



Syllabus

Course No.	1900814W	College	Economics and Management	Dept.	Management Science Engineering
Teacher	Jianli Wang				
Time	2023.06.12-2023.07.14				
Course Name	English	Financial Mathematics			
	Chinese	金融数学			
Course credits hours	Total	Theory	Office Hour or Practice	Credits	
	70	60	10	4.0	
Course description: Describe the aims of the course					
1. Course nature and academic status					
This course is basic for the students of actuary major. It follows the syllabus for Financial Mathematics (FM) Exam of the Society of Actuaries and prepares students to pass the FM exam.					
2. Course aims (theory, ability and technique)					
Through the study of this course, students are familiar with the method of interest rate measurement, accumulation functions, yield rates, annuities, term structure of interest rates/spot rates/forward rates, duration/convexity.					
Requirements for courses; ability and knowledge in advance					
Basic knowledge in vector algebra, multivariate calculus, probability and statistics.					
Course structure explanation:					
Make clear the necessary parts, optional parts, distribution of hours. Courses with experiments or practice are expected to explain credit hours needed, content, scheme and functions.					

Chapter 1 The growth of money

points and aims: accumulation and amount functions; simple interest; compound interest; interest in advance; discount functions; simple discount; inflation

distribution of hours: 8 hours

Chapter 2 Equation of value and yield rates

points and aims: equations of value for investments involving a single deposit made under compound interest; equations of value for investments with multiple contributions; investment return; reinvestment considerations; approximate dollar-weighted yield rates

distribution of hours: 8 hours

Chapter 3 Annuities

points and aims: annuities immediate; annuities due; perpetuities; deferred annuities and values on any date; outstanding loan balances; nonlevel annuities

distribution of hours: 6 hours

Chapter 4 Loan repayment

points and aims: amortized loans and amortization schedules; the sinking fund method; loans with other repayment patterns; yield rate examples and replacement of capital

distribution of hours: 6 hours

Chapter 5 Bonds

points and aims: bond alphabet soup and the price formula; the premium-discount formula; other pricing formula for bonds; bond amortization schedules; valuing a bond after its date of issue; yield rate examples; floating-rate bonds

distribution of hours: 6 hours

Chapter 6 Stocks and financial markets

points and aims: common and preferred stock; brokerage accounts; going long: buying stock with borrowed money; Selling short: selling borrowed stocks

distribution of hours: 6 hours

Teaching methods (Lectures, practice, etc)

Chalkboard lectures cover the theoretical material that forms the basic of the course. We will have recitations for practice and the applications.					
Forms of evaluation and requirements Structure of the final grade(including presence, class performance,), focus of exam, forms of exam(test, interview, final report, etc)					
The final score is composed by two parts: the final examination is 80%, homework and reports is 20%					
Textbook	Name	Publisher	Author	Year	Price
	Mathematical Interest Theory, 2 nd Edition(PDF)	Pearson	J. Daniel, L. Vaaler		
References	Name	Publisher	Author	Year	Price
Website					
Course members					
College					