南方科技大学
SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY

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 **Course Title**	**金融风险管理 Financial Risk Management**
2.	授课院系 **Originating Department**	数学系 Department of Mathematics
3.	课程编号 **Course Code**	FMA304
4.	课程学分 **Credit Value**	3
5.	课程类别 **Course Type**	专业核心课 Major Core Courses
6.	授课学期 **Semester**	秋季 Fall
7.	授课语言 **Teaching Language**	中英双语 English & Chinese
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） **Instructor(s), Affiliation& Contact** **（For team teaching, please list all instructors）**	古嘉雯 Gu Jiawen，数学系 Department of Mathematics
9.	实验员/助教、所属学系、联系方式 **Tutor/TA(s), Contact**	待公布 To be announced
10.	选课人数限额(可不填) **Maximum Enrolment（Optional）**	

11.		讲授 **Lectures**	习题/辅导/讨论 **Tutorials**	实验/实习 **Lab/Practical**	其它(请具体注明) **Other（Please specify）**	总学时 **Total**
	授课方式 **Delivery Method**					
	学时数 **Credit Hours**	48			复习考试(2 周)	48

12.	先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	概率论与数理统计或者数理统计 Probability and Statistics or Mathematical Statistics
13.	后续课程、其它学习规划 Courses for which this course is a pre-requisite	
14.	其它要求修读本课程的学系 Cross-listing Dept.	

教学大纲及教学日历 SYLLABUS

15. **教学目标 Course Objectives**

这门课将简单介绍各种量化方法，比如统计分析，模拟和优化方法等，对市场风险、信用风险和波动率风险进行建模和管理。内容主要包括债券投资组合管理和免疫、风险因素和损失分布、在险价值和预期亏损、一致性风险度量值和经济资本、Copula 方法等。

This course illustrates the use of various quantitative methods, like statistical analysis, simulation and optimization methods, in the modelling and management of market and credit and volatility risks. The topics include bond portfolio management and immunization, risk factors and loss distribution, Value-at-Risk and expected shortfall, coherent measures of risk and economic capital, Copula approach, etc.

16. **预达学习成果 Learning Outcomes**

在修完课程后，学生们应该知道如何应用量化技术对各类风险进行建模和管理。此外，学生应掌握债券投资组合管理和免疫。最后，他们应该对风险度量，如在险价值和预期亏损，以及它们的局限性有一个定量的理解。

After taking the course, the students should know the use of quantitative techniques in the modelling of and management of various risks. Also, the students should understand bond portfolio management and immunization. Finally, they should have a quantitative understanding of risk measures, like Value-at-Risk and expected shortfall, and their limitations.

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.)

第一章：债券投资组合管理和免疫 (17 学时)

1.1 债券收益率和利率期限结构

1.2 久期和凸性

1.3 回报率

1.4 免疫

Chapter 1: Bond portfolio management and immunization

1.1 Bond yields and term structures of interest rates

1.2 Duration measures and convexity

1.3 Horizon rate of return

1.4 Immunization of bond investment

第二章: 风险和经济资本（ 15 学时）

2.1 风险种类和损失的分布函数

2.2 在险价值、预期亏损和一致性风险度量值

2.3 经济资本和资本风险调整报酬率

2.4 波动率风险

Chapter 2: Risk measures and economic capital

2.1 Types of financial risks and loss distribution

2.2 Value-at-Risk, expected shortfall and coherent risk measure

2.3 Economic capital and risk-adjusted return on capital

2.4 Volatility Risk

第三章：信用收益率曲线和信用衍生产品 （ 8 学时）

3.1 隐含违约概率和信用收益率曲线

3.2 信用违约互换简要介绍

Chapter 3： Credit yield curves and credit derivatives

3.1 Implied probability of default and credit yield curves

3.2 Introduction to credit default swaps

第四章： Copula 方法（8 学时）

4.1 基本概念与性质

4.2 几类重要的 Copulas

Chapter4: Copula approach

4.1 Basic Concepts and Properties

4.2 Several important Copulas

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

Risk management and financial institution, Hull, John.C., 2010.

Quantitative Risk Management: Concepts, Techniques and Tools, Alexander J. McNeil, Paul Embrechts, and Rüdiger Frey, 2005.

Financial risk manager handbook plus test bank: FRM Part I/Part II (2011), Jorion, P., 2011.

Introduction to credit risk modeling, second edition, Bluhm, C., Overbeck, L., Wagner, C., 2010.

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				
课堂表现 Class Performance				
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments		20%		
期中考试 Mid-Term Test		30%		
期末考试 Final Exam		50%		
期末报告 Final Presentation				
其它（可根据需要改写以上评估方式） Others (The above may be modified as necessary)				

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
