

Venture Capital & the Finance of Innovation

Fall 2016, Wharton SF

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This course will focus on the primary activities performed by venture capital professionals, including how they raise capital, how they structure their funds, as well as how they select, fund, and exit high-growth privately-held companies.

- We **start** by outlining **how venture capital funds are organized**, how and from whom they raise capital, and in what type of firms they typically invest. A good portion of the section will **examine the risk return profile of venture capital** and whether venture capital “beats the market,” whether it lowers the risk of the limited partner’s portfolio, and how the uncertainty associated with growth firms should be priced.
- The **second section** of the course will examine corporate valuation and value drivers. Given the incredible uncertainty associated with high-growth companies, alternative methods such as **key value driver models and comparable transactions** must be employed to triangulate results. Special attention will be given to the valuation process for small, illiquid, high-growth companies versus mature companies. For instance, how do you bound reasonable estimates of revenue growth, operating margins, and capital productivity when little historical data is available?
- The **third section** of the course will examine valuation techniques necessary to **value complex securities** associated with venture capital and high growth companies. Preferred stock held by venture capitalist has conversion features that resemble a combination of debt and equity. Therefore, options models must be employed to determine their economic (versus fully-diluted) value.

Complementary Classes: The class will focus on the financial aspects of valuing and funding high growth companies. A **critical skill** to venture capital that we will cover *only briefly* is screening and selecting potential investments. To develop a well-rounded skill set, I recommend Entrepreneurship (MGMT 801) and Venture Capital and Entrepreneurial Management (MGMT 804).

Reading Material

The course will rely on a textbook and a few supplemental readings (which can be found on webcafe). The textbook can be purchased in the campus bookstore or on Amazon.com:

- Venture Capital and the Finance of Innovation (2nd edition) by Andrew Metrick and Ayako Yasuda, 2011, John Wiley & Sons, Inc, NY.

The course will also rely on chapters from a secondary text:

- Valuation: Measuring and Managing the Value of Companies (6th edition) by Koller, Goedhart, and Wessels, 2015, John Wiley & Sons, Inc, NY.

Chapters from *Valuation* will be provided for you on canvas. Lecture notes will be distributed in class and will also be available on canvas.

In-Class Requirements

Please bring three items to EVERY class: your name tent, the lecture's notes, and a basic calculator. As the semester progresses, please remain diligent. I tend to be relentless with those who come to class empty-handed.

Lecture notes: I strongly recommend printing the lecture notes. We will use the lecture notes to complete problem sets in class. If you prefer to print your own lecture notes, I understand; but trust me, you will be less prepared than your classmates who have a complete well-structured set of notes!

Teaching Assistants & Office Hours

The teaching assistants for the course will be Gyan Kapur <gkapur@wharton.upenn.edu> and Rupal Jain <jrupal@wharton.upenn.edu>.

If you have a question about class examples OR assignments, please use them as your primary resource.

As a general policy, I do not answer questions about the assignments! If you have questions about the course material, I will be available immediately after class during our SF sessions.

Assignments & Grading

There will be two individual assignments (15%), two group projects (25% total), and a final exam (60%). For individual assignments, I expect you to work alone and hand in your own work. You can discuss class

tools, but not the assignment. For group work, please self-select groups of between 3-5 people, no exceptions. If you have six people, create two groups of three.

Class participation will not formally be scored, but students at the grading cutoffs will be evaluated for their ability to generate an active and positive class environment. The assignment/exam due dates and grading breakdown will be as follows:

	Assignment/Exam	Due Date	Grade
1	Individual Assignment: GP Compensation	9/21	10%
2	Group Project: Strategic Assessments	10/13	10%
3	Group Project: Private Company Valuation	11/3	15%
3	Final	11/7 at 9am	60%
4	Individual Assignment: Capital Structure	11/17	5%

Venture Capital and the Finance of Innovation

Course Schedule

Section	Class	Date	Notes	Reading	
Section 1: The Limited Partner's Perspective	1	9/1/2016	1	Course Overview	Metrick 1 & 2
			2	Raising LP Capital: Organization Structure	Pitchbook overview
			3	Raising LP Capital: Partnership Compensation	No reading
	2	9/8/2016	4	Theory: Risk and Return for LPs	Metrick 4
			5	Theory: Risk and Return for Founders	No reading
	3	9/21/2016	6	In Practice: Does VC beat the market?	Metrick 3
			7	In Practice: Choosing amongst funds	Metrick 5
Section 2: Valuation and Analysis of High Growth Companies	4	9/22/2016	8	Screening Startup Opportunities	Metrick 7
			9	Key Value Drivers: AtriCure	Valuation, Chapter 6
	5	9/29/2016	10	Key Value Drivers: Cash Burn (time permitting)	No reading
			11	Mapping Value Drivers to DCF: Part 1	Metrick 10 & 11
	6	10/13/2016	12	Mapping Value Drivers to DCF: Part 2	No reading
	<i>(tele)</i>	13	Multiples	Metrick 12	
Section 3: Term Sheets, Capital Structure & Financing Growth	7	10/26/2016	14	Term Sheets: Entrepreneurial Incentives	Metrick 8
			15	Term Sheets: Capital Structure	Metrick 9
	8	10/27/2016	16	Term Sheets: Anti-Dilution Provisions	Wilson Sonsini
			17	Fundamentals of Options Pricing ¹	Metrick 13
	9	11/3/2016	18	Valuation of Series A	Metrick 14
		(extended session)	19	The VCV Model and Dividends	No reading
			20	Valuation of Series B	Metrick 15
10	12/1/2016	21	Angel Financing	Angel Financing	
		11/7/2016	n/a	Final Exam	No reading

¹ If we are behind schedule, this class will be held via telepresence at 2pm on Tuesday 11/1.