Course Outline: Healthcare Startups and Entrepreneurship

Course #: BMDE 558 (3 Credits)

Term: Fall

Year: 2023

Course pre-requisite(s):

Course co-requisite(s):

Course schedule (day and time of class): Thursdays, 3:55 PM - 6:55 PM

Course Location: SH680 -223 (688 Sherbrooke West, Room 223)

Email: ela.borenstein@bdc.ca or

Text for office appointments: 514-473-6045

Office locations:

Course Instructors: Ela Borenstein

Office hours for students: TBD

Course Overview

This course is designed to introduce health care entrepreneurship to would-be entrepreneurs and founders, as well as to current or future employees of start-ups. The course is open to students with engineering and non-engineering backgrounds, and is aimed to help them better understand the unique model and challenges of healthcare technology start-ups. Students will be provided with the context and tools to seek venture capital investment in a healthcare start-up business, including medical technologies (MedTech), pharmaceuticals/biotechnology, research tools, as well as the emerging fields of healthcare IT and digital health, particularly as they differ from one another.

Course participants will conduct detailed analyses of case studies on start-up companies in healthcare technology. Throughout the course, students will develop a detailed "pitch deck" on a start-up opportunity of their choosing (subject to instructor approval; students may also ask for a start-up opportunity to be provided by the course instructor). Guest speakers with real-life experience in health care technology will provide insight and guidance through case studies. Each lecture will dedicate time to discuss different facets of start-ups and different strategies on management and execution. Students will develop a start-up pitch covering all key aspects, and the course will culminate in student presentations (pitches) to a group of experienced and well-known investors.

Learning Outcomes

By completion of this course, you should be able to:

1) Identify a compelling business opportunity,
2) Develop a message to capture the attention of potential investors, including information on the market, the un-met medical need, the development plan, the financing requirements and, most importantly, how the investors will make money by investing in the idea,
3) Demonstrate an understanding of the many challenges inherent to research, as well as external challenges from stakeholders involved in development of a product in healthcare,
4) Identify events that signal the need to change direction or strategy, and explore different options throughout the difficult but rewarding journey of entrepreneurship, and,
5) Illustrate what it takes to start a venture capital-backed healthcare company, and the role of the founder in managing risks and attracting the financing and human talent needed to execute.

Instructional Method

Lectures and case studies.

Order of presentations are subject to change depending on the availability of guest speakers.

The guest speakers have worked with VC-backed businesses in healthcare and are available to share their journey. Please make the most of these sessions as class participants will hear how start-up management teams have used different approaches to develop innovative products and bring value to their investors. Please note that the schedule for the speakers, and the speakers themselves, may change subject to their availability.

Regular attendance and in-class participation are essential to achieving the course objectives. Your class contribution grade includes participation in class discussions and your engagement with speakers. Presence is mandatory and participation is expected. Please notify me beforehand if you need to miss a class.

Required Course Materials

Course material, prepared by the Lecturer, will be available to registered students via TBD

Although not always possible, guest speakers will be asked to share their presentations.

Course Content/Outline

Week 1 (Aug 31)**:** Course Overview

Discussion on Canadian context for start-ups, challenges and opportunities, and how to keep the investor perspective as the course material is unveiled. Students will be asked to articulate initial thoughts on project concepts and will be asked to present Week 2 for 2% Assignment.

Week 2 (Sep 7)**:** Sources of Innovation Part I

Hear from guest VCs on how they scout new technologies and how technologies emerge from different parts of the innovation ecosystem: academia, hospitals, and industry. Students will be asked to articulate further thoughts on project concepts and teams and will be asked to present Week 3 for 2% Assignment.

- *Assignment (2%)*: oral update on project development in which the class may provide input.

Week 3 (Sep 14)**:** Capital Formation in an R&D World

Review of the different stages of risk and value in healthcare start-ups including an overview of the venture capital industry and investor expectations. Students will be asked to present teams and initial, agreed upon, project, to be discussed during Week 4 for the 2% Assignment.

- *Assignment (2%)*: further oral update on project development and construct of teams consisting of 3 or 4 members.

Week 4 (Sep 21)**:** Sources of Innovation Part II

Guest speakers from McGill transfer office will provide a comprehensive overview of structure, services and supporting for students considering founding a company and the entrepreneurship journey. A 1-2 page summary along with information on the student's own responsibilities, will be submitted next week.

- *Assignment (2%)*: students will present their teams and initial agreed-upon project focus.

Week 5 (Sep 28)**:** Defining the Market

Guest speaker(s) from industry address how seed and early-stage companies need to approach defining the market, access to market and reimbursement issues as part of the fund-raising pitch. Students will prepare to formally present the preliminary project proposals, including place-holders for all key elements still under development or research, for 10% assignment in Week 6

- Assignment (4%): hand in the group 1-2 page summary <u>as well as</u> information on own responsibilities

Week 6 (Oct 5)**:** Project Proposals

Each student group will present the formal preliminary project proposals for a start-up company outline, including the product under development, integrating lessons learned to date. Participation is for all groups and feedback to others is be expected.

- *Assignment (10%)*: student groups will present formal preliminary proposals

Week 7 (Oct 12)**:** Legal Structure and Considerations for Healthcare Start-up

Guest speaker from top law firm will discuss what founders must consider, when they should engage counsel and anticipate conflicts.

Week 8 (Oct 19)**:**

Case Study – Guest CEO will present their journey from innovation through fund-raising and value creation for investors.

Week 9 (Oct 26) Financial Structure, Financing Strategies, Investments and Exits

Using examples from industry, guest speaker(s) will review the financial numbers from the founder and investor perspectives, providing the students with insight into the complexities and options available when embarking on a start-up.

Week 10 (Nov 2)**:** Case study reviews

Through a combination of presentations and readings, the class will discuss start-up success, failures and lessons learned. Industry speakers and VCs will join the students in this exercise and be available to answer questions on the Project.   Students will select one of the case studies to analyze and provide various actions that might have been taken to achieve a better outcome, due Week 11 for 10% assignment.

Week 11 (Nov 9)**:** The Role of Management C-Suite and Board of Directors

Industry expert guests will identify issues of good governance and delineate operational and strategic ways founders seek support and guidance from the internal team and external members of the Board of Directors. Student groups will have time to review pitch proposals with instructors.

- *Assignment (10%)*: students will hand in their written summary of one case study identifying and defending an alternate scenario that might have been explored with potentially better outcomes

Week 12 (Nov 16)**:** Pitch Rehearsals

Teams will present draft pitches to the class, seeking input from course instructor for final stages of preparation. Students are expected to participate and provide input. Students will be asked to prepare a minimum 500 word self-reflective essay on lessons learned to date and impact on the preparation of the Pitch Rehearsals, due Week 13 for 5% assignment.

Week 13 (Nov 23)**:** Finalizing Pitches

Teams will refine their final pitches based on feedback from pitch rehearsals. Students are expected to participate and provide input.

- *Assignment (5%):* students will hand in their self-reflective essay on lessons

==No class Thursday, Nov 30==

Exam Period (Dec 7)**:** Pitch Deck Presentations

- *Final Project (35%)*: Submission of a 2-4 page Executive Summary <u>and</u> a Powerpoint presentation to support a 15-20 minute pitch.
    - o *Location*: BDC Offices, Place Ville Marie (to be confirmed)
    - o *Time*: 4pm to 7pm (with refreshments served)

Q&A from a panel of investors and experts in healthcare start-ups for 15 minutes.

The evaluation will be determined for the team and will be based on clarity, completeness, and coherence of the presentation.

- *Release of Final Exam (take-home) (20%) – Submission due by December 15th at 11:59PM.*

Assignments and Evaluations:

Class Participation: 10%

- Interventions and participation with guest lecturers
- Answers to questions

Project Proposal: 20%

- Preliminary discussions and weekly assignments due Weeks 2, 3, 4, and 5 on progress updates during classes (10%)
- Formal proposal due Week 6 (10%)

Assignments: 15%

- Case study summary with proposed alternate scenario due Week 9 (10%)
- Final self-reflective essay on lessons learned due Week 12 (5%)

Project: 35%

- Written executive summary and power point presentation (10%)
- Live 20-minute presentation to investors with 15 minutes for Q&A (20%)

Final Exam: 20%

- Take-home exam addressing questions on business start-up strategy.
- Students will select 3 of 5 questions offered and will provide essay answers that contain both objective justification for the stated position as well as opinion type support.

Preparation Guidelines:

In preparation for the first day of class, please navigate through the following brief overview of drug development from the US Food and Drug Administration and the medical devices sites at Health Canada

- http://www.fda.gov/downloads/ForIndustry/UserFees/PrescriptionDrugUserFee/UCM207568.pdf

Familiarize yourself with some of Canada's healthcare startup hubs and sites to support those looking for careers in the field:

- www.marsdd.com
- https://tracxn.com
- www.biotech.ca
- www.biotalent.ca

Optional Reading:

- Clayton Christensen: The innovator's Prescription. A Disruptive Solution for Healthcare
- Alex Iskold blog– first time entrepreneur

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