THE UNIVERSITY OF ALABAMA

FI 419 **SPRING, 2008**
FINANCIAL ENGINEERING **Bob Brooks**

OFFICE:	226 Alston
OFFICE HOURS:	Monday and Tuesday: 10:30-11:30 AM, 1:30-3:00 PM Or by appointment
CLASS HOURS:	FI 520: Tuesday 7:00-9:30 AM, Bidgood 375 FI 419: Monday 7:15-9:45 AM, Bidgood 140
PHONE:	348-8987 or 799-9927 (cell phone)
E-MAIL:	rbrooks@cba.ua.edu or rbrooks@frmllc.biz

General Remarks:

The purpose of this course is to equip the student with both the theoretical foundation of modern contingent claims analysis as well as the necessary institutional details. Appropriate financial decision-making is nearly impossible without a working knowledge of contingent claims analysis, especially valuation. The standard text, lecture, discussion, homework, and exam approach will be taken for this course.

Texts:

Don Chance and Robert Brooks' An Introduction to Derivatives and Risk Management Seventh Edition.

Prerequisites

FI 302, Business Finance

Requirements

1. Attend and actively participate in class.
2. Do homework independently and be able to write in correct English!
3. Study text and class notes prior to class and raise questions.
4. Be able to perform basic statistics and be able to take time pressure tests.
5. Know how to use Lotus (or any spreadsheet) and other basic computer skills.
6. All students must have earned 55 or more semester hours of credit (except A&S economics majors who may enroll in 300 level economics courses with less than 55 hours).
7. All C&BA students must also have completed or be enrolled concurrently in EC 110, EC 111, MA 120, MA 121, CS 110, AC 201, AC 202, ST 250, and ST 251 (or equivalent CBMS and ST courses).

Course Description

Addresses managing financial risks such as adverse stock price movements, adverse interest rate changes, and adverse commodity price changes, with specific attention given to employing futures, options, and swap contracts.

Course Objectives

1. Understand the financial press.
2. Become conversant in basic financial engineering terminology.
3. Survey the institutional details of global financial engineering.
4. Evaluate the basic characteristics of options, futures, and swaps.
5. Price basic contingent claims.
6. Be able to derive arbitrage relationships.
7. Model financial price risk with geometric Brownian motion.
8. Be able to address a wide variety of financial price risk problems.

Grading:

Exams and Other	Percent of Final Grade	Date
Exam 1	25	2/18
Exam 2	25	3/31
Final	30	3:30-6:00 PM Friday, May 9, 2008
Homework/Quizzes	20	Various

Make-up Policy:

Make-ups for any and all exams or homeworks allowed only if prior agreement is made.

Withdrawal Policy

The last day to normally drop this course is the end of the tenth week of classes, Wednesday, March 26th. Any student withdrawing by this date will receive a "W" on the transcript. To withdraw on or before this date, obtain a Drop/Add form from Student Services in room #10 Bidgood Hall, complete the form, obtain an Advisor's signature in the Students Services Office, and check out by receiving a copy of the withdraw form from the Student Services Office.

After 4:30 PM, Wednesday, March 18th, students normally are not permitted to drop a course. Students with extenuating circumstances may present a written petition to drop this course to the Director of Undergraduate Programs in room #10 Bidgood Hall. Petitions to the Director must be accompanied by significant supporting documents to verify the circumstances cited in the petition. Students must be aware that claims cited in the petition will be verified BEFORE completion of the drop is permitted. Poor academic performance is not sufficient justification to drop any course.

Disability Policy

Students with disabilities are encouraged to register with the Office of Disability Services, 348-4285. Thereafter, you are invited to schedule appointments to see me during my office hours to discuss accommodations and other special needs.

Code of Conduct

All students in attendance at the University of Alabama are expected to be honorable and to observe standards of conduct appropriate to a community of scholars. The University expects from its students a higher standard of conduct than the minimum required to avoid discipline. Academic misconduct includes all acts of dishonesty in any academically related matter and any knowing or intentional help or attempt to help, or conspiracy to help, another student. The Academic Misconduct Disciplinary Policy will be followed in the event of academic misconduct.

Thoughts on the Course

This course typically has students from a wide range of backgrounds and competencies. Financial engineering is a young profession and is changing rapidly. It is my intent to provide a solid foundation as well as provide state-of-the-art material.

In the past, available derivative securities dictated the viable solution strategies for risk managers. This approach is no longer true. Today, viable solution strategies desired by risk managers are dictating the available derivative securities. Thus, we have derivative securities such as multi-step, callable bonds and inverse floating, binary, index amortizing swaps. The competent risk managers of the future must be able to understand the wide range of potential derivative securities available when designing effective and efficient solutions.

This is very much your class. I have been working in derivative securities for over 15 years. From experience I know that you will gain a tremendous amount from this class if you apply yourself. There are former students who are working at major firms such as Goldman Sachs, Bank of America, and Morgan Stanley as well as regional firms such as AmSouth Bank and Compass Bank. These successful students consistently were the ones that sought to know more than just the minimal requirements for a grade. My challenge to you is to pursue understanding financial engineering with the same discipline and vigor as one would pursue mastering a sport. The benefits that you gain from this course ultimately will depend on your own personal effort. As a coach hopes his team wins, so I hope you are successful.

By its very nature, financial engineering is quantitative. I want to encourage you to ask questions in class and office hours. Also, please carefully read the book as it will provide a solid foundation on which to master this subject.

Course Outline: (Very Tentative)

DATE	CLASS #	CHAPTER	SUBJECT
1/14	1		Introduction to financial engineering; Simple firm hedging-Southwest Airlines
1/14	2	1	Derivatives Chronology, EDS
1/28	3	2	Approaches to valuation
1/28	4	3	Calls – boundaries
2/4	5	3	Puts – boundaries, put-call parity
2/4	6	4	One period binomial model
2/11	7	4	Multi-period binomial model
2/11	8		Catch-up and review
2/18	9	1-4	EXAM 1
2/18	10	5	BSOPM and the "greeks"
2/25	11	6	Basic option strategies
2/25	12	7	Advanced option strategies
3/3	13	8	Interpreting futures prices
3/3	14	9	Carry arbitrage
3/10	15	9	Carry arbitrage
3/10	16	9	Options on futures
3/24	17	10	Futures arbitrage strategies
3/24	18		Catch-up and review
3/31	19	5-10	EXAM 2
3/31	20	11	Why hedge? Hedging strategies
4/7	21	11	Spread and target strategies
4/7	22	12	Interest rate swaps
4/14	23	12	Currency and equity swaps
4/14	24	13	FRAs
4/21	25	13	Swaptions
4/21	26	15	Financial risk management
4/28	27	16	Managing Risk in an Organization
4/28	28		Review for comprehensive final