



EAS 545: Engineering Entrepreneurship I Syllabus • SIBT Summer 2009

Course Instructor: Lawrence Gelburd, Lecturer, the Wharton School

Course Credit Hours: 3 semester hours (1.0 CU at Penn)

Course Description: This course describes the entrepreneurial process for taking a technology concept from the idea stage to the market. It provides an understanding of the sequential stages of the entrepreneurial startup, the post-startup issues of growth in the emerging stage of a technology venture, and the eventual decision to harvest personal and professional financial rewards. The course prepares students for leadership roles not only in new technology ventures but also in established innovative companies. The course covers the fundamental skills:

- Recognize and analyze a technological opportunity
- Evaluate alternative paths to markets
- Prepare and present a business plan
- Raise capital
- Create a stakeholder network
- Create strategic partnerships and joint ventures
- Assemble and lead a startup technology company
- Thrive in markets
- Manage the technology life cycle
- Manage and finance growth
- Handle adversity and distress situations
- Manage human resources in an innovative company
- Evaluate alternative harvesting options

The course introduces multifunctional skills comprising marketing and sales, finance, human aspects and management.

Course Prerequisites: The course is designed for undergraduate students, of junior or senior standing, with primary interests in engineering and the applied sciences and assumes no prior business coursework.

Course Materials: A course pack comprising cases and articles is required for the class. The complete course pack will be made available on the first day of class. Required readings for classes prior to course pack distribution will be handed out in class or made available via the Internet. Additional readings may be available from time to time via the class eRoom or handed out in class.

Course Logistics: WebCafé (eRoom). The class website or WebCafé may be accessed from <http://webcafe.wharton.upenn.edu>. Please refer to this site frequently for supplementary readings, class assignments, announcements, and other important information regarding the class.

Grading: EAS 545 uses a combination of readings, case studies, quizzes, lectures, and guest lecturers. The assignments are designed to reinforce and integrate principles of the class. Grades will be determined as follows:

Class Attendance & Participation	40 %
Quizzes and Problem Sets	30%
Term Project	30%

Written assignments must be word processed, and turned in at the start of the class period on the date they are due. Late papers (anything after the start of class) are not accepted except for documented incapacity or emergency. There will be no re-grading of papers.

Class Attendance, Participation: EAS 545 is a class discussion course. Your class participation is essential for your own benefit, as well as that of other students. If you are concerned about participating, you should discuss this with the professor. Any unexcused absence will impact your total grade.

Class attendance (including arriving on-time to class) is a critical component of the course. You should review known absences at the beginning of the semester with your professor; however, excused absences are limited to religious holidays and medical or family emergencies. Excused absences for illness require a physician's note. It is fully expected that students also arrive at class on time out of respect for your professor and classmates. Lateness to class will also impact your total grade.

If for some reason you are not prepared for class, please let your professor know before the start of class to save us both the embarrassment of calling on you. All students must have their name cards displayed during every class.

Quizzes and Problem Sets: Quizzes are a component of the class designed to stimulate discussion on the assigned reading materials. Quizzes will be closed reading/book/case; however, students may use notes they have taken in preparation for class. Assignments may also include problem sets requiring calculations or other quantitative analysis.

Final Project: EAS 545 will require a final team project. Students will work collaboratively as part of a team of 8 to 10 students to research, develop, and submit a project. The project will serve to integrate the material learned throughout the course and will require secondary research. The specific final project assignment and due date will be provided in class.

EAS 545: Engineering Entrepreneurship I Course Outline

Class	Date	Lecture Topic(s)	Readings / Assignments
1	July 14 Tuesday	Introduction to Technology Entrepreneurship	
	Part 1	Introduction: Seizing the Opportunity	<ul style="list-style-type: none"> Louis Agassiz as a Teacher The New Venture Hewlett Packard: Creating, Running and Growing an Enduring Company (HBS 9-698-052)
	Part 2	High-tech Strategy	<ul style="list-style-type: none"> Intellectual Property and Strategy (HBS 9-704-493) Palm Computing, Inc. (A) (HBS 9-396-245) The Winning Strategy
2	July 16 Thursday	Product Development QUIZ #1	
	Part 1	High-Tech Product Development	<ul style="list-style-type: none"> The Sales Learning Curve Palm Computing: The Pilot Organizer (9-599-040)
	Part 2	Operations Strategy	<ul style="list-style-type: none"> The Power of Virtual Integration: Interview with Michael Dell (HBR Reprint 98208) Product Development at Dell Computer (HBS 9-699-010)
3	July 21 Tuesday	Venture Finance I	
	Part 1	FDA Regulatory Process Pricing Strategy and Market Potential	<ul style="list-style-type: none"> Price on Value but Charge What the Market Will Bear Biopure Corporation (HBS 9-598-150)
	Part 2	Present Value Analysis	<ul style="list-style-type: none"> The Era of Open Innovation (MIT Sloan Mgmt Review Spring 2003) Nucleon, Inc. (HBS 9-692-041) Innovating for Cash
4	July 22 Wednesday	Venture Finance II QUIZ #2	
	Part 1	The Venture Capital Method	<ul style="list-style-type: none"> Bootstrap Finance: The Art of Startups (HBR Reprint 92601) Angel Investing (HBS 9-800-273) Onset Ventures (HBS 9-898-154)
	Part 2	The High-Tech Business Plan	<ul style="list-style-type: none"> Walnut Venture Associates (A): RBS Group Investment Memorandum (9-899-062)
5	July 28 Tuesday	Venture Financing III	
	Part 1	Deal Structure and Term Sheets	<ul style="list-style-type: none"> Walnut Venture Associates (B-D): RBS Deal Terms (HBS 9-899-097) You can Negotiate with Venture Capitalists (HBR 87207)
	Part 2	Alternative Financing and Harvest Opportunities	<ul style="list-style-type: none"> Palm Computing, Inc. 1995: Financing Challenges Note on the Hiring and Selection Process (HBS 9-393-093)
6	July 30 Thursday	Leadership I QUIZ #3	
	Part 1	Leadership and Motivation	<ul style="list-style-type: none"> Spoiled Startup (Forbes ASAP, August 23, 1999) First Who ... Then What (Collins, Good to Great) MIPS Computer Systems (Stanford SB-112)
	Part 2	Project Review	<ul style="list-style-type: none"> Project Review
7	August 4 Tuesday	Leadership II QUIZ #4	
	Part 1	Leadership and Motivation	<ul style="list-style-type: none"> Level 5 Leadership (Collins, Good to Great) Vinod Khosla and Sun Microsystems (A) (HBS 9-390-049)
	Part 2	Leadership and Motivation	<ul style="list-style-type: none"> Managers and Leaders: Are They Different? (HBR R0401G) Leading by Leveraging Culture (Calif Mgmt Review CMR260)
8	August 6 Thursday	Final Presentations	

- Louis Agassiz as a Teacher
- The New Venture
- Hewlett Packard: Creating, Running and Growing an Enduring Company (HBS 9-698-052)
- Intellectual Property and Strategy (HBS 9-704-493)
- Palm Computing, Inc. (A) (HBS 9-396-245)
- The Winning Strategy
- The Sales Learning Curve (HBR R0607J)
- Palm Computing: The Pilot Organizer (9-599-040)
- The Power of Virtual Integration: Interview with Michael Dell (HBR Reprint 98208)
- Product Development at Dell Computer (HBS 9-699-010)
- Biopure Corporation (HBS 9-598-150)
- The Era of Open Innovation (MIT Sloan Management Review Spring 2003)
- Nucleon, Inc. (HBS 9-692-041)
- Innovating for Cash (HBR R0309E)
- Bootstrap Finance: The Art of Startups (HBR Reprint 92601)
- Angel Investing (HBS 9-800-273)
- Onset Ventures (HBS 9-898-154)
- Walnut Venture Associates (A - D)
- You can Negotiate with Venture Capitalists (HBR 87207)
- Palm Computing, Inc. 1995: Financing Challenges (HBS 9-898-090)
- Note on the Hiring and Selection Process (HBS 9-393-093)
- Spoiled Startup: For startups, too much money is a bad thing (Forbes ASAP, August 23, 1999)
- First Who ... Then What (Good to Great, Collins)
- MIPS Computer Systems (Stanford SB-112)
- Level 5 Leadership (Good to Great, Collins)
- Vinod Khosla and Sun Microsystems (A) (HBS 9-390-049)
- Managers and Leaders: Are They Different? (HBR R0401G)
- Leading by Leveraging Culture (California Management Review CMR260)