

课程大纲

COURSE SYLLABUS

1.	课程代码/名称 Course Code/Title	运筹学高级专题：排队、博弈和决策 (Advanced Operations Research: Queueing, Game and Decision Theory)												
2.	课程性质 Compulsory/Elective	选修课												
3.	课程学分/学时 Course Credit/Hours	3												
4.	授课语言 Teaching Language	双语												
5.	授课教师 Instructor(s)	刘翰林												
6.	是否面向本科生开放 Open to undergraduates or not	否												
7.	先修要求 Pre-requisites	(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.)												
8.	教学目标 Course Objectives	This course is designed for graduate students in the field of management sciences. It will introduce fundamental stochastic models used in the management science field, including queueing theory, optimization theory, sequential decision-making via dynamic programming.												
9.	教学方法 Teaching Methods	Lecture												
10.	教学内容 Course Contents (如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Section 1</td> <td>Markov chains, Birth-death process, Uniformization</td> </tr> <tr> <td>Section 2</td> <td>Queueing theory: networks of queues, M/M/1, M/G/1, M/M/k queues</td> </tr> <tr> <td>Section 3</td> <td>Linear programming, Lagrangian multiplier, Duality</td> </tr> <tr> <td>Section 4</td> <td>Introduction to convex optimization</td> </tr> <tr> <td>Section 5</td> <td>Introduction to dynamic programming</td> </tr> <tr> <td>Section 6</td> <td>Newsvendor Problem, Inventory Control</td> </tr> </table>	Section 1	Markov chains, Birth-death process, Uniformization	Section 2	Queueing theory: networks of queues, M/M/1, M/G/1, M/M/k queues	Section 3	Linear programming, Lagrangian multiplier, Duality	Section 4	Introduction to convex optimization	Section 5	Introduction to dynamic programming	Section 6	Newsvendor Problem, Inventory Control
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11.	课程考核 Course Assessment	
	<p>(①考核形式 Form of examination; ②.分数构成 grading policy; ③如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.)</p> <p>Homework Assignments 40%</p> <p>Midterm Exam 40%</p> <p>Project (Paper Presentation) 20%</p>	
12.	教材及其它参考资料 Textbook and Supplementary Readings	
	<ol style="list-style-type: none"> 1. Sheldon M. Ross. Stochastic Processes, Second Edition, John Wiley & Sons 1996 2. Stephen Boyd and Lieven Vandenberghe, Convex Optimization, Cambridge University Press 2004 3. D. Bertsekas. Dynamic Programming and Optimal Control. Vol 1. Third Edition. 2005 4. D. Simchi-Levi. X.Chen and J. Bramel. The Logic of Logistics; Theory, Algorithms, and Applications for Logistics and Supply Chain Management. Second Edition. 2005 	