Class timings: 10:00 AM to 12:20 PM on Mondays in RH 214.

Office Hours: 10:00 AM to 12:00 PM on Wednesdays (in the FRE department) and 9:45 AM to 10:00 AM and 12:30 pm to 1 PM on Mondays and Fridays (in the classroom ahead of and after my Valuation Theory and Quantitative Portfolio Management classes)

e-mail: tp55@nyu.edu

Objectives: To study Valuation Theory in sufficient breadth and depth to allow one to value a wide range of financial and non-financial securities and assets. We will learn how to build financial models for businesses, and cover deterministic valuation approaches such as the DCF Model as well as its modern extensions (the EBO equation and the Ohlson-Juettner Model), along with a variety of relative valuation and contingent claim models, structural valuation models that can be estimated statistically (P/B-ROE and P/S-Net Margin models), and valuation models based on non-financial factors such as Ashenfelter's regression model for the prices of Bordeaux wines and Zillow's model for real estate prices.

Class Structure: Each 2 hr. 20 minute class will be broken up into three segments. We will start by going over any difficulties that students are having with the material, and then have two lectures, with a short break in between. We will have some guest speakers as well, typically on a Friday evening, to give us their perspective on valuation.

Preparatory work: I will provide materials that should be read ahead of each class, and you will get extra credit for completing a short feedback form each week that lets me know what parts of the lecture you had difficulty with.

Homework, project and exams: There will be a homework assignment following each class which must be prior to the next class. There will be a midterm and final exam, as well as a valuation project. The class will be broken up into a set of teams, each of which will be tasked with creating an equity research report for a company of their choice. The reports will be presented at a competition at the end of the semester, and the best team will win a prize.

Grades: 40% Homework, 15% Mid-term exam, 25% Final exam, 20% Group Project.

Textbooks: Damodaran (2012), *Investment Valuation*, 3rd Ed. While not required, I would encourage you to buy the following out of print classic (I bought my copy used for $12 on Amazon): Jarrod Wilcox (1999, 2011), *Investing by the Numbers* as well as Holthausen and Zmijewski (2018), *Corporate Valuation: Theory, Evidence and Practice*, 2nd Ed.

Software: Calcbench is absolutely essential (go to https://www.calcbench.com/nyutandon to get your free student account), as is Excel, but Python (get the Anaconda distribution at https://anaconda.org/anaconda/python), Matlab, Julia and R are perfectly viable. Use what you are most comfortable using, but document your code extensively so that I can read it.

Prerequisites: FRE-GY 6003 (Financial Accounting) and FRE-GY 6103 (Corporate Finance). Having taken FRE-GY 6083 (Quantitative Methods in Finance) will be an advantage for the later modules. I will assume an undergraduate level knowledge of

probability, statistics and calculus. Ideally, you will have taken (or will concurrently take) Professor Dan Gode's class on Financial Modeling at Stern.

Moses Center Statement of Disability

If you are student with a disability who is requesting accommodations, please contact New York University's Moses Center for Students with Disabilities (CSD) at 212-998-4980 or mosescsd@nyu.edu. You must be registered with CSD to receive accommodations. Information about the Moses Center can be found at www.nyu.edu/csd. The Moses Center is located at 726 Broadway on the 3rd floor.

NYU School of Engineering Policies and Procedures on Academic Misconduct

A. Introduction: The School of Engineering encourages academic excellence in an environment that promotes honesty, integrity, and fairness, and students at the School of Engineering are expected to exhibit those qualities in their academic work. It is through the process of submitting their own work and receiving honest feedback on that work that students may progress academically. Any act of academic dishonesty is seen as an attack upon the School and will not be tolerated. Furthermore, those who breach the School's rules on academic integrity will be sanctioned under this Policy. Students are responsible for familiarizing themselves with the School's Policy on Academic Misconduct.

B. Definition: Academic dishonesty may include misrepresentation, deception, dishonesty, or any act of falsification committed by a student to influence a grade or other academic evaluation. Academic dishonesty also includes intentionally damaging the academic work of others or assisting other students in acts of dishonesty. Common examples of academically dishonest behavior include, but are not limited to, the following:

   1. Cheating: intentionally using or attempting to use unauthorized notes, books, electronic media, or electronic communications in an exam; talking with fellow students or looking at another person's work during an exam; submitting work prepared in advance for an in-class examination; having someone take an exam for you or taking an exam for someone else; violating other rules governing the administration of examinations.
   2. Fabrication: including but not limited to, falsifying experimental data and/or citations.
   3. Plagiarism: intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise; failure to attribute direct quotations, paraphrases, or borrowed facts or information.
   4. Unauthorized collaboration: working together on work that was meant to be done individually.

     5. Duplicating work: presenting for grading the same work for more than one project or in more than one class, unless express and prior permission has been received from the course instructor(s) or research adviser involved.

     6. Forgery: altering any academic document, including, but not limited to, academic records, admissions materials, or medical excuses.

1. **Module 1: Overview of Valuation and Accounting**
   a. Approaches to valuation and their zones of applicability
   b. A brief introduction to the Dividend Discount Model
   c. Financial accounting and its use in valuation
   d. Extracting and rearranging data from financial statements

2. **Module 2: Building Financial Models for Valuation**
   a. The key drivers of firm value
   b. Financial modeling and the limits to growth
   c. Valuing equity vs. valuing the firm
   d. The APV and LBO approaches to valuation
   e. Single and Multi-stage DDM and DCF models

3. **Module 3: Accounting Based Valuation Methods and Shiller's CAPE**
   a. Value creation vs. value distribution
   b. The Edwards-Bell-Ohlson Equation and its derivatives
   c. The expected return of equity markets
   d. Shiller's CAPE and finite horizon equity market returns

Midterm exam

4. **Module 4: Estimating the cost of capital**
   a. The risk-free rate and Credit Default Swaps
   b. Estimating expected returns via historical returns
   c. The CAPM, the Arbitrage Pricing Theory and their limitations
   d. Betting against Beta, the Size and Value Premia
   e. Estimating the cost of debt, equity and the weighted average cost of capital

5. **Module 5: International Valuation**
   a. The impact of currencies and inflation
   b. Money Illusion: The Modigliani-Cohn observation
   c. Valuing foreign firms and multinationals

6. **Module 6: Relative Valuation, Structural and Statistical models**
   a. Relative Valuation and pricing via multiples of a firm's financial metrics
   b. Robust statistical estimators and their application to valuation
   c. Structural and Statistical Models
   d. Wilcox's P/B–ROE model and a derivative – the P/S–Net Margin

7. **Module 7: The Wider World of Valuation**
   a. Liquid Assets: Valuing Bordeaux wines using weather data and auction prices
   b. Valuing early stage (venture) investments and private equity
   c. Valuing a portfolio of private equity or real estate funds
   d. Valuing residential & commercial real estate using comparables, usage and costs

8. **Project Presentations**

Final exam