

# Venture Capital and the Finance of Innovation

FNCE 250  
Spring 2020

Sylvain Catherine, Assistant Professor of Finance

Email: [scath@wharton.upenn.edu](mailto:scath@wharton.upenn.edu)

Office: SHDH 2453

Lectures: Monday/Wednesday

Section 1: 9:00-10:20am

Section 2: 10:30-11:50am

## PREREQUISITES

FNCE 100 and 101 are both prerequisites. FNCE 101 may be taken concurrently with FNCE 250.

## SUMMARY

The course covers the finance of technological innovation, with an emphasis on the quantitative methods useful for venture capital investing. This is first and foremost a finance course, so we will not cover the management, strategy, legal, marketing, and other non-financial topics that are also important in VC investing. The primary audience for this course is finance majors interested in careers in venture capital, entrepreneurship, or R&D-intensive companies (e.g., tech, pharma). There are five in-class quizzes and one team project with four deliverables throughout the semester.

## GOALS FOR THIS COURSE

The course's goals, from most to least important, are

1. Help students gain a deeper understanding of finance.
2. Provide 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.
4. Expose students to several promising new companies.

## GETTING HELP / TEACHING ASSISTANTS

There are several ways you can get help with questions throughout the semester:

1. Ask me (Sylvain) in weekly office hours (TBA in SHDH 2453)
2. Ask our TAs in their weekly office hours (TBA)

3. Email us:

- Sylvain: [scath@wharton.upenn.edu](mailto:scath@wharton.upenn.edu)
- Aymeric Bellon: [abellon@wharton.upenn.edu](mailto:abellon@wharton.upenn.edu)
- Chuck Fang: [fangcb@wharton.upenn.edu](mailto:fangcb@wharton.upenn.edu)

The TAs and I promise replies to emails within 24 hours on weekdays. We cannot promise replies to emails sent less than 24 hours before due dates or quizzes.

## READINGS

- **Priority:** Each week I will email you the upcoming week's readings, and I will also tell you the priority of each reading.
- **Primary textbook:** *Venture Capital & the Finance of Innovation (VCFI)* (John Wiley and Sons), available in the bookstore and online. Make sure you get the 2<sup>nd</sup> edition, which has a dark brown cover.
- **Cases:** There will be approximately five cases. Some will be on the course website, some will be on Study.net.
- **Other required readings:** I will occasionally send you articles from the popular press and academic literature. We will sometimes discuss them in class, and they may appear on the quizzes.
- **Review questions and solutions:** Details on these below.
- **Solutions to textbook exercises:** Posted on Canvas in folder "Exercises from the textbook."

## GRADING

There are three components to the course grade, for a total of 100 points:

- Team project (40 points). Four deliverables:
  1. Sourcing the deal (5 points, due March. 16<sup>th</sup>)
  2. Valuing the company (15 points, due April. 1<sup>st</sup>)
  3. In-class presentation (5 points, April. 8<sup>th</sup>, 20<sup>th</sup>, or 27<sup>th</sup>)
  4. Partial valuation, term sheet, and negotiation strategy (15 points, due May 5<sup>th</sup>)
- Five in-class quizzes for a total of 40 points.
- Participation (20 points)

A few other notes:

- The **in-class quizzes** will cover lectures, study questions, and readings. They only cover material since the previous quiz, so they are not cumulative. Each quiz will take 25 minutes.
- **No make-up quizzes.** Since I drop your lowest quiz grade, it is no problem to miss one quiz for any reason, including a job interview, broken alarm clock, bad hair day, etc. For that same reason, I will not offer make-up quizzes except in the event of grave illness or family emergency.
- The quizzes and projects may cover **material from outside of lectures**. I do this because we do not have enough time in lecture to cover everything you need to learn, and I have faith in

your ability to learn some material on your own. Of course, the TAs and I are here to help you if you get stuck on this additional material.

- Your **participation grade** depends on both the quantity and quality of participation. The grade mainly depends on what you do inside the classroom.
- I will not post **videos of regular lectures**.
- **Re-grade policy:** You have one week from the date on which the assignment or quiz is handed back to submit a written appeal that clearly identifies your section. Please hand the typed appeal to the receptionist in the finance department on the second floor of SHDH. We will then re-grade the entire assignment/quiz, and as a result your score may go up or down. We will not re-grade parts of quizzes written in pencil.
- **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 ask me.
- **Cheat sheet.** The quizzes are closed book, although I will provide a cheat sheet for you on some of the quizzes. You are not allowed to bring your own cheat sheet. Do not worry, you won't have to do much if any rote memorization to prepare for quizzes.

## TEAM PROJECT

- The semester-long **team project** integrates the course material and asks you to apply it to a VC investment scenario. Your team will take on the role of VCs evaluating a hypothetical investment in a real company of your choosing. You can find a detailed description of the project on Canvas >> Files >> Project. Here is an overview of the four deliverables, which are spaced throughout the semester:
  - **Sourcing the deal** (5 points): Find a company to analyze and submit a short memo describing the company and investment opportunity. The main requirements are that the company be privately owned (i.e., pre-IPO), less than 10 years old, and in the typical industries VC invest in. Most importantly, your team should choose a company that you are excited to learn about. Unfortunately, data availability will severely limit your choice of company.
  - **Total valuation** (15 points): Perform a detailed DCF valuation of the company, including an in-depth analysis of addressable market size and comparables.
  - **In-class presentation** (5 points): Each team will give a short presentation on the company and your team's valuation in front of the class. These will happen at the end of the semester.
  - **Partial valuation, term sheet, and negotiation strategy** (15 points). Write a term sheet that describes the terms of the deal, including security type, number of shares, amount invested, and protective covenants. You will also write an internal memo to the senior VC partners describing your negotiation strategy
- **Teams** ideally will have four members. Three is also OK. I may allow teams of five if there is a compelling reason (ask me). I want teams to be large for three reasons: this project requires a lot of work, I want every team to have a chance to present in front of the whole class, and I want to provide each team quality feedback. All members of the team will receive the same grade. Switching teams mid-semester is not allowed.

- You can find **examples of successful projects from previous years** on Canvas>>Files>>Project>Examples of good past projects.

### **HOW TO GET THE MOST OUT OF THE COURSE (AND GET A GOOD GRADE)**

From most to least important:

- Always bring the lecture notes to class, either on paper or a writable tablet.
- Study the content and examples from lectures, which requires taking good lecture notes.
- Do the required readings before each lecture. This is especially true for cases and articles that we plan on discussing in class. Take notes on all the required readings, and study those notes before the quizzes. I expect you to remember the main points from the readings, but I don't expect you to memorize details.
- Find good teammates, and put in lots of hours on the group project. Look at the sample projects from last year to see what I'm looking for.

## COURSE SCHEDULE, TOPICS, AND READINGS

The schedule below is preliminary.

In the schedule below, VCFI refers to the course textbook, *Venture Capital and the Finance of Innovation*. I will post additional required readings throughout the semester.

Date	Topic	Readings	Quizzes
15-Jan	Introduction	Syllabus	
22-Jan	The VC industry	VCFI Ch. 1	
27-Jan	Structure of VC firms and funds	VCFI Ch. 2., Accel VII case	
29-Jan	VC fund performance	VCFI Ch. 3	
3-Feb	The risk-reward tradeoff in VC	VCFI Ch. 7.1, 4	
5-Feb	VC investment process and due diligence	VCFI Ch. 7.2, Sunrun case	
10-Feb	Term sheets	VCFI Ch. 8, Sunrun case	Quiz #1
12-Feb	Preferred stock	VCFI 9.1	
17-Feb	Dilution and anti-dilution protection	VCFI 9.2	
19-Feb	Evaluating high-growth opportunities	VCFI Ch. 10	Quiz #2
24-Feb	<u>Case study: Floodgate</u>		
26-Feb	Valuation by DCF	<i>Valuation</i> Chapter 32	
2-Mar	<u>Case study: Atricure</u>		Quiz #3
4-Mar	Valuation using multiples	VCFI Ch. 12	
16-Mar	Options in VC	VCFI Ch. 13, 16.1	
18-Mar	Valuing preferred stock: Series A	VCFI Ch. 14	Quiz #4
23-Mar	Valuing preferred stock: Later rounds	VCFI Ch. 15, 17	
25-Mar	<b>Guest speaker: Iris Choi from Floodgate</b>	Floodgate case	
30-Mar	<u>Project valuation: BeyondMeat example</u>		Quiz #5
1-Apr	<b>Guest speaker: Vas Natarajan from Accel Partners</b>		
6-Apr	Unicorns		
8-Apr	Team presentations		
13-Apr	<b>Guest speaker: Scott Kuper from Andreessen Horowitz</b>		
15-Apr	<b>Guest speaker: Jacqueline LeSage Krause from Munich Re Venture</b>		
20-Apr	Team presentations		
22-Apr	<b>Guest speaker: Jason Rhodes from Atlas Venture</b>		
27-Apr	Team presentations		
29-Apr	Concluding remarks		