

The Wharton School, University of Pennsylvania

## MGMT 235 – TECHNOLOGICAL INNOVATION AND ENTREPRENEURSHIP

Fall 2017

### COURSE OVERVIEW

This course introduces the challenges and choices associated with the development of technical ventures. Students will learn how to identify technology-based venture opportunities, evaluate technical feasibility and business potential, and develop a plan for successful commercialization. Class sessions will focus on the issues which must be faced in starting a new venture and the options which are available to the technological entrepreneur. Particular emphasis will be placed on rigorous assessment of the technical and business merits of selected innovations through individual and group projects.

Prerequisites: MGMT 100 & MGMT 101; Management & Technology students only. Others can enroll by instructor's permission.

### TIME & LOCATION

Tuesdays & Thursdays

1:30pm - 3:00pm

in Lauder-Fischer Hall Auditorium (256 South 37th Street, Philadelphia, PA 19104)

### INSTRUCTOR

Jacqueline 'Jax' Kirtley

Assistant Professor of Entrepreneurship

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Office Hours arranged by individual appointment

### COURSE ORGANIZATION & REQUIREMENTS

You are expected to come to class well prepared to discuss the reading materials, as the class will have a seminar-like, discussion heavy format. Required readings are found in the bulk packet which should be distributed to you electronically. Class attendance and active class participation are essential to the learning goals in this course. Laptop, tablet, and smartphone use distracts from the learning experience in class, and so you are expected to ***refrain from using your communications devices when class is in session***. To ensure that the class is highly interactive, I ask that you ***bring your name card to each and every class meeting***. I will actively use the class website to post notes and manage the class.

Unless otherwise stated, all deliverables should be submitted by 1:30pm on the date given.

## DELIVERABLES & GRADING

You will make two presentations in this class, one individual and one team project. For the individual project (September 14<sup>th</sup> and 19<sup>th</sup>), you will present an overview of an emerging technology together with thoughts about entrepreneurial opportunities within that technology area. A list of pre-approved topics will be presented in class; if you wish to pursue a different topic, talk to me directly for approval. All students will upload their presentations to Canvas by 1:30pm on September 14<sup>th</sup>. More details will be provided in class.

At the end of the course, you and your team will present a pitch deck for a technology venture of your choice. Pitch deck structures will be discussed in class and your deliverables should demonstrate both an understanding of the norms of pitch decks as well as the ability to highlight the key aspects of interest of a venture. Final Presentations will be on November 30<sup>th</sup> and December 5<sup>th</sup>. All teams will upload their pitch deck presentations to Canvas by 1:30pm on November 30<sup>th</sup>. More details will be provided in class.

You will have two intermediate deadlines related to the team project. Teams will submit a 2-3 page statement of topic for their project on Tuesday, October 3<sup>rd</sup>. The statement should include all team members' names and preliminary assessment information about your chosen topic: why you are interested in this topic, why you think it has potential as a new venture, etc. While you will not be held to the conclusions of your preliminary assessment, you and your fellow team members will be expected to present on the same technology in your final presentation.

Each student will be expected to write up an evaluation of another team's pitch presentation to be submitted to me as well as that team. Evaluations should address both the content and presentation of the pitch. Submissions should be 2-3 pages in length and be uploaded to Canvas on December 11<sup>th</sup>.

## COURSE GRADING

- 35% Active Class Participation
- 15% Individual Technology & Entrepreneurship Briefing Presentation
- 5% Team Project Statement of Topic
- 40% Team Project Pitch Deck and Presentation
- 5% Team Evaluation

You are expected to attend all sessions and be on time. In the case of a legitimate need to miss class, please inform me of your absence in advance. Unexcused absences and tardiness will adversely affect class participation grade.

Throughout the term, students will be told about opportunities to augment their class participation grade. In class, productive participation in discussions will be required to achieve strong marks in this area. Note that quality, not quantity, is the measure of import with class participation.

## MGMT 235 FALL 2017 – SCHEDULE OVERVIEW

Session	Date	Topic
1	August 29	Introduction & Overview
2	August 31	Inventions & Entrepreneurs
3	September 5	R&D and Development for Commercialization
4	September 7	Technology Lifecycle & Adoption
5	September 12	IP & Profiting with New Technology
6	September 14	Technology & Entrepreneurship Briefings 1 <i>-- All Presentations Uploaded to Canvas</i>
7	September 19	Technology & Entrepreneurship Briefings 2
8	September 21	Guest Speaker: Lessons from Experience
9	September 26	Team Project Introduction & Pitch Decks
10	September 28	Team Working Session - no class meeting
11	October 3	Scaling Lab to Market <i>-- Team Statement of Topic Due</i>
	<i>October 5</i>	<i>No Class: Fall Break</i>
12	October 10	Customer & Market = Problem & Opportunity
13	October 12	Understanding Users through Field Research
14	October 17	Guest Speaker: Lessons from Experience
15	October 19	The Startup Game <i>-- In class Simulation</i>
16	October 24	Power & Money
17	October 26	Organizational Design & Hiring
18	October 31	Hypothesis Driven Entrepreneurship
19	November 2	Financing
20	November 7	Guest Speaker Panel: Financing
21	November 9	Pitching & Selling
22	November 14	Accelerators & Incubators
23	November 16	Growth
24	November 21	Exit & Harvest
	<i>November 23</i>	<i>No Class: Thanksgiving</i>
25	November 28	Team Meetings with Instructor
26	November 30	Team Presentations 1 <i>-- All Pitch Decks Uploaded to Canvas</i>
27	December 5	Team Presentations 2
28	December 7	BattleDecks & Course Wrap Up <i>-- Team Evaluations Due</i>

## MGMT 235 FALL 2017 – DETAIL OF CLASS SESSIONS

### Session# 1 Tuesday, August 29

#### Introduction & Overview

*Read:*

- “A Special Report on Entrepreneurship,” The Economist, March 14, 2009.

*Study Question:*

Why would you become an entrepreneur or join an early stage firm? What entrepreneurial technology firms do you think are doing things well or poorly?

### Session# 2 Thursday, August 31

#### Inventions & Entrepreneurs

*Read:*

- Gladwell, M “The Visionary”, New Yorker May 27, 2002 <http://gladwell.com/the-visionary>
- Seabrook, J “The Flash of Genius”, New Yorker, January 11, 1993  
<http://www.newyorker.com/magazine/1993/01/11/the-flash-of-genius>

*Study Question:*

What makes a technology innovation the basis for an entrepreneurial firm? What more do you need?

### Session# 3 Tuesday, September 5

#### R&D and Development for Commercialization

*Case:*

The Rise and Fall of Iridium, HBS Case No. 601-040

*Study Questions:*

When did things start to go wrong for Iridium? What group is to blame? What changes would you have made to increase the probability of success for Iridium?

### Session# 4 Thursday, September 7

#### Technology Lifecycle & Adoption

*Read:*

- G. Moore (1999) “Crossing the Chasm,” Harper Business Press, Chapters 1 and 2.
- *Optional Reading:* R. Foster (1996), “The S-Curve: A New Forecasting Tool,” Innovation: The Attacker’s Advantage, Chapter 4, pp. 88-111.

*Study Questions:*

What are the technological and non-technological reasons behind adoption rates across the life of an innovation? Why does an entrepreneurial firm need to know?

**Session# 5     Tuesday, September 12**  
**IP & Profiting with New Technology**

*Read:*

- Suarez & Lanzolla "Half-Truth of First-Mover Advantage" Harvard Business Review, Apr 01, 2005
- Kwak "What's the Best Commercialization Strategy for Startups?" MIT Sloan Management Review (2002)

*Study Questions:*

What technology products can you think of where the pioneering startup won? Where they lost?

**Session# 6 & #7     Thursday, September 14 & Tuesday, September 19**  
**Technology & Entrepreneurship Briefings Days 1 & 2**

*Deliverable:*

All presentations should be uploaded to canvas by 1:30pm

**Session# 8     Thursday, September 21**  
**Guest Speaker: Lessons from Experience**  
Speaker TBA

**Session# 9     Tuesday, September 26**  
**Team Project Intro & Pitch Decks**

*Read:*

- "What We Learned from 200 Startups Who Raised \$360M", DocSend  
<https://docsend.com/view/p8jxsqr>

*Study Questions:*

What do you need to say, and what do you not need to say, when you make a startup pitch?

**Session# 10     Thursday, September 28**  
**Team Working Session**

*No class meeting*

**Session# 11     Tuesday, October 3**  
**Scaling Lab to Market**

*Case:*

1366 Technologies: Scaling the Venture (Abridged), HBS Case 9-812-133

*Study Questions:*

What industry trends should 1366 be paying attention to? What options do they have for scaling and how likely are they to succeed? How will 1366 pay for this?

**Thursday, October 5**

*No Class: Fall Break*

**Session# 12 Tuesday, October 10**

**Customer & Market = Problem & Opportunity**

*Read:*

- Brown, T. "Design Thinking" Harvard Business Review, June 2008
- *Watch:* Shimano's high-tech bicycle <https://www.youtube.com/watch?v=Rt5Js4YR9BU>

*Study Questions:*

Where did Shimano's innovation idea come from? What were the roles of technology, customer, and business strategy in that idea?

**Session# 13 Thursday, October 12**

**Understanding Users Through Field Research**

*No Readings*

*Study Questions:*

How can you know what a user wants or needs? How can you learn what matters to a user?

**Session# 14 Tuesday, October 17**

**Guest Speaker: Lessons from Experience**

Speaker TBA

**Session# 15 Thursday, October 19**

**The Startup Game**

*In class Simulation*

Simulation prep materials will be sent to you before the class session. Read the instructions carefully. Know your role, but keep it to yourself.

**Session# 16 Tuesday, October 24**

**Power & Money**

*Case:*

- Evan Williams, HBS case 9-809-088
- *Optional Reading:* "A Note on the Legal and Tax Implications of Founders' Equity Splits" by Noam Wasserman and Lauren Barley, HBS Note 809110

*Study Questions:*

How has Evan Williams gotten himself into this mess? What should he do now?

## Session# 17 Thursday, October 26

### Organizational Design & Hiring

*Read:*

- “Zero Defect Hiring,” Inc. March 1998 <http://www.inc.com/magazine/19980301/889.html>
- Browse: Whartonite Seeks Code Monkey <http://whartoniteseekscodemonkey-blog.tumblr.com/>
- “Organizational Blueprints for Success in High-Tech Start-Ups: Lessons from the Stanford Project on Emerging Companies,” James N. Baron and Michael T. Hannan, California Management Review, Spring 2002.

*Study Questions:*

How do you find the right technical hires and avoid being listed on Whartonite Seeks Code Monkey? What makes some blueprints more attractive than others? What is the role of the entrepreneur in establishing blueprints?

## Session# 18 Tuesday, October 31

### Hypothesis Driven Entrepreneurship

*Read:*

- “The Hypothesis Driven Startup” by Thomas R. Eisenmann, Eric Ries, Sarah Dillard, HBS Note 812095.
- Browse: “Chapter 6. Creating Reverse Financials and the Assumption Checklist” by Rita Gunther McGrath; Ian C. MacMillan, HBS Chapter 3072BC-PDF-ENG

*Study Questions:*

When is “lean” methodology appropriate? When is it a bad idea?

## Session# 19 Thursday, November 2

### Financing

*Case:*

- PunchTab, Inc. HBS Case 9-812-033

*Online Tutorial:*

- “Pre-Money Post-Money” HBS Online Tutorial/Exercise

*Study Questions:*

Do you think it makes sense to do a seed round of financing? What are the relevant differences between angels and venture capital investors that Ranjith Kumaran should consider when raising

money for his venture? Who would be the best partner?

**Session# 20 Tuesday, November 7**

**Guest Speaker Panel: Financing**

Speakers TBA

**Session# 21 Thursday, November 9**

**Pitching & Selling**

*Case Continued:*

- PunchTab Pitch Deck 9-812-172

*Study Questions:*

Would you alter the PunchTab Pitch Deck? What would you change?

**Session# 22 Tuesday, November 14**

**Accelerators & Incubators**

*Read:*

- "Accelerating Startups: The Seed Accelerator Phenomenon" by Cohen & Hochberg  
<http://seedrankings.com/pdf/seed-accelerator-phenomenon.pdf>
- Browse: Seed Accelerator Rankings Project <http://seedrankings.com>

*Study Questions:*

How do assess an accelerator? What about your firm do you need to think about when choosing an accelerator? When should an entrepreneur consider an accelerator?

**Session# 23 Thursday, November 16**

**Growth**

*Case:*

- Mark43 HBS Case 9-817-016

*Read:*

- "Scaling a Startup: People and Organizational Issues" by Thomas R. Eisenmann; Alison Berkley Wagonfeld (HBS Note 9-812-100 Revision Date: Feb 23, 2012)

*Study Question:*

Should Mark43 put the time and resources into applying for the LA PD RFP now? What are the challenges facing Mark43?



**Session# 24 Tuesday, November 21**

**Exit & Harvest**

*Case:*

- Nantucket Nectars: The Exit, HBS case 9-810-041.

*Read:*

- *Browse:* "Harvest Time: Reaping What You've Sown" excerpted from Entrepreneurs' Toolkit: Tools and Techniques to Launch and Grow Your Business

*Study Questions:*

If you are Tom and Tom, what is the minimum price you accept for Nantucket Nectars? If you were advising Tom and Tom, what would you tell them to do?

**Thursday, November 23**

*No Class: Thanksgiving*

**Session# 25 Tuesday, November 28**

**Team Meetings with Instructor**

To be scheduled through Canvas

**Session# 26 & 27 Thursday, November 30 & Tuesday, December 5**

**Team Presentations Days 1 & 2**

*Deliverable:*

All teams' Pitch Decks to be uploaded to Canvas by 1:30pm

**Session# 28 Thursday, December 7**

**BattleDecks & Course Wrap Up**

*Deliverable:*

Team Evaluation papers are due by Dec 11<sup>th</sup> by 1:30pm