Middle Tennessee State University  
Department of Mathematical Sciences  
Fall 2011  
Course Syllabus

COURSE: MATH/ACSI 4200: Mathematics of Investment  
MATH5200/ACSI5200 Graduate credit is earned by doing a project.  
A project will be assigned after mid-semester and should be presented in class.

Meeting Times: MW 4:10-5:35 p.m.  
Location: Main Campus, Kirksey Old Main, KOM 205

PREREQUISITES: One year of Calculus, and one semester of probability/statistics;  
Or consent of instructor.

TEXTBOOK: Principles of Corporate Finance, by Brealey, Myers and Allen, 9th Edition  

RECOMMENDED TEXTS:
ISBN 978-0-521-68222-0

INSTRUCTOR: Dr. A.Q.M. Khaliq, KOM-250, Phone: 494-8889, E-Mail: akhaliq@mtsu.edu

OFFICE HOURS: 1:30-3:00 P.M. MW, and/or any other time by appointment.

CONTENTS:
- Present value and net present value (Chapters 1-5),
- Risk and Capital Asset Pricing Model(Chapter 8,9,10),
- Options and Derivative securities (Chapters 21-22, chapter 23 if time permits.
- Notes will be provided for, forwards and futures, Arbitrage, spreads and swaps.)

OBJECTIVES:

Use Calculus and probability/statistics to model and analyze present values and net present value of cash flow. Present value of cash flow of bonds, treasury bills, stocks, and financial derivatives. Topics include obtaining the price of a bond as a function of interest rate, developing formulas for duration and convexity to study the sensitivity of price to interest rate, and mathematical modeling of investor preference and attitude toward learning option strategies, pricing options and risk. It’s one of objectives of the course to incorporate technology in the learning process with the use of Excel for understanding and analyzing financial models.
GRADING: 90-100% A; 80-89% B; 70-79% C; 60-69% D; 00-59% F

Based on the following instruments:

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<tr>
<th>Instrument</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Tests</td>
<td>60%</td>
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<tr>
<td>Assignments</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>20%</td>
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3 Tests

(September 28, November 02, November 30)

You will be given three 75 min. tests during the semester. These will be in class closed-book tests; calculators are permissible. Each test will carry equal weight, and will cover all of the material learned up to and including one day before the exam. Cheating during the tests would not be tolerated. Cheating cases will be brought into attention of appropriate MTSU authorities. Please turn all cell-phones off during the test.

Assignments

You will be given not more than 10 assignments during the semester. These are technology based using Excel for modeling and analyzing investment problems. Each assignment will have some challenging questions. You should strive to start the assignment the day it is assigned. Be detailed in your explanations; a lone numerical answer never suffices. Cheating is not to be tolerated, and will be dealt according to MTSU policy.

Final Exam:

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<th>Date</th>
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<td>Monday, December 12</td>
<td>3:30 - 5:30 p.m.</td>
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Final exam will be comprehensive, closed book exam and will be only given according to MTSU Final exam schedule on the above date and time. Please turn all cell-phones off during the Final Exam.

Homework:

You will be assigned 10-15 textbook problems on each day class is held (except for exam days). You should strive to solve the problems the day they are assigned. It is very important to keep up with the homework and do the problems regularly. Although home work problems will not be graded, it is very important to do the problems to for the mastery of the subject. The best way to learn mathematics is to do mathematics.

I encourage you to work with others on homework problems. However, be sure that you understand everything and do not become dependent on others. While I will solve homework problems in class, you may feel free to stop by my office to discuss the problems. Feel free to e-mail me questions you are not able to solve, and I’ll address solutions to such problems in the next lecture. Readings are also part of your homework, even though you cannot be directly
graded on this component. Reading assignments will be given on each day class is held. You are expected to complete the reading before the start of the very next scheduled class. Please take these readings seriously; the very best way to learn mathematics is to read it.

**Attendance and Late Work:**

Perfect attendance is expected to succeed in the course. To obtain an excused absence due to illness for a day that class meets, you must submit written verification obtained from a physician, or the Office of Student Affairs. Excused absences will also be granted for participation in scheduled athletic events or class field trips. In that case you must notify me well in advance of the absence to be excused.

If you have an excused absence for the day an exam is scheduled, you must contact me to make arrangements for taking a make-up test (which will be different from and perhaps slightly more difficult than the original exam). The make-up exam should be taken as soon as possible, and definitely no later than five days after the original test was administered. Missing a test may mean that you will lose the privilege of obtaining written solutions from me.

If you have an excused absence for the day an assignment is due, you must submit the assignment to me within 48 hours of the time it was due. If you are still on excused absence, you must send someone to bring the assignment to my office before the 48 hours has expired. This deadline is strict so that I may give solutions soon after the assignment is due. Tests and assignments missed without an excused absence will be recorded as zero points. There will be no other chances to complete missing work, so please keep on top of things.

**IMPORTANT INFORMATION:**

- A grade of “I” will be given only in accordance with university policy.
- **Do you have a lottery scholarship?**

Do you have a lottery scholarship? To retain Tennessee Education Lottery Scholarship eligibility, you must earn a cumulative TELS GPA of 2.75 after 24 and 48 attempted hours and a cumulative TELS GPA of 3.0 thereafter. You may qualify with a 2.75 cumulative GPA after 72 attempted hours (and subsequent semesters), if you are enrolled full-time and maintain a semester GPA of at least 3.0. A grade of C, D, F, or I in this class may negatively impact TELS eligibility. Dropping a class after 14 days may also impact eligibility; if you withdraw from this class and it results in an enrollment status of less than full time, you may lose eligibility for your lottery scholarship. Lottery recipients are eligible to receive the scholarship for a maximum of five years from the date of initial enrollment, or until a bachelor’s degree is earned. For additional Lottery rules, please refer to your Lottery Statement of Understanding form, review lottery requirements on the web at [http://www.mtsu.edu/scholarships/telsconteligibility_scholarships.shtml](http://www.mtsu.edu/scholarships/telsconteligibility_scholarships.shtml) or contact the Financial Aid Office at 898-2830.
DISABILITY STATEMENT

- If you have a disability that may require assistance or accommodation, or you have questions related to any accommodations for testing, note takers, readers, etc., please speak with me as soon as possible. Students may also contact the Office of Disabled Students Services (898-2783) with questions about such services.

- The departmental policy for W after the date is

DEPARTMENT POLICY WITH REGARD TO DROPS AFTER THE OFFICIAL DROP DATE

- No grade of W will be assigned after the official drop date except in situations involving extreme extenuating circumstances beyond the student’s control. In particular, a W will not be granted merely because the student is failing. Students should be aware that missing the official drop date and thereby receiving an F can have ramifications on financial aid.

NOTE:
- Syllabus subject to change with notice.
- **Cell phones** are not allowed during exams for any reason, including using them as clocks or calculators.
- Please turn all **cell phones** off during class time. If you must leave your phone on, please set to vibrate mode. If you must answer your phone during class, please quietly leave the room to do so. Please do not send text messages during class time.

Drop/Add Deadlines

http://www.mtsu.edu/records/sfdropadd.shtml

Final Exams

http://www.mtsu.edu/records/sfexam.shtml