MGMT 2670: ENTREPRENEURSHIP & TECHNOLOGY INNOVATION (0.5CU)

Q3 Spring 2023

INSTRUCTOR
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Office Hours arranged by individual appointment

TIME & LOCATION
Tuesdays & Thursdays
10:15 - 11:45am in JMHH 355 &
1:45 - 3:15pm in JMHH 260

COURSE OVERVIEW AND PROCEDURES

Building a new firm around technology innovation can mean different choices and challenges for entrepreneurs. The goals and outcomes of technology entrepreneurship vary as much as the innovations that inspire them. This course will take you through the questions that entrepreneurs should address as they go from a technology innovation idea to founding and funding a tech startup. The course will appeal to individuals who have a desire to become technology entrepreneurs at some stage of their career, as well as others interested in the startup ecosystem such as investors, advisors, other professional service providers, etc. This class serves as both a stand-alone and a preparatory course and will complement other classes such as a more in-depth venture implementation class.

You are expected to come to class well prepared to discuss the reading materials. Required readings are found in the Study.net readings packet, Course Material @ Penn Libraries, and through links on the class Canvas page. I will actively use the class Canvas to post material and manage the class. Assignments are summarized here; additional information and details will be presented in class.

COURSE GRADING

Individual Work

30%	Class Participation & Discussion Boards
25%	Technology Assessment (5 pages)
10%	Mission-Brand-Product Essay (2 pages)
5%	Spin-A-Wheel Pitch

Team Project

5%	Statement of Technology & Value Proposition (2 pages)
25%	Advisory Board Presentation, Recorded PPT (10 minutes)

This course is graded on an A- centered curve. Therefore, you cannot map the points you receive on an assignment to a letter grade by calculating the percentage of points received. Assignment grading will be announced including the average score and the standard deviation so that you can see where your score is along the curve. The lines between grades will be drawn at approximately one standard deviation intervals. Final calculation of the curve will be made once all deliverables have been graded.

CLASSROOM EXPECTATIONS

- Class starts and ends on time. Exits and re-entrances during class should be limited to only necessary instances as they are quite disruptive to your classmates.
- Name tents must be displayed. A seating chart will be filled out by the students in the first session and should be followed for the entirety of the course.
- Phones must be turned off and put away.
- The use of laptops and tablets is only allowed if they lay completely flat on the table, which means laptop screens must be opened fully such that the entire device lays flat. Your screen should not be visible to disrupt the students behind or around you.
- Students are expected to attend class regularly and to be well prepared to participate by having read and prepared the readings. Attendance will be tracked in class with a sign-in sheet. If you must miss class for a personal or family emergency, please notify the instructor to make proper arrangements for missed sessions.

CLASS PARTICIPATION & DISCUSSION BOARDS

Students are expected to attend class regularly and to be well prepared to participate by having read and prepared the readings. Full attendance credit will be awarded to students who come to class on time and regularly. Attendance will be tracked in class with a sign-in sheet. If you must miss class for a personal or family emergency, please notify the instructor to make proper arrangements for missed sessions. Full participation credit will be awarded for consistently offering insightful and well-informed comments and contributing to each session.

The core material of this course happens during the class session; therefore, attendance is imperative for success. More than 3 absences will result in failure of the class. Extraordinary circumstances leading to more absences will need to be addressed on a case by case basis with the instructor and your academic advisor.

Each class session will have a Discussion created on Canvas. Students should use the Discussions for both continuation of the in-class discussion and reflection about the material. Students who did not have an opportunity to speak during the class session, for whatever reason, or have additional comments they want to contribute can add to a continuing conversation there. Additionally, students are encouraged to post reflections connecting the material and discussion during class to other entrepreneurial firms and technologies that they are interested in from outside of the class.

Discussion threads will be open for two days after the class session, after which they will be closed to new comments.

TECHNOLOGY ASSESSMENT, INDIVIDUAL PROJECT

A technology invention is a necessary but not sufficient step toward technology entrepreneurship and value creation. For this individual paper, you will select a technology at the core of an existing firm (entrepreneurial firm or established incumbent firm) and assess the role of that technology in value creation for the focal firm, its customers, and other stakeholders. Your write-up should explain the basic science and engineering at the core of the technology (in as plain language as you can) and describe how it creates value both technologically and financially. Be sure to consider who the focal firm's customer is (who pays them) and who any other users or stakeholders are (who else gains value from this technology). The deliverable for this project is a 5 page analysis of the technology and how the value is created and captured from it.

The essay should be five pages, double spaced, 12-point font. Please note that while grading is not specifically focused on readability or grammar, how your text is structured affects the grader's ability to clearly understand your points. You may include up to 2 pages of exhibits, if needed. Reference citations can be in any format and will not be included in the page count.

MISSION-BRAND-PRODUCT ESSAY, INDIVIDUAL PROJECT

An entrepreneurial firm has many facets, all of which need to be communicated when pitching that firm to investors, customers, partners, and other stakeholders. Clarity about which is what, for yourself and to others, is important. In this short essay, you will select an existing, early stage technology firm and explain what that firm is at the firm level (the mission and brand) and at the product level (the current products, technology platform, or services). The first products a young firm sells are just that, the first products; they are not the firm. Your essay should explain what the firm is as a whole, its identity and goals above and beyond its first products in the market. You should also address what that says about its potential strategic path and the kinds of products or services that may be, or definitely will not be, in its future.

The essay should be two pages, double spaced, 12-point font. Please note that while grading is not specifically focused on readability or grammar, how your text is structured affects the grader's ability to clearly understand your points. Reference citations can be in any format and will not be included in the page count.

ENTREPRENEURIAL TECHNOLOGY FIRM ADVISORY BOARD PRESENTATION, TEAM PROJECT

Teams of 3-6 students will submit an advisory board presentation for an original entrepreneurial technology firm. You will select a technology on which to build an entrepreneurial firm. In the first deliverable for this project, you will detail the technology and a description of the value it creates to some identified set of customers and users. This *Statement of Technology & Value Proposition* is a short summary (2 to 3 pages) that will introduce the project idea and list the members of the team. In it, you should describe the product or service your firm will sell, identify and give a basic explanation of the technology core to that product or service, describe how the firm will make money (the revenue or business model), and provide some information about the current state of this industry. At this stage, this information can be introductory, and your description of the business may include more than one path under consideration.

The week after submission of the *Statements*, teams will schedule a 30 minute meeting with the instructor to discuss your project idea. It is fine if not all team members can attend; you can report back to your team. These sessions will not be graded on content, but will provide a basis for how your project developed during the class. The feedback given at this meeting is meant to help teams know what areas of the project need attention and to offer links to existing firms or examples that may serve as valuable references.

The main deliverable for this project is an *Advisory Board Presentation*. In the time allotted for this project, an entrepreneurial technology firm would be unlikely to be ready to pitch to investors, as such, your deliverable will not be a pitch deck but an Advisory Board presentation proposing the venture, the questions that the team should address next, and the steps to take to bring the firm closer to successful completion of its goal. Your team will submit a 10 minute audio-recorded PowerPoint presentation through Canvas (instructions on how to do this will be given in class). You will not be making this presentation in class. After your team presentations have been submitted, each student will make a short, individual presentation as their *Spin-A-Wheel Pitch* on the final day. Details about that assignment will be given in class on the last day.

Detailed information will be provided in class on each of these steps. All class deliverables will be submitted through Canvas on the due date listed in the syllabus.

SPRING 2023 Q3 Course Schedule

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
JANUARY	1	2	3	4	5	6	7
	8	9	10	11	12 **Session 1: Introduction: What is Technology Entrepreneurship?**	13	14
	15	16	17 **Session 2: Inventions & Entrepreneurs: Do you have a Feature, a Product, or a Company?**	18	19 **Session 3: IP & How to profit from new technology?**	20	21
	22	23	24 **Session 4: R&D vs Development for Commercialization** **Technology Assessment Due**	25	26 *No MGMT 2670 Class*	27	28
February	29	30	31 **Session 5: Founding into a Platform or Ecosystem**	1	2 **Session 6: Advisors, Mentors, & Boards: Who to ask for help and when?** **Team Statement of Tech & Value Proposition Due**	3	4
	5	6	7 **Session 7: Financing New Ventures: VC & Angel**	8	9 **Session 8: Financing New Ventures: Alt Funding Sources**	10	11
				Team Project Meetings Week			
	12	13	14 **Session 9: Organizational Design, Culture, and Strategy** **Mission-Brand-Product Essay Due**	15	16 **Session 10: Pitching Technology Firms**	17	18
	19	20	21 **Session 11: Guest Speaker**	22	23 **Session 12: Pitching Technology in R&D: Under development or under the table?**	24	25
March	26	27	28 **Session 13: Spin-A-Wheel Pitch & Wrap-Up** **Team Advisory Presentation Due**	1	2	3	4
	5	6	7	8	9	10	11
			Penn Spring Break				

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CLASS SESSIONS DETAIL

SESSION 1 - INTRODUCTION: WHAT IS TECHNOLOGY ENTREPRENEURSHIP?

READINGS

- Questions Every Entrepreneur Must Answer, HBR 1997

STUDY QUESTIONS

What distinguishes entrepreneurship from other types of business? What makes a venture "technology entrepreneurship"? What entrepreneurial technology firms do you think are doing things well or poorly?

SESSION 2 - INVENTIONS & ENTREPRENEURS: DO YOU HAVE A FEATURE, A PRODUCT, OR A COMPANY?

READINGS

- The Televisionary, Malcolm Gladwell in The New Yorker
  - https://www.newyorker.com/magazine/2002/05/27/the-televisionary
  - and on Canvas Course Materials @ Penn Libraries
- The Flash of Genius, The New Yorker
  - Full article online at https://www.newyorker.com/magazine/1993/01/11/the-flash-of-genius
  - Abridged version posted on Canvas – you can skip sections shaded in grey

STUDY QUESTIONS

What makes a technology innovation the basis for an entrepreneurial firm? What more do you need? What did Philo Farnsworth and Bob Kearns miss when they went to turn their inventions into products and companies?

SESSION 3 - IP & HOW TO PROFIT FROM NEW TECHNOLOGY?

READINGS

- What is Intellectual Property?, WIPO
  - https://www.wipo.int/edocs/pubdocs/en/wipo_pub_450_2020.pdf
- What's the Best Commercialization Strategy for Startups? MIT SMR 2002 [on Canvas Course Materials @ Penn Libraries]

STUDY QUESTIONS

What are the different types of intellectual property? What does IP or a patent give a firm? How do IP rights affect your strategy?

SESSION 4 - R&D VS DEVELOPMENT FOR COMMERCIALIZATION

READINGS
- Rise & Fall of Iridium, HBR Case

STUDY QUESTIONS

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

SESSION 5 - FOUNDING INTO A PLATFORM OR ECOSYSTEM

READINGS
- Dethroning an Established Platform, SMR 2012 [on Canvas Course Materials @ Penn Libraries]

STUDY QUESTIONS

What is a platform? How is it different from doing business otherwise? Are entrepreneurial firms better positioned than established incumbents to introduce new things on an existing platform or ecosystem? Is that advantage long term? Who are the stakeholders that you need to focus attention on?

SESSION 6 - ADVISORS, MENTORS, & BOARDS: WHO TO ASK FOR HELP AND WHEN?

READINGS
- 7 Tactics to Get the Most Out of Your Startup's Advisors, First Round Review
  - https://review.firstround.com/Get-the-Most-Out-of-Your-Startups-Advisors-with-These-7-Tactics
- What you need to know about startup boards, TechCrunch
  - https://techcrunch.com/2016/11/05/what-you-need-to-know-about-startup-boards/

STUDY QUESTIONS

Why do entrepreneurs need advisors & mentors? How can you maximize their value to you & your firm? What is a Board of Directors? Why do you need one?

SESSION 7 - FINANCING NEW VENTURES: VC & ANGEL EQUITY INVESTORS

READINGS
- 6 Myths About Venture Capitalists, HBR

STUDY QUESTIONS

What do equity investors provide to an entrepreneurial firm? When would you target a VC, in particular? What questions do you need to answer before you approach an equity investor?

SESSION 8 - FINANCING NEW VENTURES: ALTERNATIVE FUNDING SOURCES

READINGS

- Pick one Accelerator, Incubator, or Crowdfunding platform
    - Read up on the specifics about your pick
    - What are their terms for participating entrepreneurs?
    - Identify what types of firms should target them
    - Places you can look at for lists of accelerators, incubators, and crowdfunding platforms
        - Seed-DB List of individual Seed Accelerator programs
        - GAN's Accelerator list
        - The CrowdFunding Guide
        - Crowdfunding.com

STUDY QUESTIONS

When should you consider crowdfunding or asking your friends and family for money? When should you apply to an accelerator or apply for a grant? When should you not?

SESSION 9 - ORGANIZATIONAL DESIGN, CULTURE, & STRATEGY

READINGS

- Read though one of the following employee handbooks:
    - Valve https://www.valvesoftware.com/en/publications
        - direct link to PDF:
          https://cdn.akamai.steamstatic.com/apps/valve/Valve_NewEmployeeHandbook.pdf
    - Netflix https://jobs.netflix.com/culture

STUDY QUESTIONS

What structures within an organization have the most impact before you have sold even one unit? As you grow? Does culture matter more or less in an entrepreneurial firm?

SESSION 10 - PITCHING TECHNOLOGY FIRMS

READINGS

- What We Learned From 200 Startups Who Raised 360M, DocSend
    - https://docsend.com/view/p8jxsqr

STUDY QUESTIONS

What is the goal of a pitch presentation? What information do you need to impart? What do you not need to say now?

SESSION 11 – GUEST SPEAKER

Guest Speaker information to be announced

SESSION 12 - PITCHING TECHNOLOGY IN R&D: UNDER DEVELOPMENT OR UNDER THE TABLE?

- Top Ten Lies of Entrepreneurs, HBR 2001
- Prologue, *Bad Blood: Secrets and Lies in a Silicon Valley Startup*, by John Carreyrou
    - Available as an excerpt at: https://www.penguinrandomhouse.com/books/549478/bad-blood-by-john-carreyrou/9781524731656/
    - and on Canvas Course Materials @ Penn Libraries
- Hot Startup Theranos Has Struggled With Its Blood-Test Technology, WSJ Oct 2015
    - https://www.wsj.com/articles/theranos-has-struggled-with-blood-tests-1444881901
    - and on Canvas Course Materials @ Penn Libraries

STUDY QUESTIONS

How can an entrepreneur demonstrate confidence and capability to potential investors, partners, or customers without lying – especially when R&D is still under way and the product doesn't work yet?

SESSION 13 – SPIN-A-WHEEL PITCH & WRAP-UP READINGS

ASSIGNMENT DUE
- *Advisory Board Presentation* Team Project recorded presentation should be uploaded to Canvas by start of class.
- Each student on the team should be prepared to pitch your project and firm in class. Details will be given in the classroom