

# ENTREPRENEURSHIP AND BUSINESS FOR ENGINEERS

## Course: APS1088H Fall 2015

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### COURSE DESCRIPTION

#### **Taking Notes:**

The 488/1088 Entrepreneurship series is unique in content and structure. It is offered in each year in CHE, CIV, ECE, MIE and MSE. All of the lecture notes used in the classroom are available to you on your BlackBoard Class website. All you have to do is print them or download them for use in class. The Graduate version, APS1088, shares much with the undergrads courses and yet is substantially different too – as will be evident later. However, if you had taken any of the above courses, or either or both of the APS234 or APS432 courses then taking this one is not appropriate. We provide the entire lecture series' notes and handouts used in the classroom so that you will not have to take detailed notes, save on texts and get the most up-to-date material. You should print out these notes and bring them to the classes and add whatever new is added.

#### **The Text:**

*Small Business Management - Launching and Growing New Ventures*  
5th Edition by Justin Longenecker - Baylor University, Leo B. Donlevy - Haskayne School of Business University of Calgary, Terri Champion - Niagara College, Carlos W. Moore - Baylor University, J. William Petty - Baylor University, Leslie E. Palich - Baylor University. ISBN-10: 0176503900 ISBN-13: 9780176503901 608 Pages © 2013 Published.

#### **Lecture Hours:**

Monday: 6:00 – 9:00 pm in XXXXXX  
All professors presenting this lecture are, or have been, successful entrepreneurs.

Tuesday: 12:00 – 2:00 pm in XXXXXX (marked as a Tutorial in the Calendar)  
This “tutorial” is referred to as the Hatchery Speaker Series. It actually takes the form of a talk given by a successful entrepreneur. See “*Assignments*” below for complete description.

#### **Time Demands**

This course will be more demanding on your time and will require more work than the average course you will have taken in this Faculty. Do not let the 3 hours per week, plus the 2 hour Hatchery Speaker Series fool you into thinking that this is an easy course. If you are looking for a “bird” course, this is not it!

## Details

The course is on BlackBoard, so you should sign in as soon as possible and read the handouts. We suggest that you print or copy the notes to your e-device before the lecture, read it and bring it with you to work on during the lecture. We will post on BlackBoard all handouts as the course unfolds on the dates shown in this document – so visit often.

With the exception of the two Canvas Progress Reports (handed in via e-mail to the instructor in WP form) and the final Business Plan (paper form, bound delivered on the due date) plus the exams will be marked by the instructors. All other projects and assignments are marked by your TA. Questions regarding these projects and assignments should be directed to him/her.

## The Hatchery

The University of Toronto is dedicated to supporting entrepreneurship. Besides this course one of the ways it is supported in the Faculty of Engineering is through The Hatchery. If you have the entrepreneurial spirit or an entrepreneurial idea, The Hatchery will provide you with the tools and resources to take you to the next level. This course is the perfect place for you to start. Visit: <http://hatchery.engineering.utoronto.ca/>

## ASSIGNMENTS, PROJECTS AND EXAM

### Hatchery Speaker Series / Guest Speaker Report

We invite practicing entrepreneurs from the business community (even past students who started successful businesses) to speak for 45-50 minutes about their business, life, experiences, successes and failures. Because this course deals with practical concepts and real events these guests are invaluable in adding a real-life dimension to the course as they have, “been there and done it all.” So, what you hear is the real stuff.

The guest speaker’s talk is followed by a lunch of juices and sandwiches, Q and A’s and an opportunity to network, which you should take advantage of.

You *must* submit a one page *Guest Speaker Report* on at least 7 of the speakers. It should give an overview of the key things said by the guest speaker. It should include your thoughts and opinions and be an evaluation of what they said in the context of how it can make you a better entrepreneur. It is not a synopsis of what s/he said – your opinions are required.

The Guest Speaker Report will automatically show up on Blackboard under “*Assignments/Guest Lectures*” at 12:00AM on the day of the guest speaker and will be available until 12:00AM of the following Saturday. You have unlimited submission attempts.

Example: The first Guest Speaker Report on BlackBoard will become available on Tuesday, January 13<sup>th</sup> at 12:00 pm and will be available until Saturday, January 17<sup>th</sup> at 12:00 am.

**Hatchery Speaker Series guest lecture conflicts:** You will find alternatives to the guest lectures at the Hatchery website <http://hatchery.engineering.utoronto.ca/calender/>. There is also a set of password protected alternate guest lecture assignments in “Assignments/Guest Lectures.” Your TA will give you a password to one of these assignments once you have attended the previously approved guest lecture. You will NOT be given a password if the T.A. did not pre-approve the alternate entrepreneurship related lecture. For those who work and cannot make the Tuesday meetings, the Interview a Successful Canadian Entrepreneur assignment is available as a substitute.

**Interview a Successful Entrepreneur:** This is an option only for students who work full time and

cannot attend the Entrepreneur's Forum on Tuesdays. All sales people will admit that one of the hardest things they may ever have to do in their job is a "cold call". Interview of a Successful Entrepreneur requires you to interview a successful **Canadian** entrepreneur and write a report about them and what made them successful. The successful entrepreneur that each student chooses will be a complete stranger to them and may not be an employee or owner of their own company or anyone working at the University of Toronto.

Each student who chooses this option will identify a person whom they wish to interview and obtain permission from the course instructor who will provide guidance on how to approach that individual and whether or not the person is a suitable candidate for the assignment. Such permission is mandatory. The purpose of this assignment is twofold: 1) learn how to approach a stranger and "sell" them something. In this case the sale is to get them to give you an hour of their time; 2) all successful entrepreneurs have succeeded in selling an idea in a market so this is an opportunity to learn from their experience. The report will be handed in as a hard copy. Late submissions will be penalized by a 40% deduction. No submissions will be accepted once the papers are marked and returned to those who submitted on time resulting in a zero.

### **Business Press Review**

As part of your class participation mark you are expected to read an appropriate article from a reliable business publication (Globe and Mail ROB, National Post – Financial Section, Financial Times, Canadian Business, etc.) and prepare a written *half page* report.

E-mail your report to your TA by midnight of the day *before every lecture*. The text should be in plain text included in the body of the e-mail - NO attachments please – submit on BlackBoard and do not forget to reference the article

Your report should be about economic, political or personal issues *affecting small businesses*. These may be: a drop (or rise) in interest rates; recently released trade figures; import/export news; currency issues; government actions; approvals of financing; bankruptcies; tax matters, entrepreneurs, success stories, etc., etc. We expect you to write a thoughtful report on the issue, not a précis of the article.

At the start of each lecture, up to 5 students will be asked to make a 60-second oral presentation of their report (a printout of your report will be provided).

*Successful business people read the financial news every day!* This assignment is meant to help you understand the importance for entrepreneurs of "keeping on top of the business news" and to help you hone your speaking skills.

### **Market Research Assignment**

Conducting Market Research is absolutely necessary to understand whether or not your business is likely to be successful. This assignment was designed to help you get started on the Market Research portion of your final Business Plan. For this assignment you should endeavour to do market research on the topic/business you chose for your Business Plan.

It will help you understand the process you would follow in a real business environment and at the same time you will be doing the groundwork for your Business Plan.

### **What is your business idea?**

New business ideas tend to be the result of the recognition of an opportunity by the entrepreneur, but there are many ways to come up with an idea for a business. The best place to start is to share ideas with family and friends. Sharing ideas and observations will lead you into hypotheses of what the value proposition of your start up should be. See the "**Pre-course information**" document on BlackBoard for

more details – this has also been e-mailed to you prior to the first class. **Remember to bring this document with you to the first lecture!!**

There is also a Business Ideation document that shows how to do this. This tool is available for you on Blackboard and will help you choose an idea through a brainstorming exercise. If you already have an idea this exercise can help you test your idea.

### **Business Canvas/Business Plan Proposal**

Once you have come up with an idea for your Business Plan, you must submit it to your professor for approval – you do this by bringing it with you on the first lecture. While this is not a “marked” assignment, you cannot proceed with your Business Canvas/Plan until you get an approval to do so.

### **Milestones in the Business Canvas Progress Report**

The business canvas is a tool that will help you define your start up and its business model. We want to define a business model and how your start-up creates value for itself (generates profit) while delivering products or services for its customers. During this course you will have the unique opportunity to develop the different sections of the canvas and use them as the building blocks to create your final Business Plan. The term project is a full Business Plan and it is intended to give you "hands on" experience in developing a document that is *absolutely essential* if you ever get into business for yourself.

Because preparing a Business Plan is not a simple exercise and is quite time consuming, we start with the Business Canvas – See the document on BlackBoard that describes this process in detail. This Progress Report is on how far you are and what you are planning in your Business Plan to which the Canvas will lead. This is to ensure that you get started early and have at least part of your final Business Plan started.

**Milestone #1** will be reached by the 4<sup>th</sup> lecture of the course. We expect you to have fully developed Sections 1, 2, 3 and 4 of the Canvas and there are marks for this document. This will be essential for your Business Plan's success.

**Milestone #2** will have all the Sections 1 to 9 inclusive completed. Marks will be assessed and it will be due on the 8<sup>th</sup> lecture of the term.

By the 8<sup>th</sup> lecture you are expected to have made solid progress on "painting" a picture of all of the sections required in the final Business Plan with the exception of the Financials, and the Executive Summary. Even though this is not a “finished” product, it should be done with care in a professional style and be a good representation of what your final Business Plan will look like. This must then be rapidly expanded into the written document; the Business Plan is due on the last lecture date.

Our comments will challenge you in the definition of your value proposition and market fit of your solution. We shall work with you but not for you in this process, is up to you to validate your hypothesis and develop the canvas.

### **Final Business Plan**

The final term project involves the preparation of a *full and complete Business Plan* for a company you selected as “Your Business” and of course this will be on the idea that you brought to the first lecture (or another approved) you worked on in the canvas and the materials you developed there. The Business Plan, on the average, should be 20-30 pages (cover page, table of contents, appendices etc. are not included in the count) typed, single-spaced. For details, see the handout on BlackBoard.

We understand that the preparation of a "professional" Business Plan is a lot of work. The creation of your business plan will be an organic process once you have completed all the elements of your business

canvas. The comments you receive on your Progress Reports will guide you to validate your hypothesis and value proposition. There is also a lot of help available on the Internet, so please feel free to use any/all such assistance – but make sure you give credit by citing your sources.

In particular, our experience on the Financial section of your Business Plans has been less than satisfactory in the past. So this term there will be significant new efforts made by us (and by implication you) to do a much better job than before. **So do go to the two special tutorials shown in the Lecture Schedule below!!**

Keep in mind that this is a business document – not a novel. Good communication is essential, so keep your language business-like, short and to the point. Always proof read to ensure accuracy of facts and language – *do not just rely on spell check!*

### **In-Class Presentations**

Each student will have the opportunity to make two presentations during the term. The first presentation will be a 90 second “elevator speech”. An elevator speech is a 90 second or less sales pitch that will get an important person whom you happen to meet and you want him/her to agree to a meeting that will last up to an hour where they will hear in detail why your business idea is the huge opportunity for them to make money on or improve their business. In each class beginning at lecture 6, 5 or 6 students will be asked to make their elevator pitch. At lecture 12, all students will make a 5 minute business plan presentation describing why their businesses are a great opportunity to create value for their clients and investors. More details will be provided on these presentations during the course of the term but obviously they are directly related to the Term Project, the Business Plan.

### **The Final Examination**

The final examination will be open book and will draw upon material presented in the course, including the readings from the textbook and class discussions. Complete lecture notes should be printed because laptops are not allowed in the exam.

## **ASSIGNMENT DUE DATES**

I	Report or Assignment	Due Date
1	Business Canvas Progress Report # 1	Oct 5
2	Market Research Assignment	Oct 26
3	Business Canvas Progress Report # 2	Nov 16
4	Interview Entrepreneur Report(Optional)	Nov 30
5	The Business Plan – due no later than 6:10 p.m., at the start of the	Dec 7

Please respect the fact that we will enforce these dates. Do not make any excuses because we will not be *sympathetic!* If you encounter any problems we will always try to help you just set up an appointment and we will make time for you.

While we will not reject a late submission, there will be a 40% discount on the marks achieved. So, do not be late! If you do not hand in the item by the time we return the marked document to the others, we will not accept it at all! You should put these due dates into your timetable right now.

## MARKING SCHEME

Class Participation (includes Business Press reviews)	6%
Market Research Assignment	4%
Guest Speaker Reports(or Interview Entrepreneur)	6%
Elevator Pitch	2%
Progress Report #1 - Canvas	5%
Progress Report #2 - Canvas	5%
Business Plan Presentation	10%
Final Business Plan	22%
Final Examination	40%

## HELPFUL HINTS

Your term project is the preparation of a **full and complete Business Plan** for a company you select as “Your Business.” This requires a great deal of work – up to 50 hours. Nevertheless, here are a few comments about the term project:

1. **Do not put it off or delay starting it** as you will run out of time, for sure!
2. Plan what you have to do, put some deadlines on the action items, and get on with it.
3. Consider what the subject business will be and get started before the first class by having it ready.
4. Don't forget to include an Executive Summary (this is necessary, but, it should be no longer than ½ to one page) for the project and is done as the very last thing, this is a key component!
5. Conclusions and Recommendations are important sections, yet many neglect to do it – and suffer.
6. The **Financial** section is often a problem. We offer extra help in the form of a tutorial.
7. A letter of Transmittal (this means a cover letter) is also a requirement.

### A word about course management

In the business world, deadlines are very important and missing them usually costs the firm dearly. For example, if you are bidding on a contract or tender, missing the deadline by even one minute will result in **your bid not being considered at all**. Similarly, in this course, missing deadlines will cost you. While we will not reject a late submission, there will be up to a 40% discount on the marks achieved. So, do not be late! In any case, if you hand in anything **after we handed the material back** to the other students, we will not accept it at all!!

## WHY TAKE THIS COURSE

In today's economy the most successful people are those who have entrepreneurial skills. Whether you wish to, “do your own thing,” or you decide to work for a large or medium sized corporation you will find this course invaluable. In fact today organizations actively search for *intrapreneurs* (an entrepreneurial individual who prefers to work within a larger firm rather than start their own). So, if you have the “talent” for business or if you can hardly wait to leave university to pursue a career in business, whether you start it yourself, or you join a family business, this course is for you.

Our approach to teaching this course is based on real-life business experiences and years of successful practice of “what we preach.” The course contains very little theoretical work or academic approaches. It is designed to familiarize you with the kinds of opportunities (problems) likely to be encountered in an entrepreneurial career.

If you want to lead an entrepreneurial lifestyle and are prepared to work hard, we will provide you with the practical knowledge and technical skills required to pursue this kind of career. We believe that an entrepreneurial lifestyle is not only a reasonable career alternative, but the most exciting career possible. We speak from experience; each one of the professors teaching this course is or has been a successful entrepreneur.

Becoming a successful businessperson is not inherently limited to a select few. While the spirit may be inborn in some individuals, most people can learn and develop the necessary entrepreneurial skills and knowledge. As you are about to take this course, you should realise that by the time you finish it, you may conclude that entrepreneurship is not for you, but on the other hand, you may find that you just cannot wait to start! We have had dozens of students who did start businesses, some even while they were completing their degrees and a number are very successful today.

Everything changes rapidly in today's society whether we examine the legal, international, financial or Canadian business environments. Clearly, the end of the 20<sup>th</sup> Century went down in history as the decade of the "Great Restructuring" of the modern World's trade and business environments; the maturing of the Internet and e-Commerce and the pervasive presence of Social Media and many other events. Canadians are not immune to these changes and must adapt in order to prosper. The formation of a small business is perhaps the only real opportunity in the 21<sup>st</sup> Century for future successes for many of you!

**In Closing:**

We consider it a privilege to have the opportunity to teach you. **We really enjoy the enthusiasm, intelligence, drive and vitality you display. We hope that you will be successful in anything you attempt to do in life. Good luck!**

## 2015 LECTURE SCHEDULE APS1088

<u>Week</u>	<u>Date</u>	<u>Text-Chapter</u>	<u>Topics</u>	<u>Assignments &amp; Project Milestones</u>
1	Sept 14	1 + 2 handouts	Organizational meeting <b>The Entrepreneur and the Business Canvas</b>	
	Sept 15	N/A	- Introduction to the “Entrepreneur” - The Business Canvas – its role and value <i>No Guest Today</i>	<i>Bus Canvas Assn. handed out</i>
2	Sept 21	5	<b>Business Plan and Finding a Business Idea</b>	
	Sept 22	N/A	- Business Canvas/Plan - Business Idea Search <i>Guest Entrepreneur #1: TBA</i>	
3	Sept 28	6 +notes	<b>Market Research</b>	
	Sept 29	N/A	- Source of data <i>Guest Entrepreneur #2: TBA</i>	
4	Oct 5	7 and 8	<b>Marketing Strategies Promotion and Pricing</b>	
	Oct 6	N/A	- Pricing and costing - Advertising, electronic channels <i>Guest Entrepreneur #3: TBA</i>	<i>Canvas Progress Report #1 due</i> <i>Market Research Assignment handed out</i>
5	Oct 19	7 and 8	<b>Sales</b>	
	Oct 20	N/A	- Sales people and managing them, - Distribution channels and Global marketing <i>Guest Entrepreneur #4: TBA</i>	
6	Oct 26	A13, 14	<b>Accounting, Financing and Analysis</b>	
	Oct 27		- Sources of funding - Accounting and controls - What you need for the Business Plan <i>Guest Entrepreneur #5: TBA</i>	<i>Market Research due today</i>
7	Nov 2	3,4	<b>Managing the Business – People/Things to Know</b>	
	Nov3	N/A	- Management Styles - Recruiting and hiring - Legal issues in employment and HR <i>Tutorial on how to prepare your financial statements</i>	
8	Nov 9	9	<b>e-Business</b>	
	Nov 10	N/A	- What it is about and how you can participate - How to develop a web presence - The problems of on-line business <i>Guest Entrepreneur #6: TBA</i>	

<u>Week</u>	<u>Date</u>	<u>Text-Chapter</u>	<u>Topics</u>	<u>Assignments &amp; Project Milestones</u>
9	Nov 16	N/A	<b>Legal issues</b> - Legal forms of organization - Taxation and other matters - Intellectual Property protection	
	Nov 17	N/A	<i>Guest Entrepreneur #7: TBA.</i>	<i>Canvas Progress Report #2 due</i>

10	Nov 23	<b>10</b>	<b>Buying a Business, Franchising, Taking over a Family Business</b>
			- Buying a business and Franchising - Succession in a Family Business
	Nov 24	N/A	<i>Tutorial on how to prepare your financial statements – a MUST to attend</i>
11	Nov 30	<b>11, 12</b>	<b>Risk Management &amp; the Exit – Succession and Other Options</b>
			- Exiting the business and succession - Selling out
	Dec 1	N/A	<i>Tutorial and help with the Business Plan.</i>
12	Dec 7	<b>11, 12</b>	<b>Business Plan Presentation</b> (5 minutes each) <b>Business Plan due 6:10 pm - <u>(No Extensions)</u></b>
	Dec 14		<i>Final Exam</i>

*Thanks for the Opportunity to teach  
you!  
Good Luck in the  
Exams  
Have a safe and enjoyable Summer  
Vacation!*

## Resumé

### Steven Treiber, Ph.D., P.Eng

Steve has always had an interest in business. Although he started out working for someone else, he always had an eye on "doing his own thing" – and that he did after just 4 years in the corporate world. So, in 1984, after an engineering career in the pulp and paper and oil industries with Scott Paper and Shell Oil, respectively, he started his own software and engineering firm. Treiber Controls Inc. developed process control and real-time optimisation applications and software for the oil, petrochemical, pulp and paper and other process industries. In 1998 he sold his company to a NASDAQ listed competitor, Aspen Technologies, and served in various senior management roles.

He left Aspen in 2002 to launch a new business start-up – the entrepreneurial drive was still there. He continues to work with technology start-up companies to apply his knowledge and experience in engineering and business. He is now President of [Manufacturing Technology Network, Inc.](#)

After receiving a Bachelor of Engineering from McGill University he volunteered to work as a high school teacher in Uganda from 1969-1971. He also holds a Master of Applied Science from the University of Toronto, and a PhD from McGill University, all in Chemical Engineering. He has published over 30 papers in the fields of process control and optimisation.

## **Resumé**

### **Joseph C. Paradi, Ph.D., P.Eng., FCAE**

Since his childhood in Budapest, Hungary, and immigrating to Canada as a youngster, Dr. Paradi has spent the past almost 5 decades always "building" something - first, an education. He completed high school in Toronto, then attended the University of Toronto where he obtained a degree in Chemical Engineering, followed by M.A.Sc., and Ph.D. degrees. He is a member of the Professional Engineers of Ontario and a Fellow of the Canadian Academy of Engineers.

Even before completing his final degree, he started his second "building" project, Dataline Inc. Dr. Paradi was the founder of Dataline Inc. in 1968. The company was financed with a \$2.7 million dollar public underwriting of shares (March 1969). The Company grew to a 25 million dollar, large Canadian Computer Services Company. Over 180 professionals distributed Dataline's service offerings across Canada and in most other major financial centres around the globe. The international network supported over 5,500 real time terminals using virtually all types of communication services including leased lines, Satellite and dial-up services. The system and network delivered sub-second response to stock traders, bankers, investment managers and others who needed instant information. Dr. Paradi sold the company to a U.S. firm in late 1987 and left in January 1989 after 20 years at the helm.

While still very much involved in Dataline, Dr. Paradi started his third "building" project at the University of Toronto in the Faculty of Applied Science and Engineering. This project started during the early 1980's when the first lectures in "Innovation and Entrepreneurship" were delivered. Today, he is the Executive Director of the Centre for Management of Technology and Entrepreneurship, and a Professor in Chemical Engineering and Applied Chemistry. He teaches graduate level Management Information Systems and Management of Technology courses as well as undergraduate courses in Entrepreneurship and Business, Engineering Economics and Small Business management. Part of his research activities include the supervision of a group of 5 - 10 graduate students working on their Masters and Doctorates in Engineering. There is a long list of academic accomplishments also, including well over 40 graduates, papers published and presented and conference contributions. More information is on the Web: [www.cmt.eutoronto.ca](http://www.cmt.eutoronto.ca). He is the past Speaker of the Faculty Council and the Chair holder in Information Engineering.

The fourth "building" project was Parcorp Ltd., a company started for the purpose of investing in, nurturing and facilitating the growth of small Canadian high tech companies. He has also started several other companies: a specialised technology consulting firm (ProdActivity Associates Inc.); two firms based on intellectual properties developed at the University of Toronto (DesignCo Inc. and Translucent Technologies Inc.); and a joint venture in Hungary. He is the director and part owner of other high tech firms as well.

Dr. Paradi has always been very active in industry affairs and in the community. He was a member of the Board of Directors of CADAPSO (the Canadian Association of Data Processing Organisations) for 15 years, its Chairman twice (three years in total) and Chairman of most of its subcommittees at one time or another. He was active in the Information Industry Association of the U.S. He is also member of IIE, INFORMS, IEEE and PARN. Community activities have included coaching Minor Hockey for 15 years; he was a senior instructor in the National Coaching Certification Program for over 10 years. He coached Lacrosse and organized golf for kids. He participated in a number of community fundraisers as well. Dr. Paradi is a member of the Mississauga Golf and Country Club, The Palm Beach Polo Club, The National Club and The Metropolitan Toronto Board of Trade.