

## **Elective description: Innovating Healthcare Solutions**

### **Course Directors:**

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### **Rationale:**

In the past several years, health issues related to global health, technology, and community development have been receiving more attention on the national and international stages. Medical students are being increasingly inspired to contribute to the solutions of these problems, most commonly by participating in community volunteer service. While this type of volunteer work is very rewarding, students are not directly engaged in the process of innovation and creative problem solving. Directly engaging students in this process encourages them to develop critical thinking skills essential to the effective practice of medicine. Students will also learn the importance of patient, community, and stakeholder involvement in developing feasible solutions to problems facing these communities. Direct participation also empowers students by exposing them to real life medical problems and allowing them to develop solutions that will be implemented.

In its fourth year at UTSW, the course will have breakout sessions divided into three tracks, but students will first learn a series of skills common to all types of innovation derived from similar courses at MIT and Stanford University. With this foundation, students will then choose a track they are particularly interested in and form groups to begin applying these skills. Guided by seasoned guest speakers and facilitated by experienced peers, students will learn how to define a problem, brainstorm and develop a solution, understand common pitfalls, and begin implementation. By the end of the year, each group will have completed a *final product*, be it a grant proposal, a product prototype, or a business plan submission to relevant innovation competitions.

The tracks offered this year are:

- Community Health
- Global Health
- Medical Devices

### **Objectives:**

1. Become familiar with current problems in health care.
2. Develop relationships with community partners to define a particular problem
3. Develop critical thinking skills to address this problem.
4. Understand the innovation process and how it can be applied to health problems.
5. Develop an *effective* solution to a particular problem in health that can be *implemented*

**Website:** <http://utswIHS.weebly.com/>

**Format:**

- 2 transcript acknowledgements, 1 per semester
- 1 hour “**Lecture**” per month for all students
- 3 hours of track-focused “**breakout sessions**” per month which include interactive case presentations given by guest speakers
- Year-end **Final Symposium** which will allow students to pitch their proposals to thought leaders in these fields, including UTSW faculty and respected funding sources

**“Lecture” Schedule:** (Breakout Session schedules will be posted on the website)

**Session 1 (September):** Introduction to Innovation and the Problem Solving Process

- Brief overview of the purpose of the elective
- History of the elective including past projects
- Learn about the steps of the problem solving process
- Describe innovation through case studies
- Hear a description of each of the four available tracks from team leaders

**Session 2 (October):** Survey and Assessment Techniques and Problem Definition

- Describe the process of survey design and needs-finding
- Learn techniques for problem definition
- Break out time for concept application.

**Session 3 (November):** Idea Generation and Problem Statement Presentation

- Groups will present their proposed problem statement and background research
- Students, team leaders, and mentors will provide written feedback
- Review brainstorming techniques
- Break out time for concept application

**Session 4 (December):** Concept Evaluation Techniques

- Describe the steps of concept evaluation.
- Describe the steps of concept evaluation with a Pugh Chart and the PDSA Cycle
- Break out time for concept application.

**Session 5 (January):** Landscape/Stakeholder Analysis

- Potential pitfalls and hurdles
- Understanding customers/users and other stakeholders
- Identify key players in the community network
- Political, regulatory, intellectual property, and reimbursement considerations
- Break out time for concept applications.

**Session 6 (February):** Proposed Solutions Presentation and Testing Assumptions

- Each track will present their proposed solution and progress
- Students, team leaders, and mentors will provide written feedback
- Learn to identify assumptions in the project plan and plan for testing
- Break out time for concept application.

**Session 7 (March):** Affordability and Sustainability

- Build a supply chain and create a bill of materials.
- Understand the importance of affordability and sustainability in product development
- Learn about different funding and business models.
- Break out time for concept application.

**Session 8 (April):** Venture Design

- Learn to draw a venture sketch for a proposed idea
- Create a value chain
- Draft an elevator pitch
- Break out time for concept application.

**Session 9 (May):** Innovation Symposium

- Final presentation to community partners, UTSW faculty, and other interested parties
- Give and receive feedback
- Submit proposal/grant/business-plan to outside agencies/competitions/funding sources
- End of the Year banquet!

**Registration**

Each track will be able to accommodate approximately three teams, or up to 10 students. Registration will be open on the web curriculum website; to enroll, you must attend the first session.

**Student Evaluation**

*Grades will be pass/fail.*

Attendance at eighty percent of classes will be required to receive credit for the course.

One writing assignment will be required during the course: A portion of the final presentation, which will be divided amongst the students in each track. Students may also be given small homework assignments at times to practice a particular concept or contribute essential knowledge in the process of product development.

**Course Evaluation**

Students who attend at least eighty percent of sessions and complete the final presentation will fulfill the requirements for a transcript acknowledgement indicating that they have satisfactorily completed the requirements. In order to receive the transcript acknowledgement, however, students must fill out a course evaluation.