INNOVATION & TECHNOLOGY COMMERCIALIZATION

ENTR5093-003
Summer 2017
R 6:00-9:00 pm
Room 221, Lindner Hall

Professors:

Dean DuVal, Ph.D.	513-435-2175
José Nine	937-750-7457

Office Hours: Upon request

Email: duvaldn@uc.edu
Jose.nine@uc.edu

Web page: http://blackboard.uc.edu

PREREQUISITES
NA

DESCRIPTION
This course will explore issues related to the identification, nurturing, protection, and commercialization of new technologies and associated products. The class will also investigate the challenges of adopting and transforming new technologies into commercial products or services using life cycle and stakeholder models.

In this course we use case studies, class discussion, and other formats to illustrate how individuals and companies have dealt with varying degrees of technology change within their firms.

Students will be developing their own entrepreneurial skills via; 1) development of personal Observation/Problem/Solution portfolios, 2) preparing two Preliminary Technology Assessments, 3) giving one elevator talks with Q/A sessions, 4) preparing a "group-based" Technology Commercialization Preliminary Proposal, 5) giving Technology Commercialization Proposal presentations to Venture Capitalists, and 6) submitting a written Technology Commercialization Final Proposal report.

At the end of the class, students are expected to have a general understanding three key concepts:

> How to generate, nurture, evaluate, and protect new product and technology ideas,
>
> Challenges in commercializing technologies either within a company or independently with support from venture capitalists, and
>
> What additional skills and knowledge they need to acquire to be a successful entrepreneur.

TEXTS & MATERIALS
Case Materials will be available through Harvard Business Review at the following link:

http://cb.hbsp.harvard.edu/cbmp/access/63954250

Additional course materials will be distributed in class or posted on Blackboard.

ACADEMIC INTEGRITY

Academic dishonesty will not be tolerated in any form. Cases of apparent academic dishonesty will be pursued in accordance with UC (http://www.uc.edu/conduct/Code_of_Conduct.html) and LCB regulations including the "Two Strikes Policy" regarding Academic Integrity, which is that any student who has been found responsible for two cases of academic misconduct may be dismissed from the College. The "Two Strikes Policy" supplements the UC Student Code of Conduct. It mandates that all cases of academic misconduct (e.g., cheating, plagiarism, falsification) will be formally reported by faculty to an Associate Dean. Students will be afforded due process for allegations, as outlined in the policy. If a student is found guilty of academic misconduct in two instances, the student may be dismissed from the Lindner College of Business.

COURSE OBJECTIVES

1. To develop a common framework and vocabulary for discussing technology management and innovation in both small and large organizations.
2. To illustrate the challenges of generating, identifying, nurturing, protecting, and transforming innovation into commercial products.
3. To understand importance of the linking innovations pipelines, development cycles, and protection approaches with a firm's business model and strategies.
4. To practice with the analytical tools introduced in this course using case studies and real time industry and technology assessment.

COURSE COMPONENTS

Class Participation	200 points
Observation/Problem/Solution Portfolio	50 points
Two Preliminary Technology Assessments (Exemplar Analysis Approach)	250 points
Technology Commercialization Preliminary Proposal (group-based, written)	150 points
Technology Commercialization Final Proposal (group-based, oral, written, web)	350 points
	1000 points

GRADE DETERMINATION

There are 1000 possible points that can be accumulated. You are guaranteed a(n):

A if you acquire 900 points,
A- if you acquire 870-899 points,
B+ if you acquire 840-869 points,
B if you acquire 800-839 points,
B- if you acquire 770-799 points,
C+ if you acquire 740-769 points,
C if you acquire 700-739 points,
C- if you acquire 670-699 points,
D+ if you acquire 640-669 points,
D if you acquire 600-639 points,

F (FAILING GRADE) if you acquire <600 points.

1. Grades are not curved during or at the end of the semester or in the computation of final grades. A student that earns 837 points will receive a B. Missing a grade by "just 3 points" is still missing a grade. The instructor will not award extra credit or extra points to boost a grade. Make-ups will not be granted.
2. Graded work may be appealed in WRITING within one week of the grade announcement.
3. Your individual grades will not be discussed in the classroom before class, after class or during class time.
4. Questions regarding your individual results will be answered during office hours or at another time prearranged with the instructor. Also, you will be able to view your scores on Blackboard.

CLASS STRUCTURE

In general, weeks 3-10 will have a class structure broken into 6 elements.

a.	Preliminary Technology Assessment (PTA) presentations *	25-30 minutes
b.	HBR Case study discussion	60 minutes
c.	Break	10 minutes
d.	Project discussions (Capstone, Incubator, etc.), 2nd HBR Case, or O/P/S ideas	30-45 minutes
e.	Team Observation/Problem Discussions	15-30 minutes
f.	Quiz on HBR Case studies	10 minutes

*It is highly recommended that people sign up for weekly time slots as soon as possible via UC Box, even if you do not selected a technology topic.

Time will also be allotted during the first two weeks to go through the syllabus, introductions and setting up teams, and listening to and asking questions of a panel of outside Venture Capitalists. The last two weeks will be spent at the UC One Center where teams will give their final presentations to a panel of outside judges and the class professors.

CLASS PARTICIPATION (200 points)
We will place a major emphasis on case analysis in this course. Accordingly, we expect that preparation for the classroom sessions will be of a consistently high quality. The classroom activity will include lectures, instructor-led discussions of specific topics, and case discussions. However, we will rely on open, in-depth discussions of the assigned cases and topics. Active participation in class and strong attendance is required. Please notify the professor on the first day of classes if the class schedule conflicts with your **religious holidays** so that suitable arrangements can be made to respect these holidays.

Course participants are expected to have previously read and prepared the assigned material and should be ready to present their thoughts in class. Preparation should include written notes that identify the major themes in the material, list the salient points, and provide quick reference to critiques and questions. **Students will be called on** to brief the class on their assessment of issues, discuss their analysis of the case, debate issues, role-play managers in the case, act as outside consultants on the problems, or participate in short written exercises related to the topics or the cases. **Students are expected to be prepared for short written exercises/quizzes in all class sessions**. These spontaneous written exercises/quizzes will be administered frequently. They are designed to motivate you to prepare

for each class session and to provide students who prefer written over verbal participation the opportunity to demonstrate they have prepared the readings/case/toolkit materials required for the class. The quality of work done in these exercises and of your daily verbal contributions will determine the points earned for Class Participation.

Participation will be graded at least on a daily basis /3. A score of 1 indicates the student was present, but made a limited or no contribution to the class discussion. A score of 2 is a typical score and reveals the student made a satisfactory contribution. A score of 3 is reserved for students whose contribution to the class is high in terms of both quality and quantity of comments in a given day. **At least one student will be appointed each day** to score the oral contributions of the rest of the class. These students will be graded based on the instructor's view of the reliability and accuracy of their grading. Student graders do not have to participate in the class discussion, but are welcome to do so if it does not interfere with their grading. **The instructor reserves final say on daily participation grades for each class.** Scores /3 will be tabulated over the course and converted into a score /200 points.

OBSERVATION/PROBLEM PORTFOLIO (50 points)

Inventions and entrepreneurial opportunities are not the sole propriety of highly creative people. In fact, inventions and entrepreneurial opportunities are much more likely to be made by people who are skilled in making observations of unobvious problems, habits, or behaviors that can be improved to make live better, easier, or simpler for a person or the broader population. An inventor almost never says "Eureka" when solving a problem. They are much more likely to say "that's odd" or that's funny" when making an observation which leads to a breakthrough. The subsequent solution comes from hard work, careful thought, and rigorous experimentation.

As part of this class, we expect you to practice and develop your observational skills by noting observations/problems as you go about your normal week (minimum 2/week). Each student is expected to post these observations <u>every week</u> in the UC Box spreadsheet for problem/solution, noting the circumstances surrounding that observation, and then propose a solution or improvement to that situation. Student are also expected to engage others on your team in your proposed solution and ask how they would improve upon your proposed solution or propose a different approach to solving the problem you have identified. During the latter half of each class, weeks 2-11, we will ask teams to share with the class one of their best O/P/S ideas for the week and engage in a class discussion of the idea, how to make it better, potential follow-on ideas, and key issues that would need to be addressed before commercialization. Not all teams will have time to discuss their top idea each week, but team needs to be prepared to discuss an idea each week.

Preliminary Technology Assessments (PTA) (250 points)
Each student must sign up for two different and unique (within the class) Preliminary Technology Assessments using UC Box. It is the student's responsibility to make sure that they are not preparing an analysis on a topic already selected by another student, otherwise it will not be graded and counted as a zero.

The skill of succinctly describing a set of decisions made by another firm and extracting meaningful **lessons** and **best practices** that can be applied to another situation is very helpful in strategic planning, decision-making, advising managers and contributing to planning meetings. In view of honing your skills in this area, you are responsible to write 2 "exemplar mini-cases" each valued at 125 points. Each single spaced case should focus primarily on one technology, be no more than 3 pages in length (including references, timeline and exhibits), and contain:

a. Orientation: A clear orientation to the technology and any intellectual property
b. Timeline: A timeline of discovery and development (figure + list/details)
c. Current Situation: A succinct description of the current situation (e.g., its stage of development, stakeholder involvement, successes and failures, and next steps, etc.)
d. Lessons and Best Practices: Lessons and best practices derived from the case can be related to a theme in the course such those found in the course calendar and/or the Technological Commercialization Assignment or <u>others of your own choosing</u>. The key is to identify several meaningful transferrable insights from your case.

Each student will also give an oral presentation of one of their two technologies in class in the form of an "elevator talk". Total time allotted will be 5 minutes, maximum. It is recommended, but not required, that the speech be limited to two minutes, allowing for 3 minutes of Q/A. The Professor may interrupt or end the elevator talk after two minutes to ask questions or seek clarification, just as a senior executive would in a real elevator talk. A "prop" may be used during the talk, such as an object, drawing, or picture. However, no written words may appear on the prop and only the overhead projector may be used to share the prop. The classroom computer may <u>not</u> be used to share the prop.

TEAMS

Teams should be formed by the end of class the first week. You may choose your own teams, subject to the approval of the instructor. Teams and team size will depend on your project interests, but typically 3-4 team members is appropriate. Teams are expected to be self-directed and self-managed. If your team is experiencing problems, please see the instructor as soon as possible for assistance. Each team member will evaluate team participation at the end of the term, so team member performance will be factored into your final individual grade. For example, if a team member is consistently ranked below a B by his/her peers, this team member is likely to receive a lower grade than the rest of the team **<u>on all team related work</u>**.

TEAM-BASED TECHNOLOGY COMMERCIALIZATION ASSIGNMENTS

TECHNOLOGY COMMERCIALIZATION ASSIGNMENT - PRELIMINARY PROPOSAL (150 points)

Each team will conduct an analysis of an emerging UC technology and submit a team-based written proposal valued at 150 points. That assignment is due by class of Week 7 of the course. The emerging UC technology may be a previous capstone project or a current incubator project presented in-class by project leaders. Capstone projects will be posted in BlackBoard.

TECHNOLOGY COMMERCIALIZATION ASSIGNMENT - FINAL PROPOSAL (350 points)

The final proposal will be selected from one of the team members' Preliminary Technology Assessments (6-8 presentations), the team's group Technology Commercialization Preliminary Proposal (1 written report), or from an original idea from a team members' observation/problem/solution log (60-80 ideas), pending approval and input from the professors.

Given this final proposal is much more substantial, is worth 350 points and includes a class presentation (100 points) and a written report (250 points). The purpose of the project is to apply the tools and concepts introduced in the class to evaluate the potential opportunity and impact of an emerging new technology on an existing industry. Teams are encouraged to use resources available on campus and

externally to assess your emerging technology. Internal resources include library material and faculty resources. The internet, external experts, and other archival data (e.g. books, videos, etc.) can be very valuable in helping you understand the stage of development of your new technology. Detailed descriptions of the Technology Innovation Assignment can be found on blackboard under the Assignments tab.

The project paper should be no longer than 15 double spaced pages excluding exhibits. You may include as many exhibits as needed, but be certain each one is directly referenced to text in your report. In your presentation, please include any audio and/or visual media that will effectively describe your technology. The class presentation should be no longer than 15 minutes and should cover the sections described above. It will be followed by an extensive Q&A session.

You may find that your technology has potential application in multiple industries. In those cases, choose one industry/application and then conduct your analyses and predictions for that group of customers, suppliers, buyers and competitors.

Finally, the instructors have been required to establish the use of e-Portfolios for this class. The purpose and value of E-Portfolios will be reviewed early on in the class and each student is expected to have one started by the end of the course. At a minimum, their e-Portfolio must have a student picture, resume, and an audio/visual presentation of their TCA Final Proposal posted within their e-Portfolio. A link to each student's e-Portfolio must be received by the last day of class via email to Dr. DuVal. If one is not received, 10% of the grade for the TCA Final Proposal will be withheld for the project.

ADMINISTRATIVE POLICIES/COURSE METHODOLOGY:

1. No makeup work will be offered in this course.

2. Late assignments will not be graded and will receive a grade of 0.

3. You are expected to maintain copies of all executive summaries and assignments that you turn in for evaluation.

The instructor reserves the right to change this syllabus/schedule. Any changes to this syllabus, due dates, course requirements or grading requirements will be made as far in advance as possible.

All students will be held responsible for completion of all course components.

Check the course web site on blackboard periodically for updates and information.

COURSE CALENDAR
ENTR 5093 -003

Session	Date	Themes	Readings & Assignments (Due by the start of class unless stated as in-class work)
Week 1 (DuVal)	5/11/17	• Introductions	• Form your TCA Teams, 3-4 students, preferably mix of at least 1 engineer and multiple business students
		• Course Overview • Syllabus • Review Technology Commercialization Assignment (TCA) • Intro PowerPoint • Technology Sign-Up • Introduce Capstone Projects and Cooperative Learnings Summary (How far they got)	• Open sign-up for exemplar mini-case studies template
	Break		• Overview how to prepare Case Studies
		• Case Study: **Throw-able Alarm Clock**	• Textbook Case Study: Winslow Clock (3 pages)
Week 2 (DuVal/Nine)	5/18/17	• Guest Panel: Venture Capitalists, what do they need to see?	• Guest Panel, How to assess technologies and technology proposals
		• Case Study**: Business Model Analysis for Entrepreneurs**	• HBR Case Study #9-812-096
	Break		
		• Case Study: **Early Tests of Business Potential Stage-Gates and Quick Kills**	• HBR Case Study #7232BC-PDF-ENG
		• Discussion: **Fit, Feasibility, and Attractiveness Assessment for Idea Pipeline**	• First two O/P/S posted, selected at random from UC Box
		• Quiz	

Week 3 (Nine)	5/25/17 Break 	• Presentations – Preliminary Technology Assessment Cases • Case Study: **NASCAR – Leading a Marketing Transformation in Time of a Crisis** • Guest Speaker - Consumer Research Expert • Observation/Problem/Solution discussion • Quiz	• Prepare PTA Case • HBR Case Study –- KEL 889 in HBR • Ronda Slaven – Synchrony Financial - VP Global Research • Team recommended O/P/S topics
Week 4 (Nine)	6/1/17 Break 	• Presentations – Preliminary Technology Assessment Cases • Case Study: **Airbnb: Business Model Development and Future Challenges** • Project Presentation: **Residential MicroTurbine Power System** • Discussion: **Transformative ways products change paradigms** • Observation/Problem/Solution discussion (if time available) • Quiz	• Prepare PTA Case • HBR Case Study # W16782-PDF-ENG • Bryant Crouch and Team – UC College of Engineering • Google Home or Amazon's Alexa article. (will be posted by instructor) • Team recommended O/P/S topics
Week 5 (Nine)	6/8/17 Break 	• Presentations – Preliminary Technology Assessment Cases • Case Study: **PayPal in 2015: Reshaping the Financial Services Landscape** • Project Presentation: **(to be determined)**	• Prepare PTA Case • HBR Case Study E572-PDF-ENG • Pulkit Verma

		• Discussion: **Transformative ways services change paradigms** • Observation/Problem/Solution discussion • Quiz	• Venmo article (will be posted by instructor) • Team recommended O/P/S topics
Week 6 (Nine)	6/15/17 Break	• Presentations – Preliminary Technology Assessment Cases • Case Study: **Uber and Stakeholders: Managing a New Way of Riding** • Project Discussion: **Salichek Project** • Discussion: **Millennials and Social Commerce: Brands and Buy Buttons** • Observation/Problem/Solution discussion • Quiz	• Prepare PTA Case • HBR Case Study # 315139-PDF-ENG • Thiyagrajan Upassana, Vinitha (Thiyagva) presenting Article by: Nora Ganim Barnes, Ph.D. Chancellor Professor/Director Center for Marketing Research University of Massachusetts Dartmouth nbarnes@umassdedu Danielle Correia MBA Candidate University of Massachusetts Dartmouth dcorreia@umassd.edu • Team recommended O/P/S topics
Week 7 (DuVal)	6/22/17	• Presentations – Preliminary Technology Assessment Cases • Case Study: **Bionic Wrench**	**Team-Based Preliminary Technology Assessment (TPA) Due** • Prepare PTA Case • Court Document (posted on blackboard by Professor)

	Break	• Discussion: **IP Basics** • Capstone Project Discussion: **(To be determined)** • Observation/Problem/Solution discussion • Quiz	• Team Exercise - Prepare SWOT Analysis and Recommendation Team recommended O/P/S topics
Week 8 (DuVal)	6/29/17 Break	Presentations – Presentations – **Preliminary Technology Assessment Cases** • Case Study: **Innovators Dilemma Introduction: Why Good Companies Fail to Thrive in Fast-Moving Industries** • Discussion: **Creativity and Problem Solving, 7 Thinking Hats (deBono)** • Capstone Project Discussion: **(To be determined)** • Observation/Problem/Solution discussion • Quiz	• Prepare PTA Case • HBR Press Chapter: Excerpted from The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail • Team recommended O/P/S topics
Week 9 (DuVal)	7/6/17 Break	• Presentations – **Preliminary Technology Assessment Cases** • Case Study: **Identifying Venture Opportunities**	**Final TCA Topic Selection Approval (WebEx Call with Professors, arranged by students, outside of class time)** • Prepare PTA Case • Stanford Graduate School of Business" Case E-323

		• Discussion: **Discovery Skills – The Innovators DNA** • Capstone Project Discussion: **(To be determined)** • Observation/Problem/Solution discussion • Quiz	• Team recommended O/P/S topics
Week 10 (DuVal)	7/13/17 Break	• Presentations – **Preliminary Technology Assessment Cases** • Case Study: **Design Thinking and Innovation at Apple** • Discussion: **Resources and Experiences needed to be an Entrepreneur** • Capstone Project Discussion: **(To be determined)** • Observation/Problem/Solution discussion • Quiz	• Prepare PTA Case • HBR Case Study #9-609-066 • Team recommended O/P/S topics
Week 11 (DuVal)	7/20/17 Break	• Presentations – **Preliminary Technology Assessment Cases** • Case Study: **Winning the Brain Game: Fixing the Seven Fatal Flaws of Thinking** • Discussion: **DuVal Failures** • Observation/Problem/Solution discussion • Quiz	• Prepare PTA Case • HBR Case Study #ROT326 • Team recommended O/P/S topics
Week 12 (DuVal/Nine)	7/27/17 Break	TCA Presentations	**TCA Presentations**

		TCA Presentations	**TCA Presentations** **Final TCA Reports due day of presentation** **Peer Review Evaluations due day of presentation**
Week 13 (DuVal/Nine)	8/3/17 Break	TCA Presentations Course Appraisal Next Steps	**TCA Presentations** **Final TCA Reports due day of presentation** **Peer Review Evaluations due day of presentation**

The instructor reserves the right to change this syllabus/schedule. Any changes to this syllabus, due dates, course requirements or grading requirements will be made as far in advance as possible.

All students will be held responsible for completion of all course components.

Check the course web site on blackboard periodically for updates and information.