

HEALTHCARE INNOVATION



Healthcare Innovation

Course Description:

This course is designed to explore innovation in healthcare, with a focus on healthcare technology, medical devices, digital health, and healthcare policy and regulation. Through lectures, case studies, and interactive exercises, students will develop the skills and knowledge necessary to identify, evaluate, and implement innovative healthcare solutions.

Course Goals:

- Develop a basic understanding of healthcare innovation, including the role of technology, medical devices, and digital health in improving healthcare outcomes.
- Understand the regulatory and policy landscape for healthcare innovation, and the challenges and opportunities for innovation in the healthcare industry.
- Analyze and interpret healthcare data, including patient data, electronic health records, and clinical trial data.
- Develop skills in evaluating and implementing healthcare innovations, including assessing the potential impact on patient outcomes and healthcare delivery.
- Learn how to develop and communicate healthcare innovation strategies that align with organizational goals.

Course Outline:

Week 1: Introduction to Healthcare Innovation

- The role of innovation in healthcare
- Healthcare innovation trends and challenges
- Introduction to healthcare technology and digital health

Week 2: Medical Devices and Innovation

- Medical device development and regulation
- Medical device innovation case studies

- Medical device adoption and diffusion

Week 3: Digital Health and Innovation

- Digital health technologies and applications
- Digital health innovation case studies
- Digital health adoption and diffusion

Week 4: Healthcare Policy and Innovation

- Healthcare policy and regulation
- Regulatory challenges for healthcare innovation
- Healthcare policy and innovation case studies

Week 5: Healthcare Innovation Strategy Development and Implementation

- Developing a healthcare innovation strategy
- Implementing and measuring healthcare innovation strategies
- Healthcare innovation performance metrics and evaluation

Assessment and Evaluation:

Class participation: 20%

Quizzes and exams: 40%

Assignments and projects: 40%

Required Readings:

1. The Innovator's Prescription by Clayton M. Christensen (<https://a.co/d/8i2RKl7>)
2. The Digital Doctor by Robert Wachter (<https://a.co/d/5OMPWAs>)
3. The Patient Will See You Now by Eric Topol (<https://a.co/d/cl9PE49>)
4. The Creative Destruction of Medicine by Eric Topol (<https://a.co/d/hCvJcRj>)
5. The End of Illness by David Agus (<https://a.co/d/1Q1USzd>)
6. The Immortal Life of Henrietta Lacks by Rebecca Skloot (<https://a.co/d/gBKsAnT>)

Course Assignments:

1. Healthcare Innovation Case Study Analysis - In this assignment, students will analyze a real-world case study of healthcare innovation, focusing on the technology, devices, or digital health applications used to improve patient outcomes or healthcare delivery. They will need to identify the key challenges and opportunities facing the innovation, and develop recommendations for improving the innovation's impact and adoption.
2. Medical Device Innovation Project - In this assignment, students will design a new medical device, from concept to prototype. They will need to identify an unmet clinical need or problem, and design a device that addresses the need or problem. They will also need to evaluate the potential impact of the device on patient outcomes and healthcare delivery.
3. Digital Health Innovation Project - In this assignment, students will design a new digital health application or technology, from concept to prototype. They will need to identify an unmet clinical need or problem, and design a digital health solution that addresses the need or problem. They will also need to evaluate the potential impact of the solution on patient outcomes and healthcare delivery.
4. Healthcare Innovation Strategy Presentation - In this assignment, students will develop and present a healthcare innovation strategy for a hypothetical healthcare organization or company. They will need to research the organization or company, the healthcare industry, and the regulatory and policy landscape for healthcare innovation. They will then need to develop a detailed innovation strategy, including goals, objectives, and implementation steps.
5. Healthcare Innovation Challenge - In this assignment, students will participate in a healthcare innovation challenge, where they will work in teams to develop a new healthcare innovation concept. They will need to identify an unmet clinical need or problem, and design a healthcare innovation that addresses the need or problem. They will also need to evaluate the potential impact of the innovation on patient outcomes and healthcare delivery.

Classroom Policies:

- Attendance: Regular attendance is expected and will be taken at the beginning of each class. Students are responsible for attending all classes and arriving on time.

- Participation: Class participation is essential to the success of this course. Students are expected to contribute to class discussions and activities, ask questions, and engage with the course material.
- Late assignments: Late assignments will be penalized at the discretion of the instructor. Students are encouraged to submit assignments on time, and to communicate with the instructor in advance if an extension is needed.
- Academic integrity: Students are expected to uphold the highest standards of academic integrity. Plagiarism, cheating, and other forms of academic misconduct will not be tolerated and will be subject to disciplinary action.
- Accessibility statement: The instructor is committed to providing an inclusive and accessible learning environment for all students. Students with disabilities or who require accommodations are encouraged to speak with the instructor or contact the university's office of disability services to request accommodations.
- Accommodations: The university provides reasonable accommodations to students with disabilities in accordance with the Americans with Disabilities Act (ADA). Students who require accommodations should contact the university's office of disability services as soon as possible to request accommodations. The instructor will work with the student and the office of disability services to ensure that reasonable accommodations are provided.

Course Resources:

- Healthcare innovation incubators and accelerators - There are many organizations and programs available that can help students develop their healthcare innovation ideas and projects. Some examples include Startup Health, Healthbox, and Health 2.0.
- Healthcare innovation conferences and events - Attending healthcare innovation conferences and events can provide students with networking opportunities and exposure to the latest trends and technologies in healthcare innovation. Some popular healthcare innovation conferences include Health 2.0, HIMSS, and the World Healthcare Congress.
- Healthcare industry publications - Reading industry publications can help students stay up-to-date on the latest trends and best practices in healthcare innovation. Some popular healthcare industry publications include Healthcare IT News, Modern Healthcare, and Healthcare Innovation.
- Healthcare innovation podcasts - Listening to healthcare innovation podcasts can provide students with insights and perspectives from healthcare innovation experts and thought leaders. Some popular healthcare innovation podcasts

include The Digital Health Today Podcast, Healthcare Innovators, and Digital Health Live.

- Healthcare innovation funding and investment sources - There are many sources of funding and investment available for healthcare innovation projects and startups. Some examples include the National Institutes of Health (NIH), the National Science Foundation (NSF), and venture capital firms specializing in healthcare innovation, such as Rock Health and New Enterprise Associates.