stochastic processes, and it provides the decisionmaker a way to allocate resources based on rigorous, quantitative analysis. This course provides a survey of queueing models. The focus is both on mathematical analyses of such models as well as practical issues using such models to represent real problems.

Pre-requisites

OR 542, or STAT 544, or permission of instructor

Instructor

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Text

Gross, D., Shortle, J., Thompson, J. Harris, C. 2008. *Fundamentals of Queueing Theory*, 4th ed., Wiley, Hoboken, NJ.

Student Evaluation Criteria

Homework 20%
Midterm 30%
Final exam 50%

Location

Thompson 2022

Class Meetings

Mondays, 7:20PM to 10:00PM

Class Lecture Topic

Week of	23-Jan-12	Review of Stochastic Processes
Week of	30-Jan-12	Queueing Concepts and Measures
Week of	6-Feb-12	Simulation of Queues
Week of	13-Feb-12	Simple Markov Queues
Week of	20-Feb-12	Simple Markov Queues
Week of	27-Feb-12	Advanced Markov Queues
Week of	5-Mar-12	Advanced Markov Queues
Week of	12-Mar-12	Spring Break
Week of	19-Mar-12	Advanced Markov Queues
Week of	26-Mar-12	Queueing Networks
Week of	2-Apr-12	Queueing Networks

Week of	9-Apr-12	Queues with General Distributions
Week of	16-Apr-12	Queues with General Distributions
Week of	23-Apr-12	Overflow Models
Week of	30-Apr-12	Brownian Approximations
Week of	7-May-12	Reading Days
Week of	14-May-12	Final Exam