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## Math 325 - Fall 2014

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and by appointment

**Class Time and Location:** Math 325-500 meets MWF 9:10am-10am and Math 325-501 meets MWF 10:20am-11:10am, both in BLOC 161, starting September 1, 2014.

**Catalog Title and Description:** (CREDIT 3.0) *The Mathematics of Interest* - The mathematical theory associated with interest; annuities; internal rate of return; coupon bonds; valuation of noncallable bonds; yield of maturity; interest rate sensitivity; duration and convexity; reinvestment risk; total return; compound return; STRIPS; yield curve; short selling; hedge ratio; bond swaps. Prerequisites: MATH 142, MATH 147, MATH 151 or MATH 171; junior classification.

**Course Objectives:** Upon completion of this course, students will understand and be able to solve problems involving the time value of money, various measurements of interest and discount, annuities, amortization, sinking funds, bonds, yield rates, the term structure of interest rates, duration, convexity, and immunization. Note: A tentative schedule for this course, including the topics to be covered, can be found at the end of this handout.

**Required Text:** *The Theory of Interest*, 3rd ed, by Stephen G. Kellison. Published by McGraw-Hill. ISBN-13: 978-0-07-338244-9, ISBN-10: 0-07-338244-2. Students will be expected to read the textbook sections before they are covered in lecture. A tentative lecture schedule can be found at the end of this handout. Also, suggested homework assignments will come from this textbook.

**Required Calculator:** All students are required to have one of the following two financial calculators: BA II Plus or BA II Plus Professional Edition. Students may use other calculators, but most scientific and graphing calculators do not have the same built-in functionality as a financial calculator. Students will be allowed to use two calculators during exams and quizzes. Any graphing calculators used must be reset before each exam or quiz—no exceptions.

**Email Policy:** Check your TAMU email account regularly. You are responsible for any information I send via email. If you send an email to me, be sure to include your full name and Math 325 in the message.

**Cell Phone/Laptop Computer Policy:** As a courtesy to me and your classmates, all cell phones and laptop computers (and other electronic devices) must be OFF and put away during lecture. If you disrupt class or distract your neighbor with your cell phone or other electronic device, you will be asked to leave class.

**Grading Policy:** Grades will be calculated according to the following percentages:

|            |     |               |
|------------|-----|---------------|
| Exam 1     | 20% | A = 90-100%   |
| Exam 2     | 25% | B = 80-89%    |
| Final Exam | 30% | C = 70-79%    |
| Quizzes    | 25% | D = 60-69%    |
|            |     | F = below 60% |

**Exams:** Exams 1 and 2 are tentatively scheduled for the dates indicated below. These dates are very much subject to change—it will depend on how we are progressing through the material. At least one week of notice will be given if a date does change. *Exam 2 and the final exam are comprehensive.*

| <u>Exam</u> | <u>Date</u>   |
|-------------|---|
| Exam 1      | Wed., Oct. 1  |
| Exam 2      | Wed., Nov. 5  |
| Final Exam  | Section 500: Mon., Dec. 15 at 8am<br>Section 501: Tues., Dec. 16 at 8am |

**Quizzes:** Announced and unannounced in-class and take-home quizzes will be given throughout the semester. One quiz grade will be dropped.

**Suggested Homework:** Mathematics cannot be learned and fully understood by simply watching someone else do it. It must be practiced by working many, many problems. To this end, I suggested that you work all problems in your textbook that correspond to the sections covered during lecture. These problems will not be collected for a grade, but completing them is essential to doing well in the course.

**Attendance:** Attendance is required in this class. All students are expected to arrive on time and be ready to actively participate in lecture every day. I STRONGLY suggest that you make every attempt to not miss a single day of lecture. Falling behind in this course can be very detrimental to your grade. Attendance will be used in conjunction with your final exam grade as a consideration in the case of borderline grades.

**Make-up Policy:** No make-ups will be given without written evidence of an official University excused absence. (See *University Student Rules*.) According to Section 7.3 of the *University Student Rules*, for an absence to be considered excused,

the student must notify his or her instructor in writing (acknowledged e-mail message is acceptable) prior to the date of absence if such notification is feasible. In cases where advance notification is not feasible (e.g. accident or emergency) the student must provide notification by the end of the second working day after the absence. This notification should include an explanation of why notice could not be sent prior to the class.

If no such notice is given, the rights to a make-up are forfeited. In addition (and also in accordance with *University Student Rules*), a **written** excuse must be presented upon return to class. Specifically, in the case of illness or injury, students are required to obtain a confirmation note from a health care professional affirming date and time of a medical office visit regarding the illness or injury. I will NOT

accept the Explanatory Statement for Absence from Class form as sufficient written documentation of an excused absence.

**Scholastic Dishonesty:** You are encouraged to work together on the homework assignments, but do not copy another student's work. Copying work done by others, whether in class or out of class, is an act of scholastic dishonesty and will be prosecuted to the full extent allowed by University policy. Always abide by the Aggie Code of Honor: *An Aggie does not lie, cheat, or steal or tolerate those who do.* Please refer to Honor Council Rules and Procedures at <http://www.tamu.edu/aggiehonor> for more information on academic integrity and scholastic dishonesty. **I have served as a member of the Aggie Honor Council, so I take these matters very seriously.**

#### **Extra Help:**

- **Your Instructor:** I want each and every one of my students to be successful in this class. Please feel free to ask questions in class. If you need more help, come by my office during office hours or make an appointment to see me. Remember, I am here to help, but I cannot do that if I don't know that there is a problem.
- **Your Classmates:** Get to know your classmates. Form study groups and/or utilize the discussion board within eCampus to help each other out on the homework assignments.
- **Practice:** The best way to prepare for quizzes and exams is to practice, practice, practice, and then practice some more. I strongly recommend that you practice problems **DAILY**. If you find that you struggle with certain problems the first time you work them, be sure to work them again **AND** work other problems that are similar.
  - **Textbook Reserves:** To give you a source of more practice problems, I have placed at least one book on reserve at the Evans Library Annex: **Mathematical Interest Theory**, 2nd Edition, by Leslie Jane, Federer Vaaler, and James Daniel (ISBN13: 978-0883857540). This is one of the textbooks recommended by the Society of Actuaries for those who are studying for Exam FM, and it has some very nice practice problems for our class.
  - **SOA's Exam FM Practice Problems:** The Society of Actuaries has compiled a set of 57 practice problems, many of which you may find helpful for our class. These problems can easily be found by using a search engine to find "Exam FM Practice Problems."

**ADA Policy Statement:** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Room B118 of the Cain Hall or call 845-1637.

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**Weekly Lecture Schedule:** Roughly speaking, we should cover material from the required textbook on the following schedule:

| <u>Week of Monday</u> | <u>Sections Covered</u>   |
|-----------------------|---|
| Sept. 1               | 1.2-1.6   |
| Sept. 8               | 1.6-1.10  |
| Sept. 15              | 1.10-2.7  |
| Sept. 22              | 3.2-3.7   |
| Sept. 29              | 3.8, Exam 1 (covering Chapters 1-3), 4.2-4.4                          |
| Oct. 6                | 4.4-4.8   |
| Oct. 13               | 4.9-5.4   |
| Oct. 20               | 5.4-6.4   |
| Oct. 27               | 6.4-6.10  |
| Nov. 3                | Exam 2 (covering Chapters 4-6), 7.2, 7.3                              |
| Nov. 10               | 7.3-7.7   |
| Nov. 17               | 10.2-10.5   |
| Nov. 24               | 11.2-11.4   |
| Dec. 1                | 11.5-11.8   |
| Dec. 8                | Review  |
| Dec. 15               | Final Exam (Section 500: Dec. 15 at 8am; Section 501: Dec. 16 at 8am) |