

# STEVENS INSTITUTE OF TECHNOLOGY

## FE-620-WS: Pricing and Hedging

### Syllabus

<b>Instructor:</b>	Dragos Bozdog Office: Babbio 429A Email: <a href="mailto:dbozdog@stevens.edu">dbozdog@stevens.edu</a> Phone: (201) 216-3527
<b>Time:</b>	FE-620-WS: Webcampus (Blackboard Collaborate)
<b>Office Hours:</b>	By appointment
<b>Objective:</b>	This course deals with basic financial derivatives theory, arbitrage, hedging, and risk. Risk neutral pricing models using the Black-Scholes formula and binomial trees are discussed in detail. The course covers derivative instruments and underlines including stocks, bonds, forwards, futures, swaps, and options. By the end of the course, students will have good knowledge of how these products work, how they are used, how they are priced, and how financial institutions hedge their risks when they trade the products. Incorrect pricing of an instrument will create arbitrage opportunities. Risky positions are managed by proper hedging. Students are required to discover these arbitrage or hedging opportunities and enter simulated trades in an Interactive Broker or Ameritrade thinkorswim paper trading account. Information regarding the simulated trading platform and accounts will be provided.
<b>Prerequisite</b>	Multivariable Calculus and VBA, Matlab, Mathematica, C++, Java or similar.
<b>Required Textbook:</b>	John Hull. <i>Options, Futures, and Other Derivatives</i> . 2015. 9 <sup>th</sup> Edition. Prentice Hall. ISBN: 9780133456318 OR 8 <sup>th</sup> Edition. Prentice Hall. ISBN: 978-0132164948
<b>Grading:</b>	Assignments 40% Project 10% Final 50%
<b>Graduate Student Code of Academic Integrity:</b>	All Stevens, graduate students promise to be fully truthful and avoid dishonesty, fraud, misrepresentation, and deceit of any type in relation to their academic work. A student's submission of work for academic credit indicates that the work is the student's own. All outside assistance must be acknowledged. Any student who violates this code or who knowingly assists another student in violating this code shall be subject to discipline. All graduate students are bound to the Graduate Student Code of Academic Integrity by enrollment in graduate coursework at Stevens. It is the responsibility of each graduate student to understand and adhere to the Graduate Student Code of Academic Integrity. More information including types of violations, the process for handling perceived violations, and types of sanctions can be found at <a href="http://www.stevens.edu/provost/graduate-academics">www.stevens.edu/provost/graduate-academics</a> .

	Topic	Textbook
Week 1	Introduction	Chapter 1
Week 2	Futures Markets Hedging Strategies Using Futures	Chapter 2 & 3
Week 3	Interest Rates	Chapter 4
Week 4	Forward and Futures Prices Interest Rate Futures	Chapter 5 & 6
Week 5	Swaps Asset Backed Securities	Chapter 7, 8 & 9
Week 6	Options Markets Properties of Stock Options	Chapter 10 & 11
Week 7	Trading Strategies Binomial Trees	Chapter 12 & 13
Week 8	Midterm Exam	
Week 9	BSM Model Employee Stock Options	Chapter 15 & 16
Week 10	Options on Stock Indices and Currencies Options on Futures	Chapter 17 & 18
Week 11	Greek Letters Volatility Smiles	Chapter 19 & 20
Week 12	Value at Risk Estimating Volatilities and Correlations for Risk Management	Chapter 22 & 23
Week 13	Credit Risk	Chapter 24
Week 14	Final Exam	