

## 课程详述

### COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1.	课程名称 <b>Course Title</b>	运筹与决策分析 <b>Prescriptive Decision Analytics</b>				
2.	授课院系 <b>Originating Department</b>	信息系统与管理工程系 <b>Department of Information Systems &amp; Management Engineering</b>				
3.	课程编号 <b>Course Code</b>	MIS204				
4.	课程学分 <b>Credit Value</b>	3				
5.	课程类别 <b>Course Type</b>	专业基础课 <b>Major Foundational Courses</b>				
6.	授课学期 <b>Semester</b>	春季 <b>Spring</b> , 秋季 <b>Fall</b>				
7.	授课语言 <b>Teaching Language</b>	英文 <b>English</b>				
8.	授课教师、所属学系、联系方式（如属团队授课，请列明其他授课教师） <b>Instructor(s), Affiliation &amp; Contact</b> (For team teaching, please list all instructors)	顾理一 信息系统与管理工程系 guly@sustech.edu.cn				
9.	实验员/助教、所属学系、联系方式 <b>Tutor/TA(s), Contact</b>	待公布 <b>To be announced</b>				
10.	选课人数限额(可不填) <b>Maximum Enrolment (Optional)</b>					
11.	授课方式 <b>Delivery Method</b>	讲授 <b>Lectures</b>	习题/辅导/讨论 <b>Tutorials</b>	实验/实习 <b>Lab/Practical</b>	其它(请具体注明) <b>Other (Please specify)</b>	总学时 <b>Total</b>

学时数 Credit Hours	32		32		64
12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	无 None				
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	MIS404 运营管理				
14. 其它要求修读本课程的学系 Cross-listing Dept.	无 None				

### 教学大纲及教学日历 SYLLABUS

#### 15. 教学目标 Course Objectives

This course is designed as an introduction to the field of Operations Research/Operations Management (OR/OM). The focus will be on the application of the scientific approach to decision-making. Small case studies will be covered. It is not our intent to train OR theoreticians in this course. Rather, we seek to convey an appreciation for what an OR analyst does and why it is important. Thus, students who successfully complete this course are expected to have built the capability for modeling business related problems and prepare to get solutions by OR techniques.

本课程旨在对 Operations Management/Operations Research (OR / OM) 领域进行初步的介绍，重点将会是如何在决策过程中使用科学的方法。课程将结合实际案例的研究分析。在本课程中学生不仅是在学习 OR 领域的理论在实际生活中的运用，更希望学生能了解到 OR 为何重要，以及 OR 分析师的工作内容。因此，成功完成本课程的学生应当具备对商务问题分析建模的能力，并通过 OR 方法求解的能力。

#### 16. 预达学习成果 Learning Outcomes

By the end of this course, students are expected to be able to

1. Identify real-world objectives and constraints based on the descriptions of actual decision-making problems;
2. Formulate problems with linear programming models;
3. Understand the fundamental models of inventory and queueing theory;
4. Derive solutions using software;
5. Make recommendations based on solutions, analysis, and limitations of model

课程结束时，学生应习得如何：

1. 根据对实际决策问题的描述确定目标和约束条件；
2. 对问题建立线性规划模型；
3. 了解基本的库存和排队论模型；
4. 使用软件求解；
5. 根据问题的解、分析和模型局限性提出建议。

#### 17. 课程内容及教学日历（如授课语言以英文为主，则课程内容介绍可以用英文；如团队教学或模块教学，教学日历须注明主讲人）

**Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)**

理论（32 学时） 实验（32 学时）

Week 1 (理论 2 学时): 课程介绍 Introduction

Lab 1 (实验 2 学时): 实验课介绍 Introduction to the lab

Week 2-4 (理论 6 学时): 线性规划: 介绍, 敏感度分析, 对问题求解的理解, 营销、金融和运营管理中的应用, 高级线性规划应用 Linear Programming: Introduction, Sensitivity analysis and interpretation of solution, Application in marketing, Finance, and Operations Management, Advanced linear programming application

Lab 2-4 (实验 6 学时): 将线性规划应用到实际问题求解中 Applying linear programming in solving real-world problems

Week 5-6 (理论 4 学时): 分配和网络模型: 运输、转运和分派问题, 最短路径问题, 最大流问题 Distribution and Network Models: Transportation, transshipment, and assignment problems, Shortest route problem, Maximal flow problem

Lab 5-6 (实验 4 学时): 分配和网络模型实验课 Lab tutorial for distribution and network models

Week 7 (理论 2 学时): 整数型线性规划 Integer Linear Programming

Lab 7 (实验 2 学时): 整数型线性规划实验课 Lab tutorial for integer linear programming

Week 8 (理论 2 学时): 非线性优化模型 Nonlinear Optimization Models

Lab 8 (实验 2 学时): 非线性优化模型实验课 Lab tutorial for nonlinear optimization models

Week 9 (理论 2 学时): 期中考试 Midterm Exam

Lab 9 (实验 2 学时): 期中考试答案讨论 Midterm exam solution

Week 10 (理论 2 学时): 任务管理 Project Management

Lab 10 (实验 2 学时): 任务管理实验课 Lab tutorial for project management

Week 11-12 (理论 4 学时): 库存模型 Inventory Models

Lab 11-12 (实验 4 学时): 库存模型实验课 Lab tutorial for inventory models

Week 13 (理论 2 学时): 排队模型 Waiting Line Models

Lab 13 (实验 2 学时): 排队模型实验课 Lab tutorial for waiting line models

Week 14 (理论 2 学时): 拟真 Simulations

Lab 14 (实验 2 学时): 拟真实验课 Lab tutorial for simulations

Week 15 (理论 2 学时): 决策分析 Decision Analysis

Lab 15: (实验 2 学时): 决策分析实验课 Lab tutorial for decision analysis

Week 16 (理论 2 学时): 预测 Forecasting

Lab 16 (实验 2 学时): 预测实验课 Lab tutorial for forecasting

实验课将会包含对应周理论课内容的计算机实现/求解及例题。

Labs will cover computer solution/realization and example problems of the lecture contents delivered in the corresponding weeks.

18. 教材及其它参考资料 Textbook and Supplementary Readings

An introduction to Management Science, Quantitative Approaches to Decision Making, by David R. Anderson, Dennis J. Sweeney, Thomas A. Williams, Jeffrey D. Camm and Kipp Martin, 13<sup>th</sup> Edition

Introduction to Management Science, by Bernard W. Taylor III, 11<sup>th</sup> edition

课程评估 ASSESSMENT

19. 评估形式 Type of Assessment	评估时间 Time	占考试总成绩百分比 % of final score	违纪处罚 Penalty	备注 Notes
出勤 Attendance		5		
课堂表现 Class Performance				
小测验 Quiz		10		
课程项目 Projects				
平时作业 Assignments		30		
期中考试 Mid-Term Test		25		
期末考试		30		

<b>Final Exam</b>				
期末报告 <b>Final Presentation</b>				
其它（可根据需要 改写以上评估方 式） <b>Others (The above may be modified as necessary)</b>				

20. 记分方式 **GRADING SYSTEM**

- A. 十三级等级制 **Letter Grading**  
 B. 二级记分制（通过/不通过） **Pass/Fail Grading**

**课程审批 REVIEW AND APPROVAL**

21. 本课程设置已经过以下责任人/委员会审议通过  
**This Course has been approved by the following person or committee of authority**

