

# Venture Capital and the Finance of Innovation

FNCE 750  
Spring 2011

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Office hours: Wednesdays, 4:30-6pm, and by appointment. Please email suggested times.

Course webcafé: <https://webcafe.wharton.upenn.edu/eRoom/fnce/750-sp11-1>

Section 01 (FNCE 750): JMHH 365, Tuesday/Thursday 10:30-11:50 am

Section 02 (FNCE 750): JMHH 365, Tuesday/Thursday 1:30-2:50pm

## PREREQUISITES

FNCE 601 and FNCE 602 are both prerequisites. FNCE 602 may be taken concurrently with FNCE 750.

## 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 two in-class tests, one final exam, and three very short homework assignments.

## GOALS FOR THIS COURSE

From most to least important:

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

## TEACHING ASSISTANTS

Head TA: Hannes Hyungsoo Byun, [hsoo@wharton.upenn.edu](mailto:hsoo@wharton.upenn.edu)

**Hannes is the first person you should contact if you have questions related to the study questions, homework assignments, or practice exams. Direct any other questions to me at office hours or by emailing [luket@wharton.upenn.edu](mailto:luket@wharton.upenn.edu).**

Hannes and I may post students' questions and answers on Webcafe, but we 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.

Three additional TAs who will also be helping with the course are Eric Fischer, Aditi Jain, and Eric Su.

## 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).

## READINGS

- **Primary textbook:** *Venture Capital & the Finance of Innovation (VCFI)* (John Wiley and Sons), available in the bookstore. Make sure you buy the 2<sup>nd</sup> edition, which has a dark brown cover.
- **Cases:** There are two cases (Walnut and one or two others, TBD) you can download from [www.study.net](http://www.study.net).
- **Other required readings:** I will occasionally email you articles from the popular press and academic literature. These are required reading. We will sometimes discuss them in class, and they may appear on exams. In addition to emailing you the articles directly, I will also store all these articles on Webcafe (Course Materials → Required readings). If you find an article you like, send it to me and I'll consider making it required reading.
- **Other optional readings:** I'll occasionally post on Webcafe articles that are interesting but not required (Webcafe → Optional readings)\_.
- **Solutions to textbook exercises:** Posted on webcafe (Course Materials → Exercises from the textbook).

## GRADING

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

- **Test #1** (20 points): Tuesday, March 1st, in class
- **Test #2** (20 points): Tuesday, April 5<sup>th</sup>, in class
- **Class participation** (10 points)
- **Homeworks 1, 2, and 3** (total of 15 points)
- **Final exam:** (35 points): Friday, May 6<sup>th</sup>, 3-5pm, location TBD

A few other notes:

- **Tests and the final exam** will cover lectures, study questions, homework assignments, and readings. The tests will not cover 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 participation during case discussions. The grade is based on quality of participation, not quantity. Use your name card if you want credit for classroom participation. 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 won't post videos of regular lectures, except in special circumstances.
- **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 re-grade request, the TAs (for homeworks and Tests #1 and 2) or I (for the final exam) will gladly re-grade your entire assignment/exam to remedy the specific error that you have detected, as well as any other grading errors that may have been made. As a result, the re-graded score may increase, remain the same, or decrease. Re-grade requests that do not identify a clear error on our part will have 10% deducted from the score. There are no subsequent appeals of the grading.

- **Cheating.** By enrolling in this course, you are explicitly agreeing to abide by the Student Code of Conduct. If there is any doubt as to whether or not your actions constitute cheating, please contact me. 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 office. The office will provide me with documentation of the illness or emergency. I will then make a judgment about whether the absence is excused. In the event of a medical emergency, I will call your doctor on the phone to confirm your condition. An illness or family emergency before a homework due date does not constitute a valid excuse, since your teammates can cover for you. If you miss an in-class test and provide a valid excuse, then I will add the weight to the other in-class test. Missing both tests will result in a failing grade. If you miss the final exam and have a valid excuse, you will take a make-up exam.
- **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. Not following these rules may cost you points.

- **Groups.** Homework assignments can be done individually or in teams of up to three (but no more than three). Your teammates do not need to be in the same section as you. 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.
- **Talking to other groups** is not permitted. This is obviously hard to enforce, especially when a homework question has only 1 correct answer. For questions that don't have just one correct answer – i.e. more subjective questions – if I see identical answers from two teams, I will investigate for cheating.

- **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.
- **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 eat nice lunches together. These lunches are a nice chance for us to get to know each other and talk more about VC, school, life, 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 below is approximate; some topics will take longer and some shorter than one lecture. VCFI refers to the course textbook, *Venture Capital and the Finance of Innovation*. Please mark your calendar immediately for tests and guest speakers. I will email you additional required readings throughout the semester.

	Date	Topic	Readings	Due dates
Part I:	Jan. 13	Introduction	VCFI Ch. 1	
VC Basics	Jan. 18	Structure of VC industry, firms, and funds	VCFI Ch. 2	
	Jan. 20	Evaluating VC fund performance	VCFI Ch. 3	
	Jan. 25	The risk-reward tradeoff in VC	VCFI Ch. 4	
	Jan. 27	The risk-reward tradeoff in VC, cont.		
	Feb. 1	VC investment process, Walnut (A)	VCFI Ch. 7, Walnut (A)	
Part II: Total	Feb. 3	<b>No Lecture</b>		
Valuation		<b>Guest speaker:</b> Erik Hirsch, Chief Investment Officer, Hamilton Lane, 4:30-5:50 pm, Location TBD		
	Feb. 8	Term sheets, Walnut (D)	VCFI Ch. 8, Walnut (D)	HW 1 due
	Feb. 10	Preferred stock	VCFI Ch. 9	
	Feb. 15	The VC method	VCFI Ch. 10	
	Feb. 17	Valuation using DCF	VCFI Ch. 11	
	Feb. 22	Market sizing		
	Feb. 24	Valuation using comparables	VCFI Ch. 12	HW 2 due
	Mar. 1	<b>Test #1, in class</b>		
Part III: Partial	Mar. 3	Options in VC	VCFI Ch. 13	
Valuation	Mar. 5-13	<b>SPRING BREAK</b>		
	Mar. 15	Valuing preferred stock: Series A	VCFI Ch. 14	
	Mar. 17	Valuing preferred stock: Later rounds	VCFI Ch. 15	
	Mar. 22	Valuing preferred stock: PCPC	VCFI Ch. 16	
	Mar. 24	IPOs		
	Mar. 29	<b>No lecture</b>		
		<b>Guest speaker:</b> Tom vonReichbauer, Director of Finance, Tesla Motors, <b>4:30-5:50 pm</b> , Location TBD		
	Mar. 31	Implied valuation	VCFI Ch. 17	
	Apr. 5	<b>Test #2, in class</b>		HW3 due
	Apr. 7	Pharma R&D and real options	VCFI Ch. 19, 21	
Part IV:	Apr. 12	Case: To be determined		
The Finance of	Apr. 14	<b>No lecture</b>		
Innovation		<b>Guest speaker:</b> Izhar Armony, Charles River Ventures, <b>4:30-5:50 pm</b> , Location TBD		
	Apr. 19	<b>No lecture</b>		
		<b>Guest speaker:</b> Gil Beyda, Genacast Ventures, <b>4:30-5:50 pm</b> , Location TBD		
	Apr. 21	Real options, part 2	VCFI Ch. 21	
	Apr. 26	The future of VC		