

# Venture Capital and the Finance of Innovation

FNCE 250 / 750

Spring 2010

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Office hours: Friday 1:30 – 3:00 pm, and by appointment. Please email suggested times.

Course webcafé at <https://webcafe.wharton.upenn.edu/eRoom/fnce/250-sp10-1>

Section 01 (FNCE 250): Mon/Wed 9:00 – 10:20, SHDH 1206

Section 02 (FNCE 750): Mon/Wed 10:30 – 11:50, SHDH 1206

Section 03 (FNCE 750): Mon/Wed 1:30 – 2:50, SHDH 1206

## SUMMARY

The course covers the finance of technological innovation, with an emphasis on the quantitative methods useful for venture capital investing. The primary audience for this course is finance majors interested in careers in venture capital or in R&D-intensive companies in health care or information technology. There are four homework assignments and two in-class tests.

## COURSE AGREEMENT

This syllabus details the course content, material, and policies. By enrolling in this course, you are explicitly agreeing to abide by the policies set forth below. If you do not agree with any of these policies or do not wish to abide by them, I suggest that you take another course; the policies are non-negotiable.

## GOALS FOR THIS COURSE

In decreasing order of importance:

1. To help students get a deeper understanding of finance.
2. To teach and analyze a rigorous framework for making investment decisions about high-technology projects.
3. To provide students with institutional background, specialized vocabulary, and important facts about the venture capital industry.

## TEACHING ASSISTANTS

TA Email: [fnce250tas@gmail.com](mailto:fnce250tas@gmail.com)

The TAs share this address along with the professor.

The teaching assistants are Abhijith Eswarappa, Ashwin Pandith, and Allan Yang. Questions regarding the course material, especially those related to homework assignments and exams, should be submitted to the TAs—not the professor—by emailing [fnce250tas@gmail.com](mailto:fnce250tas@gmail.com). If the TAs cannot answer the question then they will forward the question to me. If you do not think the TAs will be able to answer your question, then please feel free to email me directly at [luket@wharton.upenn.edu](mailto:luket@wharton.upenn.edu). The TAs may post students' questions and answers on Webcafe, but they will not post the name of the student who submitted the question. The TAs and professor

do not guarantee replies to questions or emails submitted less than 24 hours before an exam or homework due date.

### **HOW DOES THE COURSE COMPARE TO OTHERS?**

The course complements several entrepreneurship courses offered in various Wharton departments. The most closely related course is MGMT 804, Venture Capital and Entrepreneurial Management. There will be some overlapped materials in the first half (where we learn the basics of the venture capital industry), but virtually no overlap in the second half of the semester (where we build on the basics).

This course also complements EAS 545, Engineering Entrepreneurship I, by Professors Tom Cassel and Jeffrey Babin. FNCE 250/750 goes in depth on finance topics in VC investing, whereas EAS 545 covers finance, strategy, marketing, operations, and other topics. EAS 545 uses the case method, whereas FNCE 250/750 mainly uses the lecture method.

### **READINGS**

- **Primary textbook:** *Venture Capital & the Finance of Innovation (VCFI)* (John Wiley and Sons), available in the bookstore.
- **Cases:** There are two cases (Walnut and eDocs) you can download from [www.study.net](http://www.study.net).
- **Solutions to textbook exercises:** Posted on webcafe (Course Materials → Exercises from the textbook).
- **Other interesting, optional articles:** If you find an interesting article you'd like to share with the class, email it to me, and then I'll post it on Webcafe (Course Materials → Interesting Articles). These are optional and won't be covered on tests, unless we discuss the articles during lecture.

### **GRADING**

There are four components to the grading, for a total of 100 points:

- **Test #1** (25 points): March 3<sup>rd</sup>, in class.
- **Test #2** (35 points): April 14<sup>th</sup>, in class.
- **Class participation** (10 points)
- **Homeworks 1, 2, and 3** (total of 20 points)
- **Homework 4** (10 points)

A few other notes:

- **Tests** will cover all material in the course, including lectures, homework assignments, readings listed in this syllabus, and guest speakers. These tests are required. If you will not be able to take the tests at their scheduled times, then please drop the class.
- **Classroom participation** grades will depend especially on attendance and participation in the 4 guest lectures, and on participation during case discussions. The grade is based on quality of participation, not quantity. If you need to miss a lecture, that's fine; do not notify me, but do make up for the absence by participating extra hard in other lectures. I will try to post videos of the guest lectures, since these occur outside scheduled lecture times. Obviously, you won't get participation credit for watching the video. I won't post videos of

regular lectures, except in special circumstances. You must use your name card if you want credit for classroom participation.

- **Curve:** The undergrad and MBA sections will have separate curves.
- **Re-grade policy:** I will not discuss the grading of the homeworks or exams at any time; however, the TAs and I are always happy to discuss the content of the assignments and exams to ensure your understanding of the material. Here is the re-grade policy. You have one week from the date on which the assignment or exam is handed back to submit a written appeal. The appeal must be handed to the receptionist in the finance department on the second floor of SHDH. Please ask them to leave it in my mailbox. After receiving your written regrade request, the TAs (for homeworks) or I (for exams) will gladly regrade your entire assignment/exam to remedy the specific error that you have detected, as well as any other errors that may have been made. As a result, the re-graded score may increase, remain the same, or decrease. Importantly, **this is not a free option, nor is it an opportunity to debate the merits of my grading scheme.** Consequently, regrade requests that do not identify a clear error on our part are entirely unacceptable. For example, asking for more points because you "believe" that you deserve more credit is unacceptable. Similarly, just because "your friend" got more points than you for a similar answer is also unacceptable. If you would like this latter issue resolved simply send your friend to see me and I will adjust his/her score. To enforce this policy, any regrade requests that I deem inappropriate will have 10% deducted from its score. Further, there are no subsequent appeals of the grading. Exams may be written in pencil, but please do not try to change your answers after the exam, because I photocopy all the exams before grading them.
- **Cheating.** Cheating in any form is completely unacceptable. If there is any doubt as to whether or not your actions constitute cheating, please contact me. By enrolling in this course, you are explicitly agreeing to abide by the [Student Code of Conduct](#). If I find evidence of cheating, the student will receive a failing grade for the course, and I will refer the case to the Dean's office.
- **Exams finish on time.** I will penalize exams turned in late, that is, after I have told students time is up.
- **Missing tests or assignments** is only acceptable in the event of a serious illness or family emergency. In these cases, students should contact the MBA or undergraduate division office; it, in turn, will provide me with documentation of the illness or emergency. I will then make a judgment. In the event of a medical emergency, I will call your doctor on the phone to confirm your condition. An illness or family emergency in the week immediately before a homework due date does not constitute a valid excuse, since your teammates can cover for you. If you provide a valid excuse for missing a homework due date, then I will assign a higher weight to the other homework assignments. If it occurs for an in-class test, then I will add the weight to the other in-class test. Missing both tests will result in a failing grade.
- **Religious holidays.** Students who wish to observe official university religious holidays must inform their instructors within the first two weeks of each semester of their intent to observe the holiday. Students who make such arrangements will not be required to attend classes or take examinations on the designated days, and faculty must provide reasonable opportunities for such students to make up missed work and examinations. For more info, see <http://www.upenn.edu/almanac/v47/n02/religious.html>.

- **Closed-book policy.** Exams are closed book. Students may bring a single 8½” – 11” piece of paper containing typed or hand-written notes on both sides of the paper. You may also bring writing utensils and a calculator (no laptop) to each exam. Nothing else may be on the desktop or visible. I will check students’ calculators before the exam.

## **HOMEWORKS ASSIGNMENTS**

Here are a few rules about the assignments. TAs may deduct points if you do not follow these rules.

- **Groups.** Homework assignments can be done individually or in teams of up to three (but no more than three). MBA students but not undergrads may form teams across sections. Working in teams is strongly encouraged but is not compulsory. If students work as a team, all members of the team will receive the same grade. You may switch teams during the semester.
- **How to turn them in.** Each group will hand in one hard copy of the assignment at the beginning of lecture on the dates listed later in this syllabus. Earlier sections may turn in homeworks at the beginning of the 1:30pm section.
- **Names on homework.** Students working in teams are responsible for printing names of all team members on the cover page of assignments.
- **Late assignments** will not be accepted, since I will post homework solutions immediately after the homework is due. See note above on missing homeworks or exams.
- **Style counts.** Quality of the write-up will be factored into the homework grade, so poorly organized write-ups, poorly written write-ups, and excessively long write-ups will be penalized.
- **Typed.** We will not accept hand-written assignments.
- **Show your work.** For questions requiring calculations, please explicitly write out and explain your calculations in your write-ups whenever possible. Doing this, rather than merely copying the final numbers from your spreadsheets, has two benefits. First, it will help you prepare for examinations, when you will need to rely only on calculators. Second, it will help us understand what you did and give you credit accordingly.

## **FREE LUNCH**

Wharton pays for us to go out for nice lunches together. I think these will be a nice chance for us to get to know each other and talk more about VC, college, life after college, etc. I will schedule several lunches throughout the semester. Feel free to sign up for multiple lunches. To make sure all students have a chance to join a lunch, if you have already been to one lunch then please wait until the day before the lunch to sign up for your 2<sup>nd</sup>, 3<sup>rd</sup>, etc. lunch. You can sign up for these on Webcafe. Here’s how: our webcafe site → Lunch signup sheets → Check the checkbox next to the date you want to attend → Click “sign up for slot/leave slot” → Click OK.

## **COURSE SCHEDULE , TOPICS, READINGS AND DUE DATES**

Please note that the schedule is approximate; some topics will take longer and some shorter than one lecture. VCFI refers to the textbook *Venture Capital and the Finance of Innovation*.

	Date	Topic	Readings	Due dates
Part I:	Jan. 13	Introduction	VCFI Ch. 1	
VC Basics	Jan. 18	<b>NO LECTURE</b> (Martin Luther King Day)		
	Jan. 20	Structure of VC industry, firms, and funds	VCFI Ch. 2	
	Jan. 25	Evaluating VC fund performance	VCFI Ch. 3	
	Jan. 27	The risk-reward tradeoff in VC	VCFI Ch. 4	
	Feb. 1	The risk-reward tradeoff in VC, cont.		
Part II: Total Valuation	Feb. 3	VC investment process, Walnut (A)	VCFI Ch. 7, Walnut (A)	
	Feb. 8	Term sheets, Walnut (D)	VCFI Ch. 8, Walnut (D)	
	Feb. 10	Preferred stock	VCFI Ch. 9	HW 1 due
	Feb. 15	<b>Lecture:</b> TBD <b>Guest speaker:</b> Erik Hirsch, Chief Investment Officer, Hamilton Lane, 4:30-5:50 pm, Location TBD		
	Feb. 17	The VC method	VCFI Ch. 10	
	Feb. 22	Valuation using DCF	VCFI Ch. 11	
	Feb. 24	Market sizing		
	Mar. 1	Valuation using comparables	VCFI Ch. 12	
	Mar. 3	<b>Test #1, in class</b>		
	Mar. 6-14	<b>SPRING BREAK</b>		
Part III: Partial Valuation	Mar. 15	Options in VC	VCFI Ch. 13	HW 2 due
	Mar. 17	Valuing preferred stock: Series A	VCFI Ch. 14	
	Mar. 22	Valuing preferred stock: Later rounds	VCFI Ch. 15	
	Mar. 24	<b>No lecture</b> <b>Guest speaker:</b> Bill Egan, Founder and General Partner, Alta Communications, <b>4:30-5:50 pm</b> , Location TBD		
	Mar. 29	Valuing preferred stock: PCPC	VCFI Ch. 16	
	Mar. 31	Implied valuation	VCFI Ch. 17	
	Apr. 5	IPOs		
	Apr. 7	<b>Lecture:</b> eDocs <b>Guest speaker:</b> Izhar Armony, Partner, Charles River Ventures, <b>4:30-5:50 pm</b> , Location TBD	eDocs case	
	Apr. 8	<b>Guest speaker:</b> Jeff Fluhr, co-founder and chief executive, StubHub, <b>4:30-5:50 pm</b> , Location TBD		
	Apr. 12	Lecture TBD		
	Apr. 14	<b>Test #2, in class</b>		HW 3 due
Part IV:	Apr. 19	Pharma R&D and Monte Carlo methods	VCFI Ch. 19, 20	
The Finance of Innovation	Apr. 21	Real options	VCFI Ch. 21	
	Apr. 26	The future of VC		
	May 5	HW4 due (no lecture)		HW 4 due