

## Venture Capital & the Finance of Innovation

Spring 2016

Professor David Wessels

Department of Finance, the Wharton School

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 risk of the limited partner’s portfolio, and how the great 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 231/801) and Venture Capital and Entrepreneurial Management (MGMT 264/804).

## 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 (2<sup>nd</sup> 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 (6<sup>th</sup> 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 BUYING the lecture notes (or printing the entire deck). The lecture notes are sold at printing cost by Wharton Reprographics. We will use the lecture notes to complete problem sets in class. If you prefer to print your own notes lecture-by-lecture, I understand; but trust me, many of you will be less prepared than your classmates who have a complete well-structured set of notes!

## Assignments & Grading

There will be three individual assignments (15% total), two group projects (25% total), and two exams (30% each). 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. You can switch groups between projects, but this is NOT recommended. For classes with multiple sections, you can form groups across sections.

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:

	<b>Assignment/Exam</b>	<b>Due Date</b>	<b>Grade</b>
1	Individual Assignment: Portfolio Review	2/3/2016	5%
2	Individual Assignment: LP/GP Contracts	2/17/2016	5%
3	EXAM I (in class)	2/29/2016, in-class	30%
4	Group Project: Strategic Assessments	3/23/2016	10%
5	Group Project: Private Company Valuation	4/13/2016	15%
6	Individual Assignment: Capital Structure	4/27/2016	5%
7	Final Exam (as assigned by registrar)	TBD	30%

## Teaching Assistants & Office Hours

We have four teaching assistants for the class. If you have questions concerning assignments or practice exams, please e-mail your primary TA first. If they are out of town, only then reach out to the other TAs. Again, all questions concerning assignments and practice exams will be redirected to TAs. If you have questions about the course notes or content beyond the class, please come see me during office hours.

The primary TAs for each section are:

**12:00pm:** TBD (last names A-M) and TBD (last names N-Z)

**1:30pm:** TBD (last names A-P) and TBD (last names Q-Z)

### Office Hours:

The TAs and I will hold office hours as follows:

Monday: TBD

Tuesday: TBD

Wednesday 3:30-4:30pm by Prof Wessels in SHDH 2422 and by appointment.

**Regrade policy.** All regrade requests must be submitted in TYPE and emailed to your primary TA within ten calendar days following the return of your graded work.

### **Academic Integrity**

I expect you to follow Penn's code of academic integrity when completing problem sets, group work, and exams. Allegations of impropriety should be brought directly to me, which in turn will be referred to the University Honor Council. For more, see:

[http://www.upenn.edu/academicintegrity/ai\\_codeofacademicintegrity.html](http://www.upenn.edu/academicintegrity/ai_codeofacademicintegrity.html)

I look forward to meeting each and every one of you this semester! Best, Prof. Wessels.

## Venture Capital and the Finance of Innovation

### Course Schedule

FNCE 750: Venture Capital and the Finance of Innovation					
Class Schedule					
Section	Week	Date	Note		Reading
Course Introduction	1	1/20	0	Course Overview & The VC Cycle	No Reading
	2	1/25	1	Insights from Industry Statistics	Metrick 1 & VC Update
Section 1: The Limited Partner's Perspective		1/27	2	Raising LP Capital: Organization Structure	Metrick 5
	3	2/1	3	Raising LP Capital: Partnership Compensation	No Reading
		2/3	4	Theory: Risk and Return for LPs	Metrick 2
	4	2/8	5	Theory: Risk and Return for Founders	Metrick 4
		2/10	6	In Practice: Does VC beat the market?	No Reading
	5	2/15	7	Choosing amongst funds	Metrick 3
Section 2: Valuation and Analysis of High Growth Companies		2/17	8	Screening Startup Opportunities	Metrick 7
	6	2/22	9	Key Value Drivers: Theory	Valuation, Chapter 3
	7	2/29	n/a	Midterm EXAM	No Reading
		3/2 to 3/11	n/a	<i>Spring Break</i>	No Reading
	8	3/14	10	Key Value Drivers: AtriCure	Valuation 6
		3/16	11	Key Value Drivers: Cash Burn	Metrick 10 & 11
	9	3/21	12	Mapping Value Drivers to DCF: Margin	Valuation, Chapter 6
		3/23 to 3/28	n/a	<i>No Class</i>	No Reading
	10	3/30	13	Mapping Value Drivers to DCF: Capital	Valuation, Chapter 7
		4/1	14	OPTIONAL FRIDAY MAKEUP: Multiples	Metrick 12
Section 3: Term Sheets, Capital Structure & Financing Growth	11	4/4	15	Term Sheets: Entrepreneurial Incentives	Metrick 8
		4/6	16	Term Sheets: Capital Structure	Metrick 9
	12	4/11	17	Term Sheets: Down Rounds	Wilson Sonsini
		4/13	18	Fundamentals of Options Pricing	Metrick 13
	13	4/18	19	Valuation of Series A	Metrick 14
		4/20	20	Valuation of Series B	Metrick 15
	14	4/25	21	Valuation of Later Rounds (time permitting)	Metrick 16
		4/27	22	Angel Financing	HBS: The Changing Face of Angel Investing
Final Exam		5/2 at 9am	n/a	Final Exam	No Reading