



# Professional Enrichment Course

University of Pittsburgh School of Medicine  
Office of Medical Education

## Medical Innovation and Entrepreneurship

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| <b>Enrollment Period:</b>    | Winter/ Spring 2024  |
| <b>Course Dates:</b>         | January 8, 15, 22, 29, February 5, 12, 19<br>5PM-7PM   |
| <b>Student Max:</b>          | 30   |
| <b>Class Year:</b>           | MS2  |
| <b>Course Director:</b>      | Dr. José Zevallos, Dr. Carl Snyderman, Rhonda Schuldt<br>Participating Faculty: Dr. Peter Rubin, Dr. Ted Andrews, John Inserra,<br>Kelly Collier   |
| <b>Course Administrator:</b> | Anthony Tang, Sumaarg Pandya, Sam Adida  |
| <b>Location:</b>             | In-person (West Wing or Big Idea Center)   |
| <b>Registration:</b>         | Via Amp Up – You will receive an email with enrollment info  |
| <b>Course Description:</b>   | <p>The fundamental tenets of Pitt Medicine revolve around research, innovation, and leadership. Historically, Pitt Med has expanded the frontier of medicine with long-lasting solutions to healthcare’s most pressing issues. To continue fostering this tradition of entrepreneurship and innovation, the <i>Medical Innovation and Entrepreneurship</i> Professional Enrichment Course aims to introduce medical students to the intersection of healthcare and entrepreneurship. With world-class medical research facilities and mentors, along with a robust entrepreneurship program and innovation center through the University of Pittsburgh, this PEC will be a liaison between both with the goal of equipping medical students with the ideas, mentorship, and tools to progress the medical field through innovation and entrepreneurship. Medical students are situated to contribute to technological advancements in surgical care through their impartial perspectives. However, the background knowledge and guidance needed to develop and advocate for their entrepreneurial ideas is not currently integrated into the medical school curriculum.</p> <p>The <i>Medical Innovation and Entrepreneurship</i> Professional Enrichment Course will fill this gap by introducing medical students to the field of healthcare entrepreneurship through lectures facilitated by business-minded medical faculty at UPMC. The goals of this course will be to teach fundamental entrepreneurial concepts, directly learn from physician-mentors, and facilitate a hands-on “start-up” experience.</p> |

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|                        | Stepping into the field of innovation and entrepreneurship can be overwhelming, but this course will clarify ways to do so and help medical students learn and practice the skills needed to pursue their innovative ideas.  |
| <b>Objectives:</b>     | <ul style="list-style-type: none"> <li>• What to do with your ideas</li> <li>• How to get started/involved (in general and at Pitt/UPMC specifically)</li> <li>• The role of entrepreneurship in medicine/academics</li> <li>• What you need to know before getting involved.</li> <li>• Understanding the innovation and patent timeline</li> </ul> |
| <b>Pre-Requisites:</b> | None   |
| <b>Requirements:</b>   | <ul style="list-style-type: none"> <li>• Attend all sessions and participate in a final project.</li> </ul>  |
| <b>Texts:</b>          | No readings will be required but supplemental readings and videos will be provided for each session (see below).   |

### Course Learning Objectives:

- A) Learn how to identify a problem and generate innovative solutions
- B) Learn how to create your own business canvas
- C) Learn how to get started/involved (in general and at Pitt/UPMC specifically)
- D) Learn about the role of entrepreneurship in medicine/academia
- E) Complete a final project. Requirements:
  - Define a healthcare setting problem and provide a solution
  - A slide deck for presentation

### Session format:

Each session will be divided into two parts followed by a discussion of student goals for the next session.

1. Lecture: A short lecture discussing an aspect of innovation and entrepreneurship with a guest speaker (physician innovator) (5-6pm)
2. Workshop: Workshop time to brainstorm and work with your group and with faculty mentorship (6-7pm)
3. Student goals: discuss what to prepare for next session

## Session outlines:

### ***Session One – The X Factor: Being an Entrepreneur***

Date: 1/8

Lecture:

- **Entrepreneurs Q and A Panel: Dr. Zevallos, Dr. Snyderman, Dr. Andrews, Dr. Rubin, Medical Students**
- Learn about how these physicians and medical students got involved in innovation and entrepreneurship and how they incorporated it into their career and goals.

### ***Session Two – Identifying Healthcare Problems***

Date: 1/15

Lecture:

- **Guest Lecturer: John Inserra**
- Discuss tools and techniques to help define a healthcare problem
- Understanding your market. How can you frame your idea for surgeons, engineers, hospitals and healthcare systems, and existing intellectual property.
- Objectives/Takeaways:
  - What is a healthcare problem?
  - How can you start looking for problems in the healthcare system?
  - What does it take to understand the problem and whether or not it is worth solving?
- Course administrators will explain the goals for this professional enrichment course and discuss the final project.
  - Teach students the “What if” statement technique and the ‘5 Whys’ technique to facilitate problem identification for next session

Exploratory week:

- Participating faculty will provide some ideas of different problems in healthcare setting. Students can choose to build off of these ideas or find their own idea they are interested in exploring. Consider working in groups.
- Course directors will help connect students with participating faculty to coordinate observation experiences and interviews in clinical and OR settings. Students can also initiate contact with faculty independently for shadowing or interviewing.

Student goals:

- Shadow and look for healthcare issues.
- Start thinking about a few problems in healthcare settings.
- Think about potential partners or a group to tackle a problem with.

Books/Resources:

- CRST Global Surgeon/Inventor/Entrepreneur Q&A
  - <https://crstodayeurope.com/articles/feb-2021/surgeon-inventor-entrepreneur-perfect-fit-or-constant-plate-spinning/>
- American College of Surgeons's Video "A Beginner's Guide to Entrepreneurial Innovation for the Resident Surgeon"
  - [https://www.youtube.com/watch?v=Fox3ADIVDdw&ab\\_channel=AmericanCollegeofSurgeons](https://www.youtube.com/watch?v=Fox3ADIVDdw&ab_channel=AmericanCollegeofSurgeons)
- "Profiles of Surgical Entrepreneurs" published in Journal of the American College of Surgeons
  - [https://journals.lww.com/journalacs/Fulltext/2020/06000/Profiles\\_of\\_Surgical\\_Entrepreneurs.1.aspx](https://journals.lww.com/journalacs/Fulltext/2020/06000/Profiles_of_Surgical_Entrepreneurs.1.aspx)

***Session Three – Defining the Problem and Understanding the Stakeholders***

Date: 1/22

Workshop:

- Innovation Rounds – students will take the healthcare problems and present them to the group. Participating faculty will be available to help bounce ideas off students and provide perspective on which problems/ideas students should pursue.

Lecture:

- **Guest Lecturer: Rhonda Schuldt and Kelly Collier**
- Learn how to shape problems into opportunities and into the customer's perspective. Learn how to define the problem in the customer's language.
- Discuss differences in commercialization and academic pathways/perspectives.

Student goals:

- Narrow ideas down to one problem to focus on.
- Understanding the problem from your customer's perspective.
- Review literature and existing patents that fit the problem(s)
- Start brainstorming 30 second video submission ideas – how to capture the problem.
  - We will give an overview of PITCH competition's video submission requirements.

Books/Resources:

- 10 Healthcare Challenges
  - <https://www.finoit.com/blog/top-10-healthcare-challenges/>
- Challenges in Healthcare Industry
  - <https://prognosis.com/challenges-in-healthcare-industry/>
- Challenges to Healthcare Delivery
  - <https://www.wolterskluwer.com/en-ph/expert-insights/six-challenges-to-delivering-quality-healthcare>

### ***Session Four – The Innovative Solution***

Date: 1/29

Lecture:

- **Guest Lecturer: Dr. Edward Andrews, Dr. Peter Rubin, and Kelly Collier**
- Collaboration with engineering students
- Kelly will discuss different methods of developing an innovative solution. Share her own experience with UPMC Entrepreneurship and LifeX.

Workshop:

- “Surgineering” workshop – brainstorm solution ideas exercise to narrow down potential solutions to one problem

Student goals:

- Review literature related to your solution and pull together evidence to back up your solution
- Narrow down to one solution

Books/Resources:

- Entrepreneur.com article:
  - <https://www.entrepreneur.com/green-entrepreneur/why-healthcare-professionals-need-these-9-business-skills/452576>
- Entrepreneurial Strategies article:
  - <https://www.ncbi.nlm.nih.gov/books/NBK53907/>

### ***Session Five – The Business Canvas***

Date: 2/5

Lecture:

- **Guest Lecturers: Dr. Carl Snyderman and Rhonda Schuldt**
- Rhonda Schuldt - Teaching students how to create both a business model canvas and lean business model. “Lean Business Canvas”.
- Dr. Snyderman – Share personal journey in entrepreneurship and example of the pitch deck.
- Prioritize understanding and defining the problem in the customer’s perspective. Learn how to articulate the value of solving this problem.
- What it takes to be an innovator.

Workshop:

- Develop and refine business model canvas with faculty input.

- Final preparations for project.

Student goals:

- Complete business model canvas.
- Finish pitch deck and business canvas

Books/Resources:

- Entrepreneur.com article
  - <https://www.entrepreneur.com/leadership/do-you-have-the-entrepreneurial-x-factor/230873>

### ***Session Six – Student Presentations and Guest Speakers***

Date: 2/19

Presentations:

- @ Big Idea Center - Entrepreneurs in residence (EIR) will also be available to provide project feedback
- Students share presentations and get feedback. Presentations will be using pitch deck and business canvas.