

## 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>	金融建模与定价分析 Financial Modelling and Asset Pricing				
2.	授课院系 <b>Originating Department</b>	金融系 Department of Finance				
3.	课程编号 <b>Course Code</b>	FIN409				
4.	课程学分 <b>Credit Value</b>	3				
5.	课程类别 <b>Course Type</b>	专业选修课 Major Elective Course				
6.	授课学期 <b>Semester</b>	秋季 Fall				
7.	授课语言 <b>Teaching Language</b>	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） <b>Instructor(s), Affiliation &amp; Contact</b> (For team teaching, please list all instructors)	杨招军，副教授，金融系 Zhaojun YANG, Associate Professor, Department of Finance 邮箱/Email: yangzj@sustech.edu.cn 办公室/office: 慧园 3 栋 318, Wisdom Valley 3-318				
9.	实验员/助教、所属学系、联系方式 <b>Tutor/TA(s), Contact</b>	待公布 To be announced				
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 <b>Credit Hours</b>	42	6			48

12. 先修课程、其它学习要求 <b>Pre-requisites or Other Academic Requirements</b>	概率论与数理统计 Probability and Statistics MA212
13. 后续课程、其它学习规划 <b>Courses for which this course is a pre-requisite</b>	
14. 其它要求修读本课程的学系 <b>Cross-listing Dept.</b>	数学系 Department of Mathematics;

### 教学大纲及教学日历 SYLLABUS

15. **教学目标 Course Objectives**

The course discusses asset pricing theory and focuses on how assets are priced, which can help us explain a lot of financial phenomena. It is particularly necessary or very helpful for students who want to pursue academic research or have a high-tech career in financial industries in the future. 本课程讨论基本的资产定价理论，为学生解释各种金融现象打下坚实的理论基础，尤其对将来立志从事学术研究或在金融业从事高技术工作的同学是必要或很有帮助的。

16. **预达学习成果 Learning Outcomes**

After completing the course, the students are expected to understand clearly the ideas, principle and methods of asset pricing. They will learn how asset prices are determined and a lot of fundamental concepts in financial economics including state prices, risk neutral probabilities, security market equilibrium, complete market, no arbitrage pricing, risk neutral pricing, equilibrium asset pricing, some fundamental theorems from microeconomics and welfare economics among others. We also discuss state-price beta model, capital asset pricing model and derivatives pricing methods.

通过本课程学习，学生可以对资产定价的思想、原理和方法有个清晰的认识，能够回答资产的价格是如何确定的，能够理解状态价格、风险中性概率、证券市场均衡、完备市场、无套利定价、风险中性定价、均衡资产定价、微观经济学和福利经济学的若干基本定理，能够深刻理解状态价格贝塔模型、资本资产定价模型和衍生资产定价原理。

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.)**

**Course description:** This course introduces the basic ideas of asset pricing in a finite-state one-period setting. These ideas hold true also for the corresponding multi-period and continuous-time models. The aim is to characterize security prices in terms of “state prices,” one for each state of the world, obtained by assuming the absence of arbitrage, solving an optimal portfolio choice of a given agent, or finally Pareto optimality in an equilibrium with complete markets. The course presents that states are connected with “beta” model for excess expected returns, a special case of which is the well-known Capital Asset Pricing Model (CAPM).

**Course calendar:**

Overview of asset pricing theory and the simple ideas to price assets (概述, 资产定价的基本思想) . **(2 Credit Hours)**

Security market model. Single period setting for a security market and state pricing (证券市场模型, 单周期模型和状态定价) . **(2 Credit Hours)**

Exercises. **(2 Credit Hours)**

Risk-neutral probabilities and the risk-neutral pricing (风险中性概率与风险中性定价) . **(2 Credit Hours)**

Exercises. **(2 Credit Hours)**

Utility function, the state prices by solving an agent’s optimization problem (效用函数, 基于单人优化计算状态价格) . **(2 Credit Hours)**

Expected utility cases (期望效用情形) . **(2 Credit Hours)**

Exercises. **(2 Credit Hours)**

Security market equilibrium and examples (证券市场均衡及例子) . **(2 Credit Hours)**

Pareto optimality and complete markets (帕累托最优性与完备市场) . **(4 Credit Hours)**

Exercises. **(2 Credit Hours)**

Several standard results from microeconomics and welfare economics (微观经济学和福利经济学的若干基本定理) . **(4 Credit Hours)**

Exercises. **(2 Credit Hours)**

Equilibrium asset pricing theory (均衡资产定价理论) . **(4 Credit Hours)**

Exercises. **(2 Credit Hours)**

State-price Beta model (状态价格贝塔模型) . **(2 Credit Hours)**

Capital asset pricing model (CAPM, 资本资产定价模型) . **(4 Credit Hours)**

Exercises. **(2 Credit Hours)**

Review (复习) . **(2 Credit Hours)**

Exercises. **(2 Credit Hours)**

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

1. The first chapter of the book titled Dynamic Asset Pricing theory, written by Darrell Duffie, 2001
2. Hull J.C. 2012. Option, Futures, and Other Derivatives (8th edn). Pearson.
3. Shreve S.E. 2004. Stochastic Calculus for Finance, the Binomial Asset Pricing Model. Springer.

**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		20		
课堂表现 Class Performance		5		
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments		15		
期中考试 Mid-Term Test				
期末考试 Final Exam		60		
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

金融系课程规划与审核委员会  
Curriculum Planning and Review Committee, Dept. of Finance