

**4E06 A/B**

Health, Engineering Science and Entrepreneurship III: From Idea to Enterprise

Fall/Winter 2020/21

Course Outline

**CALENDAR/COURSE DESCRIPTION**

Introduces business and economic concepts needed to bring new healthcare tools and services to market. Through a business lens, participants will actively explore the concepts of product innovation, development, and marketing in the healthcare marketplace through lectures, podcasts, research projects and labs. At the conclusion of the course, participants will have developed the skills to design, build and promote innovative healthcare solutions.

**PRE-REQUISITES AND ANTI-REQUISITES**

Prerequisite(s): IBEHS 2E06 A/B and registration in the Health, Engineering Science and Entrepreneurship Specialization of the Integrated Biomedical Engineering and Health Sciences (IBEHS) program  
Antirequisite(s): None

**INSTRUCTOR OFFICE HOURS AND CONTACT INFORMATION**

**Dr. Kenneth Owen**

Virtual Office

[owenk@mcmaster.ca](mailto:owenk@mcmaster.ca)

**Office Hours:**

Monday – Friday Mornings, open door policy

Use Microsoft Teams to contact me for video chat.

Or by appointment

**TEACHING ASSISTANT OFFICE HOURS AND CONTACT INFORMATION**

**Amy Jenkins**

Virtual Office

[jenkia4@mcmaster.ca](mailto:jenkia4@mcmaster.ca)

**Lianna Genovese**

Virtual Office

[genovesl@mcmaster.ca](mailto:genovesl@mcmaster.ca)

**COURSE WEBSITE/ALTERNATE METHODS OF COMMUNICATION**

We will be using Avenue to learn, Zoom, Microsoft Teams and Kritik.io in class

For privacy reasons only student e-mails originating from a “@mcmaster.ca” E-mail address will be answered.

**DO NOT E-mail in Avenue. I do not check that mailbox.**

Microsoft Teams will be used for meeting with the professor or the TA's

**Office Hours:** The Professor – if teams is showing the green available icon beside their name feel free to video call them. If you wish to talk to a TA message them and arrange a meeting time.

Avenue to learn will be our main course site. All lectures, materials, announcements, etc. will be found there.

Kritik will be used to collect and evaluate all assignments. Kritik is a new tool in this course. It allows students to learn from each other through the evaluation process. There is a fee that you will need to pay to access critic.

## COURSE OBJECTIVES

By the end of this course, within the context of healthcare students will be able to:

- List their innovation strengths and weaknesses
- Identify the type of innovation occurring in a new endeavour
- Identify a business opportunity
- Evaluate strategies for addressing an innovation challenge
- Design a value proposition for a new idea
- Validate a product concept
- Apply “lean” processes to a product start-up
- Plan a Minimum Viable Product strategy
- Identify key marketing messages
- Interpret basic business reporting documents
- Produce a product launch budget
- Produce a go to market plan
- Identify key intellectual property assets and appropriate protection measures
- Interpret key health care regulation
- Be able to outline a business exit strategy.

## MATERIALS AND FEES

### Required Texts:

None!

### Additional Fees:

One Ivey Business cases will be assigned

A Kritik.io account is needed.

## COURSE OVERVIEW

The Course is divided into four sections

Module	Topic
1	Intro to Innovation and Entrepreneurship
2	Identifying Needs and Creating Value
3	Basic Business Skills
4	Exit

A detailed schedule of activities can be found at the end of this document.

<b>ASSESSMENT</b>
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Component	Weight
Group Work	40%
Individual Assignments	40%
Class Participation	20%
Total	100%

**Group** work will consist of five milestones equally weighted. All milestones will have fixed deadlines, but groups are encouraged to submit early to receive feedback to improve their final deliverable. **Due Dates will be posted in A2L.**

**Individual** assignments will include eight reflection pieces. All will be assessed by your peers using Kritik. TA's will monitor peer assessments and address any grading disputes. **Due Dates will be posted in A2L.**

**Participation** marks are worth 20% of your final grade. Your marks will be assigned for various contributions you make throughout the year. There are several ways to get participation marks. While talking in class is always a good idea it is hard sometimes to be noticed. Participation marks will be organized into four categories: Debate, Develop, Depth, and Demonstration. You can receive no more than 33% of your participation marks from any one category. The total amount of participation marks can not exceed 100% of the marks available.

Debate: Ask questions and respond to questions. You can do this in lecture/lab or in the discussion forums online.

Develop: This is a new course; feedback is needed to ensure quality. Participate in surveys or try out new tools. If volunteers are asked for, get involved.

Depth: Contribute to the class by sharing interesting articles, videos, or your own work. Whatever you can bring to the class experience that adds new insight to the course content fits here.

Demonstration: Take what you learn out into your community. If you belong to a campus club and use one of the evaluations frameworks from class, we would like you to share your experience with us.

Be smart, each time you contribute ask the professor or TA's if you could have participation marks. Do this through e-mail within 24hours that way you are reminding us in case something slips by.

<b>ACADEMIC INTEGRITY</b>
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You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at <http://www.mcmaster.ca/academicintegrity>

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations.

#### ACADEMIC ACCOMMODATIONS

Students who require academic accommodation must contact Student accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contact by phone at 905.525.9140 ext. 28652 or e-mail at [sas@mcmaster.ca](mailto:sas@mcmaster.ca). For further information, consult McMaster University's Policy for [Academic Accommodation of Students with Disabilities](#).

#### NOTIFICATION OF STUDENT ABSENCE AND SUBMISSION OF REQUEST FOR RELIEF FOR MISSED ACADEMIC WORK

1. The [McMaster Student Absence Form](#) is a self-reporting tool for Undergraduate Students to report absences DUE TO MINOR MEDICAL SITUATIONS that last up to 3 days and provides the ability to request accommodation for any missed academic work. Please note this tool cannot be used during any final examination period.
2. You may submit a maximum of 1 Academic Work Missed request per term. It is YOUR responsibility to follow up with your Instructor immediately (NORMALLY WITHIN TWO WORKING DAYS) regarding the nature of the accommodation. Relief for missed academic work is not guaranteed.
3. If you are absent for reasons other than medical reasons, for more than 3 days, or exceed 1 request per term you MUST visit the Associate Dean's Office (JHE/A214). You may be required to provide supporting documentation.
4. This form must be submitted during the period of absence or the following day and is only valid for academic work missed during this period of absence.
5. It is the prerogative of the instructor of the course to determine the appropriate relief for missed term work in his/her course.
6. You should expect to have academic commitments Monday through Saturday but not on Sunday or statutory holidays. If you require an accommodation to meet a religious obligation or to celebrate an important religious holiday, you may submit the Academic Accommodation for Religious, Indigenous and Spiritual Observances (RISO) Form to the Associate Dean's Office. You can find all paperwork needed here: <http://www.eng.mcmaster.ca/current/documents.html>

#### NOTICE REGARDING POSSIBLE COURSE MODIFICATION

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

#### TURNITIN.COM STATEMENT

In this course we will be using a web-based service (Turnitin.com) to reveal plagiarism. Students will be expected to submit their work electronically to Turnitin.com and in hard copy so that it can be checked for academic dishonesty. Students who do not wish to submit their work to Turnitin.com must still submit a copy to the instructor. No penalty will be assigned to a student who does not submit work to Turnitin.com. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, etc.). To see the Turnitin.com Policy, please go to <http://www.mcmaster.ca/academicintegrity/>.

#### ON-LINE STATEMENT FOR COURSES REQUIRING ONLINE ACCESS OR WORK

In this course, we will be using Avenue to Learn, Zoom, Teams, and Kritic. Students should be aware that when they access the electronic components of this course, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure, please discuss this with the course instructor.

#### REFERENCE TO RESEARCH ETHICS

The two principles underlying integrity in research in a university setting are these: a researcher must be honest in proposing, seeking support for, conducting, and reporting research; a researcher must respect the rights of others in these activities. Any departure from these principles will diminish the integrity of the research enterprise. This policy applies to all those conducting research at or under the aegis of McMaster University. It is incumbent upon all members of the university community to practice and to promote ethical behaviour. To see the Policy on Research Ethics at McMaster University, please go to <https://reo.mcmaster.ca/>.

**CLASS SCHEDULE**

		<b>Module</b>	<b>Topic</b>
07-Sep	Week 1	1	Welcome
14-Sep	Week 2		What is innovation
21-Sep	Week 3		Porters and Swot. Library resources?
28-Sep	Week 4		Ideation
05-Oct	Week 5		Ethics
12-Oct	Recess		
19-Oct	Week 6	2	Motivation Needs and Wants
26-Oct	Week 7		Value Proposition & VPC Customer profile
02-Nov	Week 8		VPC Value Map
09-Nov	Week 9		VPC testing & Fit #1
16-Nov	Week 10		VPC testing & Fit #2
23-Nov	Week 11		Value Proposition Canvas
30-Nov	Week 12		Lean Business Canvas
07-Dec	Week 13		Decision making and Contingency planning
	Winter Break		
04-Jan	Week 14	3	Pitching technique
11-Jan	Week 15		Go to market strategy
18-Jan	Week 16		Marketing
25-Jan	Week 17		Business Math
01-Feb	Week 18		Financial Reporting
08-Feb	Week 19		Budget projections
15-Feb	Recess		
22-Feb	Week 20		How to Fund your project
01-Mar	Week 21		Intellectual Property
08-Mar	Week 22		Health care regulations and governance
15-Mar	Week 23	4	Managing Growth
22-Mar	Week 24		Exit Strategy
29-Mar	Week 25		Review
05-Apr	Week 26		Video pitch review

## Integrated Biomedical Engineering & Health Sciences (IBEHS) Labs/Design Studio Safety

### Information for Laboratory Safety and Important Contacts

This document is for users of IBEHS instructional laboratories at the following locations:

- ETB - 533/534 (Medical Imaging & Medical Instrumentation Labs)
- ABB - C104 (Design Studio)
- HSC - 4N72 (Genetic Engineering Lab)

This document provides important information for the healthy and safe operation of IBEHS instructional laboratories. This document is required reading for all laboratory supervisors, instructors, researchers, staff, and students working in or managing instructional laboratories in IBEHS. It is expected that revisions and updates to this document will be done continually. A McMaster University [lab manual](#) is also available to read in every laboratory.

### General Health and Safety Principles

Good laboratory practice requires that every laboratory worker and supervisor observe the following:

1. Food and beverages are not permitted in the instructional laboratories.
2. A Laboratory Information Sheet on each lab door identifying potential hazards and emergency contact names should be known.
3. Laboratory equipment should only be used for its designed purpose.
4. Proper and safe use of lab equipment should be known before using it.
5. The course TA leading the lab should be informed of any unsafe condition.
6. The location and correct use of all available safety equipment should be known.
7. Potential hazards and appropriate safety precautions should be determined, and sufficiency of existing safety equipment should be confirmed before beginning new operations.
8. Proper waste disposal procedures should be followed.
9. [Personal ergonomics](#) should be practiced when conducting lab work.
10. [Current University health and safety](#) issues, and protocols should be known.

### Location of Safety Equipment

#### Fire Extinguisher

On walls in halls outside of labs or  
ABB C103/A

#### First Aid Kit

ETB 534/A, ABB C103/A, HSC 4N72 or dial  
"88" after 4:30 p.m.

#### Telephone

On the wall of every lab near the door

#### Fire Alarm Pulls

Near all building exit doors on all floors

## Who to Contact

### Emergency Medical / Security:

On McMaster University campus, call Security at extension **88** or **905-522-4135** from a cell phone.

### Hospital Emergency Medical / Security:

For McMaster HSC, call Security at extension **5555** or **905-521-2100** from a cell phone.

Non-Emergency Accident or Incident: Immediately inform the TA on duty or Course Instructor.

### University Security (Enquiries / Non-Emergency):

Dial 24281 on a McMaster phone or dial 905-525-9140 ext. 24281 from a cell phone.

See TA or Instructor: For problems with heat, ventilation, fire extinguishers, or immediate repairs.

Environmental & Occupational Health Support Services (EOHSS): For health and safety questions dial 24352 on a McMaster phone or dial 905-525-9140 ext. 24352 from a cell phone.

IBEHS Specific Instructional Laboratory Concerns: For non-emergency questions specific to the IBEHS laboratories, please contact appropriate personnel below from a McMaster phone...

- Leela Pilli – 26888
- Parmveer Bola – 23521
- Alexa Huang – 24548

## In Case of a Fire (Dial 88)

When calling to report a fire, give name, exact location, and building.

1. Immediately vacate the building via the nearest Exit Route. Do not use elevators!
2. Everyone is responsible for knowing the location of the nearest fire extinguisher, the fire alarm, and the nearest fire escape.
3. The safety of all people in the vicinity of a fire is of foremost importance. But do not endanger yourself!
4. In the event of a fire in your work area shout "*Fire!*" and pull the nearest fire alarm.
5. Do not attempt to extinguish a fire unless you are confident it can be done in a prompt and safe manner utilizing a hand-held fire extinguisher. Use the appropriate fire extinguisher for the specific type of fire. Most labs are equipped with Class A, B, and C extinguishers. Do not attempt to extinguish Class D fires which involve combustible metals such as magnesium, titanium, sodium, potassium, zirconium, lithium, and any other finely divided metals which are oxidizable. Use a fire sand bucket for Class D fires.
6. Do not attempt to fight a major fire on your own.
7. If possible, make sure the room is evacuated; close but do not lock the door and safely exit the building.



## Clothing on Fire

Do not use a fire extinguisher on people.

1. Douse with water from safety shower immediately or
2. Roll on floor and scream for help or
3. Wrap with fire blanket to smother flame (a coat or other nonflammable fiber may be used if blanket is unavailable). Do not wrap a standing person; rather, lay the victim down to extinguish the fire. The blanket should be removed once the fire is out to disperse the heat.

## Equipment Failure or Hazard

Failure of equipment may be indicative of a safety hazard - You must report all incidents.

Should you observe excessive heat, excessive noise, damage, and/or abnormal behaviour of the lab equipment:

1. Immediately discontinue use of the equipment.
2. In Power Lab, press wall-mounted emergency shut-off button.
3. Inform your TA of the problem.
4. Wait for further instructions from your TA.
5. TA must file an incident report.

## Protocol for Safe Laboratory Practice

Leave equipment in a safe state for the next person - if you're not sure, ask!

## Defined Roles

TA	The first point of contact for lab supervision	
IBEHS Lab Technician	Leela Pilli	<a href="mailto:pillil@mcmaster.ca">pillil@mcmaster.ca</a>
IBEHS Instructional Assistant	Parmveer Bola	<a href="mailto:bolap1@mcmaster.ca">bolap1@mcmaster.ca</a>
IBEHS Co-Directors	Dr. Greg Wohl	<a href="mailto:wohlg@mcmaster.ca">wohlg@mcmaster.ca</a>
	Dr. Michelle MacDonald	<a href="mailto:macdonml@mcmaster.ca">macdonml@mcmaster.ca</a>
IBEHS Administrator	Alexa Behar-Bannelier	<a href="mailto:huanqa2@mcmaster.ca">huanqa2@mcmaster.ca</a>
IBEHS Course Instructor	Please contact your specific course instructor directly	