

LSC Use Only Proposal No:  
LSC Action-Date:

UWUCC Use Only Proposal No: 12-109  
UWUCC Action-Date: AP-4/2/13 Senate Action Date: App-4/30/13

Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person(s) Dr. Mukesh K. Chaudhry	Email Address chaudhry@iup.edu
Proposing Department/Unit Finance	Phone 7-5746

Check all appropriate lines and complete all information. Use a separate cover sheet for each course proposal and/or program proposal.

1. Course Proposals (check all that apply)

New Course                       Course Prefix Change                       Course Deletion

Course Revision                       Course Number and/or Title Change                       Catalog Description Change

Current course prefix, number and full title: FIN 425: Financial Derivatives

Proposed course prefix, number and full title, if changing: FIN 425/525 Financial Derivatives

2. Liberal Studies Course Designations, as appropriate

This course is also proposed as a Liberal Studies Course (please mark the appropriate categories below)

Liberal Studies Learning Skills     Liberal Studies Knowledge Area     Liberal Studies Capstone     Liberal Studies Elective

Liberal Studies Competency-Across-the-Curriculum (please mark the CAC(s) for which the course is intended)

Global Citizenship                       Information Literacy                       Oral Communication

Quantitative Reasoning                       Scientific Literacy                       Written Communication

3. Other Designations, as appropriate

Honors College Course                       Other: (e.g. Women's Studies, Pan African)

**Received**  
**APR 3 2013**

4. Program Proposals



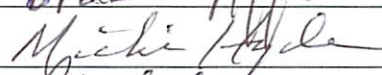

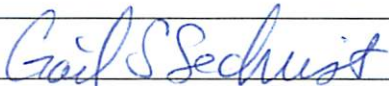
Catalog Description Change     Program Revision     Program Title Change     New Track

New Degree Program     New Minor Program     Other

Current program name: \_\_\_\_\_

Proposed program name, if changing: \_\_\_\_\_

**Liberal Studies**  
**Received**  
**MAR 26 2013**  
**Liberal Studies**

5. Approvals	Signature	Date
Department Curriculum Committee Chair(s)		3/5/2013
Department Chairperson(s)		3/5/013
College Curriculum Committee Chair		3/11/13
College Dean		3/13/13
Director of Liberal Studies (as needed)		
Director of Honors College (as needed)		
Provost (as needed)		
Additional signatures (with title) as appropriate:		
UWUCC Co-Chairs		4/2/13

## Syllabus of Record

<b>FIN 425 Financial Derivatives</b>	3 lecture hours, 0 lab hours, 3 credits (3c-0l-3cr)
<b>FIN 525 Financial Derivatives</b>	3 lecture hours, 0 lab hours, 3 credits (3c-0l-3cr)

**Prerequisite:** FIN 320 and 324 or equivalent/permission for FIN 425 and FIN 324 or equivalent/permission for FIN 525

### I. Catalog Description

Provides an understanding of how the derivatives markets work, how they are used, and how prices are determined. Includes the common types of derivatives, their characteristics and properties, and trading methods and strategies. Also, covers fundamental pricing models based on arbitrage pricing theory, binomial, and Black-Scholes models.

### II. Course Outcomes:

Students will be able to:

1. Develop an understanding of pricing of derivatives securities.
2. Demonstrate skills and analyze how the derivatives, in particular, futures and options contracts work and the ways that these instruments are traded in the markets.
3. Define the role of the derivatives traders.
4. Identify appropriate financial derivatives tools for optimal results.
5. Evaluate and debate the wide range of possible approaches in pricing and hedging derivatives products.
6. Assess the impact of global derivatives products and their role on speculative and/or hedging activities as well as their impact on society.

In addition to the above, Graduate students in this course will be able to:

7. Gain practical experience with various derivatives products and develop a deeper understanding of current theoretical and applied research in financial derivatives products and their role in the marketplace.
8. Perform basic conceptual or applied research related to derivatives securities.

### III. Course Outline

#### A. Introduction; Review

Introduction of Futures and Options Contracts and Market participants – Ch. 1

Futures and Option Contracts, history of options markets, types of traders, hedgers, speculators, and arbitrageurs  
(2 hours)

#### B. Structure of options Markets – Ch. 2

Types of options, options positions, specification of stock options, trading, commission, regulation, warrants, executive stock options, and convertibles  
(2 hours)

- C. Principles of Option Pricing – Ch. 3  
Factors affecting option prices, assumptions and notations, upper and lower bounds for option prices, put-call parity, empirical research  
(3 hours)
- D. Option Pricing Models – The Binomial Model - Ch 4.  
(3 hours)
- E. Valuing Stock Options: The Black-Scholes Model – Ch. 5  
Assumptions about how stock prices evolve, expected return, volatility, estimating volatility from historical data, assumptions underlying Black-Scholes Model, The Black-Scholes/Merton Analysis, Risk-Neutral valuation, the causes of volatility  
(3 hours)
- Test #1 (1 1/2 hours)**
- F. Basic Option Strategies – Ch. 6  
Strategies involving a single option and a stock, spreads, combination , and other payoffs  
(3 hours)
- G. Advanced Option Strategies – Ch 7  
Put-call parity, Foreign currency options, equity options, the volatility term structures and volatility matrices, empirical research. Illustrations, the covered position, the stop-loss strategy, delta hedging, theta, gamma, vega, rho, hedging in practice functions;, stock market volatility  
(3 hours)
- H. The Structure of Forward and Futures Markets – Ch. 8.  
Closing out of futures positions, specification of futures contract, operation of margins, delivery of underlying commodity/instrument, and regulation  
(3 hours)
- I. Principles of Pricing Forwards, Futures, and Options on Futures – Ch. 9  
Call and continuous markets, Major markets in the United States, Information and liquidity traders, Clearing procedure, Commissions, Transaction costs, and regulation of security markets  
(3 hours)
- Test #2 (1 1/2 hours)**
- J. Futures Arbitrage strategies – Ch. 10  
Basic Principles, arguments against hedging, basis risk, minimum variance hedge ratio  
(3 hours)

- K. Swaps – Ch. 12  
Mechanics of interest rate swaps, swap quotes valuation of interest rate swaps, currency swaps, valuation of currency swaps, credit risk  
( 3 hours)
- L. Interest Rate Forwards and Options - Ch. 13  
Types of rates, bond pricing, forward rates, theories of term structure, treasury bond futures, eurodollar futures, duration, duration based hedging strategies  
(3 hours)
- M. Advanced Derivatives and Strategies – Ch. 14  
Exotic options, mortgage backed securities, nonstandard swaps  
(3 hours)
- N. Review (2 hours)

**Final Exam will be administered during the final exam week (2 hours).**

#### **IV. Evaluation Methods**

##### For Undergraduate Students:

Two tests during the semester	40%
Final Examination	30%
Three assignments/written case studies (in groups of two)	30%

##### For Graduate Students:

Two tests during the semester	30%
Final Examination	20%
Three assignments/written case studies (in groups of two)	20%
Synthesis paper of current research in a subtopic of the field	10%
Research Project Report	20%

##### Research Project Report (For Graduate Students only):

Graduate students will conduct an exploratory research related to financing options, futures, swaps and other derivative products based on the theories/models discussed in class and present their findings in a research report.

##### Grades will be assigned as follows:

Undergraduate Students: A: 90% and above, B: 80%-89%, C: 70%-79%, D: 60-69%; F: Below 60%.

Graduate Students: A- 90% and above, B: 80-89%, C:70-79%, F: Below 70%

Attendance Policy:

It will be in accordance with the University Policy..

#### **V. Required Textbook**

Chance Donald, M. and Robert Brooks .2013. Introduction to Derivatives and Risk Management, Ninth Edition, South Western.

John C. Hull. 2012. Options Futures and other Derivatives, Eighth Edition, Prentice Hall.

#### **VI. Special Resource Requirements**

Students must have access to high speed Internet for 2 hours per week outside of class hours.

#### **VII. (for Graduate Students)**

##### **- Research Project Report on Derivatives**

The purpose of this part of the course is to enable students to undertake a research project dealing with one of the current topics on issues relating to derivative securities. The area selected should be of significant interest so that the rationale for such project work can be suitably justified. Self-initiative is one of the basic factors for success in this endeavor. General guidance will be provided but the burden of effort will rest mainly with the student(s).

To make certain that work is progressing, however, a one-page report will be submitted every other week throughout the semester. This short report will indicate the progress made during the previous two weeks and what you expect to accomplish within the next two-week period. Failure to observe this procedure can seriously jeopardize your grade.

For this project each of you will work independently. Using the scientific approach, you will help identify and structure a significant problem. The final report should contain creative reflection with regard to most of the following stages:

1. Problem identification
2. Literature review
3. Hypothesis development
4. Instrument design
5. Data collection and analysis
6. Results interpretation
7. Recommendation listing
8. Benefit contribution

**This effort is designed to (1) aid in the development and/or sharpening of research skills, and (2) increase your awareness of financial problems and how they may be solved or structured through scientific endeavor. It should also enhance your written communications skills.**

The topic for the research paper must be discussed with and approved by the instructor by no later than four weeks after the beginning of the semester. A proposed detailed outline of your work is due on or before the fifth week of the semester. The report should not exceed ten

typewritten pages of text material. Charts, graphs, tabulations of data, bibliography, etc., can be placed in an appendix where appropriate. The final report is expected to be of high quality and will be graded on the basis of form, style, and substance. The completed papers are due two

weeks before the end of the semester. Presentations of your findings will be made to the class as part of the project.

- **Three assignments/written case studies**

Assignments/case studies will be provided to the students and they are expected to complete the analysis and write a detailed report (about 4 -5 pages) on the cases related to derivatives. These findings have to be presented to the class.

- **Synthesis paper of current research in a subtopic of the field**

Students will find out the latest research in the derivatives area such as on futures, options, swaps, and other related products and write a synthesis paper (2-3 pages) on issues such as hedging, arbitrage activities, and speculative transactions.

## **VIII. Bibliography**

### **Books:**

Ardatti, Fred D. 1996. *Derivatives: A Comprehensive Resource for Options, Futures, Interest Rate Swaps*. Boston: Harvard Business School Press.

Baxter, Martin and Andrew Rennie. 1996. *Financial Calculus*. Cambridge, UK: Cambridge University Press.

Bernstein, Peter L. 1996. *Against the Gods: The Remarkable Story of Risk*. New York, Wiley.

Billingsley, Randall S. 2006. *Understanding Arbitrage*. Saddle River, NJ: Wharton School Publishing.

Boyle, Phelim, and Feidhlim Boyle. 2001. *Derivatives: The Tools that Changed Finance*, London: Risk Books.

Buetow, Gerald W., and Frank J. Fabozzi. 2001. *Valuation of Interest Rate Swaps and Swaptions*. New Hope, PA: Frank J. Fabozzi, Associates.

Cox John C., and Mark Rubinstein. 1985. *Options Markets*. Englewood Cliffs, NJ: Prentice Hall.

Durbin, Michael. 2005. *All About Derivatives*. New York: McGraw-Hill.

Haug, Espen Gaarder. 2007. *The Complete Guide to Option Pricing Formulas*, 2<sup>nd</sup> Ed. New York: McGraw-Hill.

Kolb, Robert W., and James A. Overdahl. 2007. *Futures, Options, and Swaps*. 5<sup>th</sup>. Ed. New York: Blckwell.

### **Journal Articles:**

Barone-Adesi, Giovanni, and Robert E. Whaley. "Efficient Analytic Approximation of American Option Values." *The Journal of Finance*, 42, June 1987, 301-320.

Bernardo, Antonio E., and Bradford Cornell. "The Valuation of Complex Derivatives by Investment Firms: Empirical Evidence." *The Journal of Finance*, 52, June 1997, 785-798.

Black Fischer. "How We Came Up with the Option Formula." *Journal of Portfolio Management*, 15, Winter 1989, 4-8.

Black, Fischer. "The Pricing of Commodity Contracts." 3, January - February 1976: 167-179.

Black, Fischer, and Myron Scholes. "The Valuation of Option Contracts and a test of Market efficiency." *The Journal of Finance*, 27, May 1972: 399-418.

Brennan, Michael J. and Eduardo S. Schwatz. "The Valuation of American Put Options." *The Journal of Finance*, 32, May 1977, 449-462.

Chance, Don M. "A Synthesis of Binomial Option Pricing Models for Lognormally Distributed Assets." *Journal of Applied Finance*, 18, 2008: 38-56.

Constantinides, George M., Jen Carsten Jackwerth, and Stylianos Perrakis. "Mispricing of S&P 500 Index Options." *Review of Financial Studies*, 22, 2009: 1247-1277.

Cox John C., Jonathan E. Ingersoll, Jr., and Stephen A. Ross. "The relation Between Forward Prices and Futures Prices." *Journal of Financial Economics*, 9, December 1981: 321-346.

Duffie, Darrell, and Kenneth J. Singleton. "An Econometric Model of the Term Structure of Interest-Rate Swap Yields." *The Journal of Finance*, 52 1997: 1287-1321.

Elton, Edwin, Martin Gruber, and Joel Rentzler. "Intra Day Tests of Efficiency of the Treasury Bill Futures Markets." *Review of Economics and Statistics*, 66, 1984: 129-137.

Heath, David, Robert Jarrow, and Andrew Merton. "Bond Pricing and the Term Structure of Interest Rates." *Econometrica*, 60, 1992: 77-105.

Litzenberger, Robert H. "Swaps: Plain and Fancy." *The Journal of Finance*, 47, July 1992: 831-850

Smith, Clifford W., Jr., and Irene M. Stulz. "The Determinants of Firms' Hedging Policies." *Journal of Financial and Quantitative Analysis*, 20, 1985: 391-405.

Zivney, Terry L. "The Value of early Exercise in Option Prices: An Empirical Investigation." *Journal of Financial and Quantitative Analysis*, 26 1991: 129-138.



APPENDIX D

GRADUATE CURRICULUM AUTHORIZATION FORM

Check As Appropriate:

- Expedited Review
- Level I ⇒ New Program  or Program Revision
- Level II ⇒ Degree Program Revision  or New/Revised COR
- Level III Minor Program Revision
- Application for COR Renewal
- Deletion Course  or Track  or Minor  or Program
- Variability in Program Delivery
- Program Reactivation
- New Course ⇒ Enter CIP Code (Contact Registrar's Office): 999999
- Major Course Revision
- Minor Course Revision
- Dual-Level or Cross Listing
- Distance Education

Description of Proposal: FIN 425/525 Financial Derivatives  
(Dual Level Offering of an Existing 4xx level course)

Department: Finance  
Author or Contact Person: Mukesh Chaudhry (chaudhry@iup.edu)

SIGNATURES OF APPROVAL

Academic Integrity Resource Implications† Email Address Date

- Department Curriculum
- Committee Chair: \_\_\_\_\_
- Department Chair: \_\_\_\_\_
- TECC Chair: \_\_\_\_\_
- College Curriculum
- Committee Chair: \_\_\_\_\_
- College Dean: \_\_\_\_\_
- Graduate Dean: \_\_\_\_\_
- Provost: \_\_\_\_\_
- Graduate Com. Chair: \_\_\_\_\_

COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_

APPROVE EXPEDITED REVIEW \_\_\_\_\_

Dean's Associate, SGSR Dean, SGSR Provost UWGC Chairs

If any signatory above wishes to decline expedited review, write "Decline" on the appropriate signature line and return the proposal to the SGSR Dean's Associate.

† To sign off on resource implications, confirm that detailed justification of resource sufficiency has been made and approved.

## **Course Analysis Questionnaire (UWUC format)**

### **A. Details of the Course**

A1. This course at the 400 level is already a required course for undergraduate Finance Majors and at the 500 level will serve as one of the electives in the Finance Concentration of the MBA Program.

A2. No changes in any other courses or programs in the department are required.

A3. This course has not been offered at the 500 level previously. It is expected that the average class size will be 20-30 students.

A4. The course will be a dual level offering in the undergraduate and the graduate program at the Eberly College of Business fulfilling Bachelor's as well as Master of Business Administration Program requirements.

A5. This course is not to be taken for variable credit.

A6. Similar courses are offered in a number of universities at the graduate level. For examples see below:

<http://www.bus.miami.edu/graduate-programs/full-time-mba/concentrations/finance/index.html>

<http://www.business.pitt.edu/katz/mba/academics/courses/finance.php>

<http://www.ebsglobal.net/programmes/derivatives>

A7. There is no specific recommendation for mandatory inclusion of this type of course by an accreditation authority or professional society. Due to the increasing importance of Financial Derivatives in the global economy, most MBA Programs in the country have a similar elective course.

### **B. Interdisciplinary Implications**

B1. One instructor will teach this course.

B2. This course does not overlap with any other course currently offered.

B3. Necessary seats will be reserved for students from other departments upon their request.

### **C. Implementation**

C1. No new faculty resources are needed to teach this course.

C2. Other Resources

a. No new space allocation requirements needed.

b. Classroom with needed equipment and Internet connectivity available.

- c. No special Laboratory or supplies needed.
  - d. Internet based research sources are adequate.
  - e. No travel funds needed.
- C3. No grant funds are involved in this course.
  - C4. This course is expected to be offered three times a year.
  - C5. One section of the course will be offered at a time.
  - C6. Maximum of 50 students can be accommodated.
  - C7. No limitations by our professional accreditation authority on the enrollment limitations on this type of course.

**D. Miscellaneous**

Integrating the Financial Derivatives course in the finance elective of our MBA program is one of the most significant emerging trends in recent times. This course will be essential for Finance and MBA students with a Finance Concentration in preparing for their professional future.