HARVARD
School of Engineering and Applied Sciences

ES139/239: Innovation in Science and Technology
"From Idea to Pitch"

Course Instructors

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Class Details:

- *Lecture*: Tuesday/Thursday, 2:30 p.m. – 4:00 p.m.
- *Location*: 60 Oxford St. 330
- *Web*: http://isites.harvard.edu/course/colgsas-0994 (ES239 will use ES139 site)

Course Format:
The instructional staff is composed of leading innovators, scientists, creativity experts and entrepreneurs. This course will provide both the theoretical background as well as hands-on practical experience of innovation and developing a startup.

Course Description:
Explores factors and conditions contributing to innovation in science and engineering; how important problems are found, defined, and solved; roles of teamwork and creativity; and applications of these methods to other endeavors. Students receive practical and professional training in techniques to define and solve problems, and in brainstorming and other individual and team approaches. Students will investigate an emerging technology and learn how to take it from initial idea to a final pitch for a company startup.

Textbook:
There is no single text for this course. Specific cases will be assigned that you may either purchase online or will be provided electronically for free. You will need to purchase at least one book on a topic of your choice for your innovation lecture.

Course Calendar

Date	Tues	Thurs
September		
2	**Course Introduction** – Two case examples of companies. Which would you invest in? Course Outline and final project overview	**How to prepare a case study**
9	**Disruptive Innovation -** Three models for how innovations totally change the market.	**Business Model Canvas**
16	**Value; Market Pull -** How do find market opportunities and define solutions?	**Case Study :** The Rise and Fall of Iridium
23	**Value: Technology Push** – How do you find markets and opportunities for new technology?	**Case Study**
30	**Market Research/Competitive Analysis -** How to analyze a technologies competitive advantage?	**Case Study**
October		
Date	**Tues**	**Thurs**
7	**Intellectual Property -**The ABCs of intellectual property?	**How to evaluate your IP strategy**
14	**Case Study - Valuation of XYZ company**	**How to value your company and funding opportunities (Seidel/Boyce)**
21	**The 5 myths of Creativity –** Is creativity just a common process that sometimes leads to uncommon outcomes?	**Team Meetings with staff**
28	**Creative Processes** – Concepts and frameworks for generating creative ideas and developing innovative solutions	**Creative Processes** - Application of creativity and innovation processes.
November		
Date	**Tues**	**Thurs**
4	**Innovation by Design -** In this session we will look at how a leading design firm is able to repeatedly innovate by using the HBS case IDEO Product Development	**Project Coaching**
11	**Creating the Pitch -** How to craft the perfect pitch for your company?	**Project Coaching**
18	**Problem Solution -** Once we have identified high-value problems, how do we solve them?	**Project Coaching**
25	**Problem Solution Methodologies –**Overview of leading innovation solution methodologies: TRIZ, Morphological, Axiomatic.	**No Class**
December		
2	**Final Pitch in**	
10	**MONDAY – Final Paper ES239 Due**	