

California Institute of Technology

E-102b “Entrepreneurial Development” (3,0,6) Credit or P/F

Course Schedule

Fall term– Location

Tues/Thurs 2:30 to 4:00 PM

Text: TBD or “High Tech Start Up” by John Nesheim

Instructor: Kenneth A. Pickar

TA: Deepan Kishan Kumar

Office: Thomas 208 *Best to e-mail for appointment*

pickar@caltech.edu 626 395 4185

deepan.kishor@gmail.com

Website, www.its.caltech.edu/~kpickar *be sure to check frequently for update. This is as of 7/15/15*

Mentors: Tech Coast and Pasadena Angels, Private Investors

Entrepreneurial Resources: Caltech Library ([Kristin Buxton](#)),

Caltech Office or Technology Transfer (fred.farina@caltech.edu),

Caltech Entrepreneurs Club, <mailto:Club-excomm@caltech.edu>,

Art Center College of Design (Tony Luna (tonyluna@aol.com)),

[Tech Coast Angels](#), USC Marshall School of Business, UCLA Anderson School of Business,

[LARTA](#) (Los Angeles Regional Technology Alliance),

[LAVA](#) (Los Angeles Venture Alliance),

[Pasadena Angels](#), Local VCs, etc

This is a very partial list! We are fortunate to have a large number of accelerators/ incubators/or entrepreneurial organizations in Pasadena, LA and Southern California

There will be guest speakers. Students are invited to meet with guest speakers for lunch before the lectures

Art Center Students are welcome

Teams

Team Members need have a like degree of commitment. Auditors or P/F students thus form separate Teams than students taking the Course for a Grade. Teams must be taken very seriously. You are obligated to attend team meetings and bear your share of the burden. Each team member will receive an identical grade for efforts produced by the team. We will form these Teams very early in the quarter, beginning the first day of class. At each class homework may be presented by one or more Teams.

All Homework will be done by all teams- if you present or not. Your grade ("HW") will be based on these analyses. All other members of the class who are not presenting are required to do the Homework (in Teams) and be prepared to comment. The discussion which ensues simulates how business (start-up or established) is actually conducted; most business information is transmitted orally through presentation and discussion. Therefore, I will require all students to contribute. I know some students are not comfortable with this and I will make some allowances. However, I do want all to join in and 20% of the grade will be dependent upon this participation.

Please e-mail the instructor and TA all your assignments in PDF format prior to 11:00 AM of the day they are due. If you are presenting, in addition to the PDF, send a PowerPoint presentation also by 11:00 AM. You may bring a memory stick back-up but it is your responsibility to get an e-mail version to the instructor and to the TA

Mentors

E 102 will have mentors to coach student teams

Role of Mentor

The individual mentor is a designated coach for each E102 Team to provide project guidance. This includes networking contacts and introductory access to potential customers and partners; counsel on business behaviors including structured meeting methods, business communication techniques, team process, negotiating and sales skills, and overall entrepreneurial life lessons; advice on additional resources including books, other experts. Mentors guide rather than teach, offering an experienced sounding board on all aspects of starting a technology business. The Mentor will meet with the Team at least once every two weeks in person or on Skype and attend the Final Presentation. Other meetings are at the discretion of each Team and could include additional face-to-face meetings and/or e-mail, teleconferences, Skype etc. The Mentors are Entrepreneurs, Angels or both.

Team Guide

Expectations

The above only works if the teams work as teams with everybody contributing. No free rides. The Caltech honor code applies here. Everyone in the class, presenting or not, does the homework. Everyone (or almost everyone) attends each class, *showing up on time*. If you have to unavoidably miss a class, I would like an e-mail or telephone message in advance informing me of the fact giving the reason. There will be periodic team assessments to assure that the teams are functioning well. If there are irresolvable

issues, teams can be broken up and the members re-assigned. This should be a rare occurrence. The importance of the team self-assessments cannot be overstated.

This is the kind of learning where looking up lectures on the web or just doing the assigned readings will not suffice. The student needs to follow the arguments made and participate in arriving at an acceptable conclusion. The journey in getting there is part of the learning experience. Mathematically, the formula is as follows:

Learning = f (team effectiveness + team preparation + rest-of-class Preparation) X (class attendance)}

You should be prepared beginning the second week with an “elevator speech” for your team - a one minute “sales pitch” that in an engaging fashion summarizes the idea, who the customer is and, most importantly, what problem(s) it solves. You will be called upon to present to class guest speakers.

GRADING

HW Team Paper 20%

Team Midterm presentation plus
Midterm paper (5 pages) 20%

- Criteria*
1. Depth of market research- especially primary research
 2. Quality of understanding of the problem

Team Final presentation plus
Team Final paper (20 pages) 40%

- Criteria:*
1. Convincing argument (logic, self consistency, flow)
 2. Originality of thought
 3. Depth of Understanding

Individual contribution 20%

1. Prepared, show up, volunteer opinions
2. Team Contribution

Extra credit: A 10 minute presentation on “New Learnings” At your volition, if you come across a subject of general business interest to the class, you can apply to the instructor to present it. The extra credit will be 0-5% depending on quality of insight.

There will be a Tech Coast Angel Meeting at Caltech on October 23, which you will be encouraged to attend. There are also opportunities to attend meeting (s) of the Pasadena Angels

References

Text

John Nesheim, "High Tech Start Up"

Michael O'Donnell, "Writing Business Plans That Get Results"

Supplement Timmons, "New Venture Creation"

Other

Kathleen R. Allen, "Bringing New Technology to Market"

Kathleen R. Allen, *Launching New Ventures*, Third Edition

Tech Coast Angels, "How to present your company", <http://www.techcoastangels.com/resources/1>

PWC, *Developing the Business Plan for Your Rapidly Growing Company* [http://](http://www.pwcglobal.com/extweb/industry.nsf/docid/BB534FA000C9016785256AC6005C42E7)

www.pwcglobal.com/extweb/industry.nsf/docid/BB534FA000C9016785256AC6005C42E7

"How to Read a Balance Sheet, Income Statement" for example,

(<http://www.ameritrade.com/educationv2/fhtml/learning/uincomestates.fhtml>)

William Davidow, "Marketing High technology"

Constance E. Bagley, "The Entrepreneur's Guide to Business Law"

Peter Drucker, "The Discipline of Innovation" article on idea creation

Geoffrey Moore, "Crossing the Chasm"

Constance Bagley, "Ethical Leaders Decision Tree" HBS Publishing

Robert Anthony, "Core Concepts of Accounting" (program learning)

Robert F. Bruner, et al, *The Portable MBA*

Robert C. Higgins, *Analysis for Financial Management*, Sixth Edition (sent request for desk copy)

Ed McQuarrie Customer Visits

Subjects Covered

Teams and Team Behaviors in a start-up

Protecting IP

Marketing

Competition

Syllabus (subject to change!)

Month	Date	Day	Speaker	Topic	Comments
Lect 1	9/29	Tue	Ken Pickar	Introduction and Presentation of Candidate Project Ideas	
<p><u>Class exercise</u> Who are we? Expectations. What do you hope to get out of the Class? Discussion of requirements</p> <p><u>Bookkeeping</u> Discussion and agreement on course times, “rules for the road”</p> <p><u>Introduction and Course/Overview.</u> Course Objectives. What you will know when you have completed this Course. Expectations. These include heavy emphasis on Team-based off-line activities, student participation in Class including presentations, critiques and discussions, the use of Mentors assigned to each Team as a resource, the presentation of difficult, less familiar subjects upfront. (These include: Team Formation, Marketing and Sales, Networking, etc.) Developing Primary Research Skills and knowing how to use Library secondary research resources. Review of subjects and the syllabus Students can present new learnings eligible for extra credit.</p> <p><u>Team Formation and behaviors</u> Why a team? What makes a good Team? Introduction to Team Behaviors. Roles and Rules. Applicability of Caltech Honor Code. Concept of continuous involvement, speed and fast iteration. Experience has shown that the earlier a team is chosen and a business idea is selected the better. We will post available ideas and students may organize and form teams around them. Alternatively, you may submit your own ideas for approval. But you have to convince others to join your Team. Team diversity by discipline, etc., can be helpful. Deadline for having a Team is Friday Oct 2</p>					

Importance of proper Concept Selection

Criteria for a "good idea" Your science-based ideas. Subjects that you are working on. (Professor's permission required!). Other Caltech science. Other ideas.

Concept of Rapid Iteration

You can change team or topic. Nothing is written in stone.

Grand Finale

Competition, judged with outside experts for best business plan. Poster session for invited guests.

Exercise: List of candidate projects.

Think about your team and business idea. Stay today and discuss projects and form teams

Lect 2	10/1	Thur	Ken	1. Team and project Choice progress 2. Vision Statement 3. Team Building 4. Exercise	How to write a Vision Statement. How to build an effective Team Teams and choices Team exercise
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Fill out and submit forms on Team roles and behaviors.
Submit Team names and members to Deepan at end of Period. If you don't have a Team we can form from others.
Preparation for Lecture 3 Readings on marketing.

Lect 3	10/6	Tues	Ken Pickar	Marketing I	Discussion: How to do a marketing plan. Exercise: Role play potential customer and marketer
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Lecture: Marketing a high technology concept. Segmentation. Finding key customer. How to get market data. Primary and secondary research. Hypothesis and Validation. The overriding importance of networks.

Readings on Business models (to be distributed)				
<ol style="list-style-type: none"> 1. Do both a web and library data base search 2. Speak to 3 other potential customers/partners. The act of talking to people about their business opportunity is of prime importance. An online survey can be useful. 				
Preparation for Lecture 4 Read the Caltech IP process at http://www.ott.caltech.edu/fc/protect.html and Handouts.				
Lect 4	10/8	Thurs Guest Lecturers	<ol style="list-style-type: none"> 1. Fred Farina, Chief Innovation Officer, Caltech 2. Kristin Buxton Library resources 	IP Lecture Library Lecture
Mentors introduced				
Lecture: Caltech patent policies. Why file a patent? How to write a provisional patent. How a full utility patent is different. The importance of claims. Examples of good and bad patents. Who owns patent? Patent and common IP mistakes made by Entrepreneurs				
Class exercise: Do patent search in the area you will be working. Is there a problem?				
Read Handout on Business Models				
Lect 5	10/13	Tue	<ol style="list-style-type: none"> 1. Each Team Presents Vision Statement (with changes) and preliminary market data 2. Business Models Lecture 3. Introduction of Mentors and Assignment of Mentors and teams 	
Lecture: How to create a compelling business model. Perceived value. One time vs. recurring revenue. The Price Curve and Price sensitivity, Commodity products, competitive issues, Scalability				
Fill out questionnaire (to be supplied) on Team Effectiveness and Issues				
Lect 6	10/15	Thu		Class presentations: Each Team presents 10 minute results of web and library data base search, Key hypotheses.
Preparation for Lecture 7 Competition Readings				

Lect. 7	10/20	Tue	Ken Pickar	Competition	Lecture: Competitive Advantage, Entrenched Competition, Response of competition, advantage of speed Class Exercise- Who are your potential competitors?
5 minute presentation of Business Concept Statement					
Lect 8	10/22	Thu		Ken Pickar	
Lecture: Fundamentals of Accounting/Fiscal Control Reading an income statement, reading a balance sheet, reading a cash flow statement Class Exercise: Analyze sample statements? What drives a young company?					
<i>10/23 Tech Coast Angel Meeting at Caltech 9:30 AM-1:30 PM</i>					
Midterm 10/27/Tues Prepare presentation 5 pages (word) and 10 minute presentation (PPT) Progress to date and key issues to be resolved for the Final					
Lect 9	10/29	Thu		Lecture TBD	
Preparation for Lecture 10: Be prepared to discuss possible examples of ethical dilemmas you have faced.					
Lect 10	11/03	Tue	Ethics and Culture	Ken Pickar	Ethical behaviors Establishing and influencing your company's culture
Lecture: How do you run and ethical company? How do you establish and influence a company's culture? Exercise: presentation of ethical dilemma Class Exercise What should be the culture of <i>your</i> company? How can you work to make it happen?					
Lect 11	11/5	Thu	Leadership	Bill Gross	Market Analysis Update

Lecture: The ‘people factor’ for start-up success Hiring “A” Players, Leadership indicators, Vision, Execution, Inspiration, motivation, communication

Discussion: How will you assure that you will get the best people for your company?

Preparation for Lecture 12.

Lect 12	11/10	Tue	Sales		
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What is the Sales Process? How do you build a pipeline?

Fill out second survey on team effectiveness.

Lect 13	11/12	Thu	Guest lecture	Dave Licata	
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Supplemental reading: Various Classes of Corporate organizing principles C corporations, S Corporations, etc. Pros and cons.

Discussion: Which type of company is best for you?

Lect 14	11/17	Tues	How to write a great business plan		How to write a great business plan
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What are the constituents of a great plan?

Lect 15	11/19	Thur	Funding Strategies		Conventional and Non-conventional sources of funding
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<p>Lecture: Lecture: ABC's of Raising Money How is money raised? What's the difference between a VC, Angel, Mezzanine financier, IPO, Acquisition, Licensing. What non-traditional methods of financing are available? Kickstarter (Friends and family, small business loans, government contracts, consulting, part time employment, shared quarters, joint marketing, visa cards, etc. Discussion: What are the financial objectives of your company? Are they achievable? Class Role Play exercise between VC and entrepreneur. <i>Also today is the Tech Coast Angels Fast Pitch at UCLA</i></p>					
Lect 16	11/24	Tue	Core Competencies and speed		What should/could you outsource to build your company?
<p>Consider multiple business issues. Exercise on Core Competence, what should be outsourced and how? Discussion: Meet in Teams to agree on Strategy. Prepare 5-minute presentation on outsourcing strategy. Present to Class What will you outsource? Why?</p>					
NOV 26 THANKSGIVING HOLIDAY					
Lect 17	12/1	Tue	Financial Projection	Lecture Ken Pickar	
<p>Lecture: How to write a credible pro forma business plan that you can believe in. The principle of self-consistency. What are reasonable numbers? Where are the red flags? How can you make your plan robust? What are the most important parameters to watch? Final survey on Team Effectiveness</p>					
Lect 18	12/3	Thur	Summary lecture	Ken Pickar	
<p>15 minute Business Presentations by each team in Class Followed by Poster Session and Class Party Submit business plans</p>					
FINAL PRESENTATIONS	12/8	Tue			