Proposal for a New Graduate Course

Department: School of Business; Dept. of Economics and Finance
Graduate Program: Master of Business Administration

Course Number & Title: MBAD 516 – Financial Modeling
Total hours/week: 42 hours / 7 hours per week for 6 weeks
Number of Credits: Lectures: 3 Lab: 

Will this course be cross-listed with an undergraduate or other graduate course? □ YES X □ NO
If yes, please complete an attach to this proposal a Permission to Cross-List a Graduate Course form.

Course will first be offered: Fall 2010

Catalog description (Please limit to 50 words):
This course examines financial modeling and covers a wide range of topics within all fields of Finance that lend themselves to financial modeling. The course will examine modeling in four primary areas: (1) corporate finance models, (2) fixed income securities models, (3) portfolio models, and (4) option pricing models.

Prerequisites (or other restrictions)
MBAD 503 Financial Management

Rationale/justification for course (consider the following issues):

a. What are the goals and objectives of the course?
Please see attached

b. How does the course support the mission statement of the department and the organizing principles of the graduate program?
Please see attached

Are other departments affected by this course? □ YES X □ NO
(Please attach letters of support from the chairs of each department indicating the Department has discussed and supports the proposal.)

Is this course part of a joint program? □ YES X □ NO
If yes, at what institution?

Method of teaching: Lecture, hands-on computer instruction, oral presentation, written analysis

If more space is needed for any section, please attach additional sheets to this form.

November 2007
Expected changes

a. Address potential enrollment pattern shifts in the Department or University-wide as it relates to the offering of this course.
   **New program with new students anticipated**

b. Address potential shifts in staffing of the departments as it relates to the offering of this course.
   **New Finance Assistant Professor will be requested in year two to teach MBA classes**

Requirements for additional resources made necessary by this course. (Note: course requiring additional resources will need special justification.)

a. Staff  **None**

b. Budget  **None**

c. Library  **None**

Attach course syllabus, reading list, or any additional documentation that can help the committee evaluate this proposal. **A syllabus is mandatory.**

Signature of Program Director:  
Signature of Department Chair:  
Additional Chair’s Signature*:  
Signature of Schools’ Dean:  
Additional Schools’ Dean Signature*:  
Signature of the Provost:  
Signature of Budget Director**:  

*For interdisciplinary courses.  **Business Affairs Office

Signature of Chair of the Faculty Committee on Graduate and Continuing Education  

Signature of Chair of Grad Council:  
Signature of the Faculty Secretary:  

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Rationale/justification for course (consider the following issues) attachment:

a. What are the goals and objectives of the course?

This course will bridge the gap between theoretical knowledge from previous courses and practical application of many important financial concepts. The successful student will gain an understanding of how to wrap real world issues around theoretical underpinnings and create working models in Excel. These models will help show students how the generality of classroom learning can be applied to realistic career and life financial issues. Specifically, successful completion of this course will ensure the student has a working knowledge of financial modeling in:

1. basic financial calculations
2. cost of capital calculation
3. financial statement analysis
4. duration calculation
5. term structure of interest rates
6. efficient portfolio creation
7. estimating beta and the security market line
8. value at risk
9. binomial option pricing models
10. the Black-Scholes model
11. option Greeks

b. How does the course support the mission statement of the department and the organizing principles of the graduate program?

Consistent with the goals of the School of Business and the MBA program, this course includes instruction in:

*Ethical Awareness:* The course requires students to understand the ethical responsibilities in all areas of finance, particularly financial market activities.

*Global Awareness:* The course requires an understanding of international implications relative to all concepts of finance taught throughout the course. Students will be instructed in material that is of global importance and will be required to understand the complexities faced in the global finance world. Many models will require the student to effectively incorporate parameters to accommodate numerous geographical regions.

*Innovative Learning:* This course requires students to step outside the traditional box of academic learning by focusing on applied methods of solving financial problems rather than the theoretical foundations of problem solving. As such, students will be free to explore the most practical methods, in their view, of addressing specific financial situations. Thus, while the focus will always be upon achieving the correct solution, this course also includes ample emphasis on the path chosen to practically obtain this conclusion and allows students the flexibility to think creatively.

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Professional Leadership: The course is, by nature, hands-on and exploratory. As such, students will bear the bulk of responsibility for learning the topics presented in class. In addition, the course lends itself nicely to group work, where each group member must contribute in a significant fashion and be capable of effectively leading their peers in discussion and practice. Successful completion of this course will entail the student having grown in several areas that cultivate leadership, including active listening, flexibility in thought processes, and effective communication.
Instructor        Mark K. Pyles, Ph.D.
Class            11:00 – 2:30 TR
Office            414 Beatty Center
E-mail           PylesM@cofc.edu
Office Number    3-7991
Office Hours     10:00 AM - 2:00 PM W and by appointment

Description     This course examines financial modeling and covers a wide range of topics within all fields of Finance. The course will examine modeling in four primary areas: (1) corporate finance models, (2) fixed income securities models, (3) portfolio models, and (4) option pricing models.

Prerequisites    Financial Management

Objectives      Successful completion of this course will ensure the student has a working knowledge of financial modeling in:

- basic financial calculations
- cost of capital calculation
- financial statement analysis
- duration calculation
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- value at risk
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- option Greeks

Course Overview This course is an Excel-based course and, as such, requires a basic working knowledge of the software. This will be assumed of students beginning the course; however, basic

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functions will be reviewed in due course of instruction. In addition, while a brief review of various topics, such as bonds or options, will be part of the course, in-depth instruction on the basics of the material will not be presented. Rather, students will be assumed to have a working knowledge of various financial concepts prior to enrolling in this course.

Class meetings will consist of approximately half instruction and half hands-on learning. The first half will involve the instructor demonstrating the specific objectives to be learned that day, and the remainder of the time will be devoted to students actively learning the material just presented. Students will often work in small groups, so the willingness and ability to communicate with classmates will be crucial. Often, the course will take the form of a question being asked and students working together in their small groups to solve.

Consistent with the goals of the School of Business and the MBA program, this course includes instruction in:

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**Textbook**

The required text is *Financial Modeling* by Benninga, 3/e, MIT Press.

**Course Policy**

Unless you have a physician’s excuse in writing, make-up tests will not be allowed and a zero will be given for the missed work.

The Academic Integrity and Honesty policies of the CoF/C will be fully and strictly enforced, as well as all other applicable University rules and procedures.

Students with documented disabilities who may need academic accommodations should discuss these with me as soon as possible.

**Course Grading**

Student grades will be derived from performance in three areas, (1) homework assignments, (2) projects, and (3) course participation. Each are described below:

*Homework Assignments*

Students will be assigned homework periodically, which will cover the material covered since the last assignment. The homework will be partially from the textbook, but will also be created by the instructor and/or other sources. Each homework packet will require students to complete assignments in Excel and email to the instructor. There will be a total of eight homework assignments, each of which will be worth 25 points.

*Projects*

Students will also be required to complete two projects throughout the course, one at midterm and the other at final. These projects will require the student to obtain and organize individual data sets, incorporate material learned in class, and complete and present their models to the professor. Projects will be graded on accuracy, conciseness, creativity, and depth of complexity. Each project will be worth 100 points.

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Course Participation

There will be 50 points available for course participation. Students are expected to attend class, participate in their group discussions, and complete in-class assignments. This is subjective and based upon the instructor’s knowledge and observations of your participation.

Grading

Homework (8 * 25 pts. each) 200
Projects (2 * 100 pts. each) 200
Class Participation 50
Total 450 Points

Letter grades are assigned as follows:

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Tentative Class Schedule:

First Module: Corporate Finance Models (Week 1)

Basic Financial Calculations (Chapter 1)
- Present value and net present value
- Internal rate of return and loan tables
- Future values and applications
- Continuous compounding
- Discounting using dated cash flows

Calculating the Cost of Capital (Chapter 2)
- The Gordon dividend model
- Supernormal growth and the Gordon model
- Using the capital asset pricing model to determine cost of equity
- Three approaches to computing the expected return on the market
- Calculating the cost of debt
- Computing weighted average cost of capital

Financial Modeling (Chapter 3)

Building a Financial Model (Chapter 4)
- How financial models work
- Free cash flow
- Using free cash flow to value the firm
- Sensitivity analysis
- Calculating the return on equity
- Analyzing financial statements

If more space is needed for any section, please attach additional sheets to this form.
Second Module: Bond Models (Week 2)

Duration (Chapter 25)
- What does duration mean?
- Duration patterns

The Term Structure of Interest Rates (Chapter 27)
- An initial example
- Description of the data
- The Treasury Yield Curve

Third Module: Portfolio Models (Weeks 3-4)

Portfolio Models – Introduction (Chapter 8)
- Computing returns
- Calculating portfolio means and variances
- Efficient portfolios
- Continuously compounding versus geometric returns

Calculating Efficient Portfolios (Chapter 9)

Calculating the Variance-Covariance Matrix (Chapter 10)

Value at Risk (Chapter 15)
- Preliminary definitions and notations
- Theorems on efficient portfolios and CAPM
- Calculation of efficient frontier
- Finding efficient portfolios

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-Computing the global minimum variance portfolio
-Computing and efficient portfolio
-Calculating value at risk

Fourth Module: Option-Pricing Models (Weeks 5-6)

An Introduction to Options (Chapter 16)

The Binomial Option-Pricing Model (Chapter 17)
- Basic option definitions and terminology
- Option payoff and profit patterns
- Option strategies and portfolios of options and stocks
- Two-date binomial pricing
- The multiperiod binomial model
- Pricing American options using the binomial pricing model

The LogNormal Distribution (Chapter 18)
- What do stock prices look like?
- Lognormal price distributions and geometric diffusions
- What does the lognormal distribution look like?
- Simulating lognormal price paths

The Black-Scholes Model (Chapter 19)

Option Greeks (Chapter 20)
- The Black-Scholes model
- Calculating the implied volatility
- Dividend adjustment to Black-Scholes
- Defining and computing the Greeks

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