

## Financial Risk Management & Asset Pricing – Syllabus (Spring 2020)

Prof. Dan Rodriguez

GA for the course is Meilu Lu

Meeting Time: Saturdays from 10am – 12:30pm

The purpose of this course is to introduce the concepts of financial risk management to you in both an academically rigorous and practical way to enable you to understand and apply important risk management analyses. These analyses are applied on a regular basis across the financial services industry, to include major buy-side and sell-side institutions. In addition, you will obtain hands-on experience with industry standard tools to complete risk analysis projects that will prepare you to become a quantitative risk analysis or quantitative portfolio analyst.

I have selected the required textbook for this course to provide you with a foundation for risk management analysis, *Derivative Securities, Financial Markets, and Risk Management 2<sup>nd</sup> Edition* (2019) by Robert Jarrow and Arkadev Chatterjea. We will use a second optional reference during the last part of course when we will discuss, *Portfolio Theory and Risk Management* (2014) by Maciej J. Capinski and Ekkehard Kopp.

I will supplement these two textbooks with complementary readings and current events from the financial press as appropriate.

Evaluation of your performance in this course will be based upon three written homework assignments worth 8.33% each, a midterm exam worth 25% of your final grade and a final exam worth 50% of your final grade.

Homework Assignments = 8.33% ea. X 3 = 25% Total

Midterm Exam = 25%

Final Exam = 50%

Total Grade = 100%

Extra Credit will be provided for your performance in the Stocktrak Simulation. Students who perform better than the S&P500 throughout the course earn 5 extra credit points.

### Class Schedule

Wk 1	Introduction – Overview Presentation & Risk Management in Volatile Times, Chapters 1 – 3 Course Textbook
Wk 2	Derivative Markets & Instruments, Forward Markets & Options, Chapters 4 - 5
Wk 3	Arbitrage and Trading, Chapter 6, <b>Homework #1 Due</b>
Wk 4	Financial Engineering and Swaps, Chapter 7
Wk 5	Futures Trading, The Cost of Carry Model and the Extended Cost of Carry Model, Chapter 9, 11, 12

Wk 6	Futures Hedging Chapter 13
Wk 7	Options Markets and Trading and Option Trading Strategies, Chapters 14 - 15
Wk 8	<b>Midterm Exam</b>
Wk 9	Single Period Binomial Model and Multiperiod Binomial Model, Chapters 17-18
Wk 10	The Black-Scholes-Merton Model, Chapter 19, <b>Homework #2 Due</b>
Wk 11	Yields & Forward Rates / Interest Rate Swaps, Chapters 21 - 22
Wk 12	Single-Period Binomial HJM Model / Multiperiod Binomial HJM Model Chapters 23 - 24
Wk 13	The HJM Libor Model & Risk Management Models Chapters 25 - 26
Wk 14	<b>Homework #3 Due</b> and Review Session
Wk 15	<b>Final</b> (Focused on the material covered after the mid-term exam)

The course instructor can be reached at [dr190@nyu.edu](mailto:dr190@nyu.edu) or [drodr87@gmail.com](mailto:drodr87@gmail.com) or by cell phone at 646-761-07762. Please text me since I am usually unable to take calls during the trading day.

Other important sources of information for your studies in risk management include the PRMIA website located at [www.prmia.org](http://www.prmia.org).

A brief bio for your instructor is provided below for your reference. I look forward to an interesting and very educationally rewarding semester.

Best of luck,  
Prof. Rodriguez

Dr. Dan Rodriguez is currently the Chief Risk Officer at Light Sky Macro, LP, a global macro hedge fund based in Hudson Yards. Prior to his current role, he served as a Senior Risk Officer at Point 72 Asset Management with responsibility for overseeing the long-short portfolio holdings for generalists and with responsibility for overseeing the risk management of the Global Macro Group of the fund. Dan was previously a Managing Director in the Credit-Suisse Global Equities Division, and served as the Chief Risk Officer for the Systematic Market-Making Group of the Investment Bank. His responsibilities included the front-office risk management for a global cross-asset trading portfolio, which includes the development of portfolio risk limits, daily and intra-day monitoring of portfolio risk profiles.

Dan joined Credit Suisse in June 2007 and moved to Point 72 in October of 2014. He has over seventeen years of risk management experience, including previous positions at Morgan Stanley, reporting to the CRO of the firm, with responsibility for market risk methodology for the Institutional Securities Group. He began his career in risk management, monitoring the risk of the Commodities Division at Morgan Stanley.

Dan holds a Ph.D. in Economics from M.I.T. and a Bachelor's of Science degree from the United States Military Academy and received a National Science Foundation Fellowship upon completion of his undergraduate studies. He received the PRMIA Higher Standard Award in 2011 for outstanding service in risk management and has published in leading academic journals such as the Journal of Finance, International Corporate Governance, and the Industrial Labor Relations Review. Dan served as the co-Regional Director of the New York City Chapter of PRMIA, with a membership of over 17,000 from 2011 – 2014.