Mathematical Models in Finance

Instructor: Dr. Parwani
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A large part of this course is devoted to options pricing theory developed by Black and Scholes in 1973. The course will introduce the student to financial derivatives such as forwards and options and fixed-income securities like bonds. The main goal will remain options pricing and the course will end with a proof of the Black-Scholes Equation.

Class notes are available online through https://courses.nwu.edu. There is no textbook requirement for this class; however, a useful reference is *"Investment Science"* by David Luenberger, which will be kept on reserve in the Math Library. A brief summary of the chapters in the class notes follows.

Chapter 1: Basic Options Theory
Chapter 2: Bonds and Interest Computations
Chapter 3: Advanced Options Theory
Chapter 4: Probability Theory
Chapter 5: Basic Options Pricing
Chapter 6: Advanced Options Pricing
Chapter 7: Black-Scholes Equation

There will be a short quiz every week during the discussion section. Also, there will be homework problems assigned every week. Students are encouraged to do the homework as working on these problems is the best way to learn the material and do well in the class, but however, these homework assignments will not be graded and will not count towards the final grade. Solutions will be posted online at the course web page on Blackboard.

The final exam will cover the entire course.

Grading:

Quizzes	30
Midterm	30
Final Exam	40
Total	100

This grading scheme is tentative and changes may be made. All changes will be announced well in advance of the final exam.