Minitry of Education

University of Economics Ho Chi Minh City

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Undergraduate Degree

Course: Finance-Banking

Minor course: Corporate Finance

Subject Syllabus

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1. **Course:** *Mathematics for Finance.*

2. **Course Code:**

3. **Credit:** 2

4. **Level:** for sophomore

5. **Time schedule:**

    - At class: 30 hours.

    - Research, self-study: 60 hours.

6. **Preliminary conditions:**

    - Financial and Monetary Theories, Theories of Probability and Statistics, Applied Statistics in Business and Economics, Macro-economics, Micro-economics.

7. **Aims:**

After finishing the course, students are able to:

(1) Count real interest rate of financing plans according to simple intersest and compound interest.

(2) Count present value and future value of cash according to simple interest and compound interest.

(3) Count present value and future value of annuity.

(4) Count interest rate of different types of annuity.

(5) Build payment schedule of a loan contract with different ways to return principal.

(6) Count real interest rate of a loan contract depending on particular way to return principal.

(7) Have general understanding of bonds and payments of bonds.

(8) Predict movement of bond price based on market interest.

(9) Value common-stock price based on forecast data.

Brief summary of content:

Mathematics for Finance - a subject belonged to undergraduate course of Corporate Finance Department - provides general and advanced knowledge for students to apply mathematics into finance, banking, and insurance fields. This subject shows basic techniques to use in subjects of corporate finance which are dominantly based on mathematical models.

Contents of this subject provide basic mathematical- financial knowledge such as present value according to simple interes and compound interest; future value and present value of cash flow, real interest and payment schedule of a loan contract, common-stock valuation, bond valuation, …

8. **Students' responsibility:** Attendance of classes, discussions, tests and examinations.

   - Full attendance of classes.

   - Assignment: do at home and discuss in class assignment and case studies given by lecturers.

   - Others: midterm

9. **Materials:**

- Essential materials:

   ✓ Nguyễn Ngọc Định (2004), "*Toán tài chính*", Thống Kê Publisher, 2003

   ✓ Trần Ngọc Thơ (2004), "*Tài chính Doanh nghiệp hiện đại*", Thống kê Publisher (2nd edition).

- Reference:

   ✓ John L. Teall and Iftekhar Hasan (2002), "*Quantitive Methods for Finance and Investments*", Blackwell Publishing.

10. **Assessment:**

- Attendance and discussion: 20%

- Midterm test: 30%

- Final examination: 50%

Note: In case the result of final examination is less than or 3, the result of midterm test is automatically divided by 2.

11. **Scale of score:** according to credit regulation .

12. **Detailed content:**

Class (hours)	Contents	Materials	Students' preparation	For aims
Class 1 (4 hrs)	Simple interest Lecturing and discussion	Chapter 1, *Mathematics for Finance*	Questions and exercises of chapter 1.	1,2
Class 2 (4 hrs)	Compound interest Lecturing and discussion	Chapter 2, *Mathematics for Finance*	Questions and exercises of chapter 2.	1,2
Class 3 (4 hrs)	Annuity Lecturing and discussion	Chapter 4, *Mathematics for Finance*	Presentation, discussion, and exercises of chapter 4.	3,4
Class 4 (4 hrs)	Seminars (related to chapter 1,2,3,4)		Questions of topic	1,2,3,4
Class 5 (4 hrs)	Midterm test		Exercises.	
Class 6 (4 hrs)	Common loans Lecturing and discussion	Chapter 6, *Mathematics for Finance*	Presentation, discussion, and exercises of chapter 6.	5,6
Class 7 (4 hrs)	Securities valuation Lecturing and discussion	Chapter 7, *Mathematics for Finance*, Chapter 3, *Modern Corporate Finance*	Presentation, discussion, and exercises of chapter 7. Discussion topic given by lecturers.	7,8,9
Class 8 (2 hrs)	Discussion and Review		All contents and exercises	
Total :	**30 hours**			

Ho Chi Minh City, 20th May, 2013

Approved by Faculty   **Prepared by**