

INTEREST THEORY AND DERIVATIVES

SJER2362, Jun 2009

Instructor: Dr. Ahmed Shamiri

Office: 116

Phone: 7967-4312

e-mail: ahmed_shamiri@um.edu.my

Homepage: <http://math.um.edu.my/StaffHP/sham/shamiri.html>

Office Hours: Monday 2-3:15 pm, Wednesday 11-12.30pm OR by appointment

I am in my office more frequently than these hours might suggest. Please feel free to visit in the afternoons whenever you find me in the office. I urge you to make an appointment to see me if you have something important to discuss and you find these times inconvenient.

Course Times:

Day	Tuesday	Thursday
Time	10:00 AM – 12:00 PM	10:00 AM – 12:00 PM
Location	DK Melati	DK Melati

Course Objectives:

The aim of this course is to cover the mathematical theory of interest, including the topics required by actuaries, by others working in the financial industry, and by informed consumers. Topics will include the time value of money and of various investments, interest and discount rates, equations of value and yield rates, annuities, loans, amortization tables, and brief introductions to bonds, stocks, and arbitrage as time permits. Our course will cover most, but likely not all, of the content of the Society of Actuaries/Casualty Actuarial Society's exam on Financial Mathematics, Exam 2 (CAS) or Exam FM (SOA). More information on preparation for the Actuarial exams and on actuarial careers may be obtained at <http://www.beanactuary.org/exams>.

Prerequisites:

SJEM1221, is the official prerequisite for this course. Some knowledge of economics and/or finance and mathematical maturity (including ability to read and interpret word problems) will be helpful.

Homework:

Almost every section of the text has corresponding homework exercises, found in the last section of each chapter. All exercises are answered in the back of the text. I will collect homework only about every other week, but I strongly recommend that you keep up with the problems as we cover each section of the text and ask questions as needed.

The assignments I collect will consist of selected problems from the text with possibly extra problems that I may hand out as needed. Please note that I care a great deal about the correct answers as well as the correct methods being used. Partial credit for incorrect solutions is not guaranteed.

Textbooks:

- *Mathematical Interest Theory*, 1st Edition by James Daniel, and Leslie Jane Federer Vaaler

References:

- *Mathematics of Investment and Credit*, 4th Edition, by Broverman, S. Actex Publications. 2008
- *Derivatives Markets*, 2nd Edition by Robert McDonald
- *An Introduction to Derivatives and Risk Management*, 7th Edition, by Don Chance and Roberts Brooks

Exams and Quizzes:

Quizzes: Three -in-class accumulated 25%.

Assignments: 15%

Final Exam: 60%

Course Policies:

1. **Attendance and classroom participation** are integral parts of learning. Quizzes will be given during the lectures on the most recent covered topics and chapters.
2. Please note that because of the quick pace of this course, we may not be able to go through each question in details. You should work on as many questions as possible for practice.
3. All exams and quizzes will be taken during regular class time. No formula sheets will be allowed in taking the quizzes and exams.
4. All exams are closed book. You may use a hand-held calculator at exams, while the followings approved and allowed at CAS/SoA exams are recommended in order to make yourself familiar with the use of the calculator: Texas Instruments BA-35 or BA II Plus or TI-30X or TI-30Xa or TI-30X II.
5. Make-up exams will not be given. If there is a serious medical problem, which prevents you from taking an exam, contact me as soon as possible. In such a case where missing an exam is warranted, your fourth exam will be worth 200 points. The remaining aspects of your grade will be computed as outlined above.
6. The instructor reserves the right to amend the syllabus. Changes will be announced in lecture.
7. **Cell Phones, beepers and buzzers are to be muted or turned off during lectures and examinations.**

Tentative Schedule:

Week 1 – week 5: Theory of Interest.

Week 6 – week 8: Financial Markets: bond, stock, and derivatives markets.

Week 9 – week 15: Derivatives Markets: Options, forwards, and swaps