

**THE UNIVERSITY OF HONG KONG**  
**HKU Business School**

**FINA2342BCD Insurance: Theory and Practice**  
**2024 Spring**

**Class Time and Venue:** Section B: Mondays 9:30-12:20, KKLG109  
Section C: Mondays 14:30-17:20, KKLG109  
Section D: Tuesdays 13:30-16:20, KKLG109

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### **Course format**

The course consists of a 3-hour lecture per week, and a 1-hour tutorial session starting a few weeks after the semester starts. The TA will be responsible for the tutorial sessions.

### **Course description**

Insurance is the study of risk pooling. This course has three parts:

1. The economic and financial principles and tools to understand insurance.
2. Different insurance policies: private insurance (life insurance, health and annuity, unemployment, property and casualty, commercial corporate) and public insurance (social security, public health, etc). We emphasize the role of insurance in personal financial planning and in the well-functioning of the society.
3. The behavior of the insurance supplier, i.e., the insurers. In particular, we are interested in (i) how insurance business affects insurers' portfolio decisions; (ii) how financial market performance affects insurers' supply of insurance products; (iii) the interactions between insurers and the financial market.

### **Prerequisite**

ECON1001/ ECON1210 Introductory Microeconomics, Calculus NOT required

### **Textbook**

The course will mainly follow the instructor's lecture notes. Part of the lecture notes follow the two textbooks below. Additional materials will be posted on moodle.

1. "Principles of Risk Management and Insurance," *George E. Rejda and Michael McNamara*, 13<sup>th</sup> Edition or 14<sup>th</sup> Edition (earlier editions also OK)
2. "Risk Management and Insurance," *Scott Harrington and Gregory Niehaus*, 2<sup>nd</sup> Edition (the book is out of print and not easily available)

### **Required Tool**

A standard financial calculator SUCH AS Texas Instruments, Casio, and HP 12C. Familiarity with Excel calculation is helpful but not required.

### **Grading Policy**

The course grade will be based on participation (10%), two individual assignments (20%), one group project (20%) and a final exam (50%).

#### Participation (10%)

It will be determined by (i) attendance to tutorial sessions; (ii) participation in tutorial session; (iii) the TA's overall of your performance in the tutorial sessions; (iv) attendance in the lecture. Attendance is required for lectures. I may take attendance during the semester randomly. **If you happen to be absent when I call your name, you will lose 2 of the 10 participation grade for one-time absence.** If you have valid reasons, you need to show proof of evidence (e.g., doctor's note, university related activity proof, etc).

#### Assignment (20%)

Your grade on the individual assignment part will be **0.75\*the higher grade + 0.25\*the lower grade.**

#### Group project (20%)

The topic for group project will be announced in after the first week of class. The teaching assistant will help with the group formation. Students are strongly recommended to form groups with students in the same subclass. In the last one and half weeks, each group will give a 10-to-15-minute presentation on the project with slides. **If a group has students from different subclasses, the time of presentation for this group will be decided by the instructor.** After the presentation, each group should submit their presentation slides. **All group members must be present during the presentation and are expected to stay for the full session.**

#### Final exam (50%)

The final exam will be comprehensive and closed-book. Details will be announced when the semester approaches to the end.

Non-graded practice questions will be assigned but will *not* be collected or graded.

## **Course Outline (subject to change)**

### 1. Introduction

- Course logistics
- Why do we study insurance?
  - For personal financial planning
  - Insurance and the society
- Overview of the course topics

#### **Presentation topics distributed.**

#### **Part I. The Tools and Economics of Insurance**

### 2. Probability, Risk Aversion, and Risk Pooling

- Risk characterization using probability distribution
- Utility function and risk aversion
- Risk pooling and the role of correlation
- A risk management framework

### 3. Discounting Cash Flows: NPV and IRR

- The time value of money and present value
- Assessing cash flows and the net present value (NPV) rule
- The internal rate of return (IRR)
- Risk and discount rate: the CAPM

### 4. Insurance Pricing and Asymmetric Information

- Actuarial insurance pricing, expense loading and profit loading
- Adverse selection
- Moral hazard
- Behavioral biases and insurance pricing
- Contractual provisions of insurance and the legal doctrines of insurance

#### **1<sup>st</sup> Assignment distributed.**

#### **Part II. Insurance Policies**

### 5. Life Insurance

- Overview of life insurance
- Term insurance
- Whole life insurance
- The pricing of life insurance
- Contractual provisions of life insurance
- Examples of whole life insurance plans
- Life insurance and personal financial planning

### 6. Annuities and Pension and Health Insurance

- Annuities, pension, and retirement planning
- Employee group insurance
- Private commercial health insurance
- Health insurance and financial planning
- Tax effects of pension and insurance

**2<sup>nd</sup> Assignment distributed.**

7. Property and Casualty Insurance and Corporate Commercial Insurance
  - Tort liability system and liability insurance
  - Personal P&C insurance: Auto insurance
  - Personal P&C insurance: Homeowners' insurance
  - P&C insurance cost and personal financial planning
  - Corporate commercial insurance
  - Corporate commercial insurance: motivation for risk management
8. Social Insurance and the Role of the Government
  - Categories of social insurance
  - Pension: Why is it needed and why is it compulsory?
  - Managing pension
  - Social security, public healthcare and unemployment insurance
  - Social safety net in Hong Kong

**Part III. Insurers**

9. The Basics of an Insurer
  - The business of insurers
  - Accounting principles
  - Balance sheet management
  - Investment behavior
  - Regulation and insurance pricing revisit
  - The underwriting cycle
10. Risk Management and Portfolio Choice of Insurers
  - Risks faced by insurers
  - Risk management of insurers
  - Reinsurance
  - Portfolio choice responses to risks and regulation
  - Insurers and financial crisis
11. Student Presentations