



## Financial Engineering

**COMM 423**  
**Fall 2018**

**INSTRUCTOR:** Jing Chen

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**OFFICE LOCATION:** 10-4534, T&L

**OFFICE HOURS:** T 11:30- 12:20 or by appointment

**TELEPHONE NUMBER:**

**CLASS TIME:** T 8:30-11:20

**CLASS LOCATION:** 5-183

**WEBSITE:** <http://web.unbc.ca/~chenj/course/syllabus423.htm>

Information regarding the School of Business at UNBC can be found at: <http://www.unbc.ca/commerce>

### COURSE DESCRIPTION

Study of futures, options, swaps and other complex derivative securities, application of option pricing theory to a broad range of problems in corporate finance and investment decisions

PREREQUISITES for this course are COMM 320, COMM 321 or its equivalent

### COURSE LEARNING OBJECTIVES

Upon successful completion of the course, students will be able to:

1. Understand fundamentals of derivative products
2. Learn basic methods of stochastic calculus
3. Understand Black-Scholes option theory
4. Apply the option theory to a broad range of problems in corporate finance and investment decisions

### RECOMMENDED TEXT AND READING MATERIALS

Notes and papers will be distributed in the classes.

COURSE ASSIGNMENTS, EXAMS AND GRADE WEIGHTING	
Assessment	Grade Weight
Midterm	25%
Final Exam	40%
project	25%
Class participation	10%
Total	100%

Each group of three or four will present a forty minute long report on financial aspects of institutions at the end of the term. A written report should be submitted at the day of presentation.

The **examinations** will cover all contents discussed in the course, including contents from student presentations. The style of the questions in the exams will be similar to those in the homework and the review.

**Class participation** will be mainly based upon the number of times you come up to present your homework solutions.

#### COURSE SCHEDULE:

Week	Dates	Topic	Notes
1	Sept 11	<a href="#">Futures and forwards</a>	
2	Sept 18	<a href="#">Swaps and credit derivatives</a>	<a href="#">Derivative Securities: What They Tell Us?</a>
3	Sept 25	<a href="#">Mechanics of options market</a>	
4	Oct 2	<a href="#">Behaviour of stock prices</a>	Stochastic Calculus
5	Oct 9	<a href="#">The Black-Scholes model</a>	<a href="#">Option calculation Excel sheet</a> , <a href="#">Probability Distribution Table</a> , <a href="#">Excel solution for homework</a>
6	Oct 16	Review and Midterm	
7	Oct 23	<a href="#">Application to corporate liabilities</a>	<a href="#">Homework solutions</a>
8	Oct 30	Real options, <a href="#">Theory of Investment</a> ; <a href="#">Exercises Excel</a> , <a href="#">Figures Excel</a> Introduction and basic properties	<a href="#">Project Investment Homework</a> , <a href="#">Excel solution</a> <a href="#">Project discussion</a> <a href="#">Homework</a> , <a href="#">Excel solution</a>
9	Nov 6	<a href="#">Monetary Theory and Business Cycles</a> , Maximization technique	<a href="#">Homework</a> , <a href="#">Excel solution</a>
10	Nov 13	<a href="#">Theory of capital structure</a> , Life cycle in financing, <a href="#">Relations among parameters</a>	<a href="#">Homework</a> , <a href="#">Excel solution</a> , <a href="#">Discussion on project</a>
11	Nov 20	Presentation of projects	
12	Nov 27	Review	
	TBA	Final exam	