Fall 2019

FIN 616-101: Data-Driven Financial Modeling

Jerry Xu

Data-Driven Financial Modeling

Course Code FIN616, 2019 Fall Semester, 3.0 Credit
Pre-requisites: FIN 600: Corporate Finance (I)
Instructor: Dr. Jerry Xu Email: vmxu@njit.edu
Office: 4018 Central Avenue Building (CAB), a.k.a. the library building
Class room: TBD

Course Objectives:
Financial modeling driven by financial data is of critical importance to asset allocation, pricing, trading strategies, and risk management. By introducing basic and current financial modeling techniques, this course equips students with new analytic and modeling tools (e.g., spreadsheet modeling) to tackle rapidly changing and dynamic financial markets. In particular, this course delivers modeling frameworks such as regression analysis, forecasting, Monte-Carlo simulation and optimization; and it illustrates how to apply these frameworks in financial contexts such as portfolio management, term-structure estimation, capital budgeting, risk measurement, risk analysis. By taking the course, the students are expected to be able to:

1) Develop a variety of financial models with Excel Spreadsheet;
2) Gain mastery of useful skills to process financial data;
3) Leverage spreadsheet models to make efficient data-driven financial decisions;
4) Develop a practical understanding of the financial theory underlying financial models;
5) Use financial models and theory to address a variety of financial tasks;
6) Communicate their findings from financial models clearly and concisely.

Required Materials:
Primary Text: "Financial Modeling", Simon Benninga, ISBN-13: 978-0262027281; ISBN-10: 0262027283, MIT Press, 4th Edition, (April 18, 2014).

Computer and Software (Required):
Students are encouraged to bring laptop with Microsoft Excel: Available as part of Microsoft Office 2013, or 2016 (Windows OS); Office: Mac 2011 or 2016 (Mac OS);
Free download at http://ist.njit.edu/software-available-download/
Free download of Python https://www.anaconda.com/distribution/

Please be aware of the differences among versions in features and layout. If needed, please take the advantage of on-campus computers.

Attendance/Class Participation/Homework:
Your class participation grade will be based on attendance only. Class attendance will be taken in the beginning of class. Late students are responsible for signing the class roll before leaving. Otherwise, you will be considered absent. One "free" absence is allowed. Additional absences will hurt your final grade.

All pagers, cell phones should be turned off or muted during class. All pagers, cell phones and smart devices should be turned off during tests.

Grading Criteria:

Grading:		Weight
Tests	2 Tests (15 pts. each)	30%
Projects	2 Projects (15 pts. each)	30%
Exercises	5 exercises, 5pts for each (online submission)	25%
Attendance		15%
Sum		100%

There will be no makeup exam, nor extra work for extra credit. Your final grade is not subject to negotiation.

Calendar of Topics:

1) Introduction of Excel for Financial Modeling
2) Basic Financial Calculation and Corporation Valuation Overview
3) Valuation based on Cash flow and Financial Statement Modeling
4) Portfolio Asset Allocation Models
5) Basics of Stochastic and Monte Carlo Methods
6) Stocks, Options, Binomial Option Pricing
7) Black-Scholes Model, Greeks of Option
8) Mid-term exam
9) Fixed Income Valuation and Term Structural
10) Advanced Fixed Income Valuation and Derivatives
11) Simulation on Stock, Option and Strategies
12) Simulation on Term Structure and Fixed Income
13) VAR, Capital and Liquidity Management
14) Final Exam

Course Policy:

Deadlines/Late Work/Make-ups: Specific policies concerning the acceptance of late work and make-ups are discussed in the sections covering course requirements. In general, work will not be accepted late and make-ups will not be given. Exceptions will be made when extraordinary circumstances were responsible for work not being completed on time.

Incompletes: Incompletes will be given only to students who cannot finish the course on time due to major reasons outside of their control (e.g. illness, family tragedy, military service). Students may need to contact the Dean of Students' office and have it determine that the reasons given for not doing the work on time are valid.

Students with disabilities: Educational access is the provision of classroom accommodations, auxiliary aids and services to ensure equal educational opportunities for all students regardless of their disability. Any student who feels he or she may need an accommodation based on the impact of a disability should contact the Center for Student Success 973.596.5598 and/or check this link: https://www.njit.edu/studentsuccess/supportservices-and-accommodations/. The Office is located in

Kupfrian Hall, 2nd Floor, Suite 201. Accommodations need to be requested in advance and will not be granted retroactively.

Honor Code: Plagiarism in any form is not acceptable. While discussion with classmates regarding homework and projects is encouraged, all work submitted must be your own. Evidence of plagiarism on an assignment/exam will be reported to the dean's office of students and result in a failing grade for that assignment/exam.

You are required to follow NJIT's honor code, which can be found at http://www.njit.edu/doss/policies/honorcode/.