ACAD 260 Introduction to Healthcare Innovations

Units: 4
Meeting Times: 4 hours lecture/lab a week

Instructor: TBA
Office: TBA
Office Hours: TBA
Contact Info: TBA
Teaching Assistant: TBA

Course Description

This course is a high level introduction to a dynamic and growing field of health innovations. Students will be provided with introductions to various health innovations, including pathways, technology, techniques, and outcomes.

This course provides a framework for innovation in healthcare including an overview to various health innovations. The purpose of the course is to provide tools for health innovators. On one hand, theoretical and practical understanding of information pathways in the health industries will introduce students to ‘venues’ for health innovators. Topics include brief introductions to different health technologies including medical imaging, telemedicine, consumer health informatics, among others. A framework for how to innovate will be provided. Topics include needs findings, evaluation of existing solutions, stakeholder and market analysis, among others. Case presentations will follow a didactic component to showcase practical applications.

Learning Objectives and Outcomes

By the end of this course, students should be able to:

- Understand EMR/EHR & PHR
- Understand basics of Artificial Intelligence (AI) and Virtual Reality (VR)
- Explain impact of Precision medicine and Personalized medicine
- Differentiate between Health Exchanges and Health Networks
- Explain the processes involved in innovating in healthcare
- Conduct needs assessment and prioritize needs
- Evaluate healthcare markets
- Recognize the major differences between successful innovations and failures; and appreciate both of their places in the process of health innovations
- Discern competitive strategies
Course Notes

This is an seminar-style course. Active participation is highly suggested.

This course includes didactic components which follow with relevant case presentations. Expert speakers on the topics will be invited as often as possible to provide exposure to students to key leaders in the field.

The course will include both individual and group assignments.

While attendance is not mandatory/graded, it is an integral part of your learning. Thus, coming to class and actively participating engages you in becoming a better learner.

Please read the assignments prior to coming class and be ready to engage in lively discussions with your classmates.

Please complete all assignments by due date prior to class.

Technological Proficiency and Hardware/Software Required
No cells phones permitted during class.

Required Readings and Supplementary Materials


ISBN-10: 110708735X

Additional Readings
*Please note that copies of these articles will be posted online.*

Description and Assessment of Assignments

Quizzes
There are 4 quizzes. The quizzes will cover topics for 2-4 classes. There will be mostly multiple choice.

Midterm
Midterm will be based on the materials covered in the first half of class. It will include both multiple choice and short answer questions.
Final
This is a cumulative test based on all materials covered in class. It will include both multiple choice and short answer questions.

Papers
Each paper is an analysis of the case presentations of your choosing from the class.

Final document
Your final assignment should be 4-5 double-spaced pages in length, and should include the following components:
- Description
- Synthesis
- Advantages
- Disadvantages
- Recommendations

Grading Breakdown

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
<th>% of Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Papers (4 total)</td>
<td>200</td>
<td>40</td>
</tr>
<tr>
<td>Quizzes (4 total)</td>
<td>150</td>
<td>30</td>
</tr>
<tr>
<td>Midterm</td>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>Final</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>500</td>
<td>100%</td>
</tr>
</tbody>
</table>

Grading Scale
Course final grades will be determined using the following scale, based on total percentage for your final grade.
A 95-100
A- 90-94
B+ 87-89
B  83-86
B- 80-82
C+ 77-79
C  73-76
C- 70-72
D+ 67-69
D  63-66
D- 60-62
F  59 and below
**Assignment Rubrics**
Assignments should be written in a 12-point font, double spaced, using one inch margins. For citations, please use American Psychological Association (APA) style guidelines for citing materials used in your assignments.

Submit your assignments in print at the beginning of class and send an email copy to the instructor. Files should be appropriately named using your last name, followed by description of the assignment (ex: LASTNAME_CRITIQUE#)

**Assignment Submission Policy**

Assignments are due on predetermined dates. Please see the course weekly schedule.

Assignments should be written in a 12-point font, double spaced, using one inch margins. For citations, please use American Psychological Association (APA) style guidelines for citing materials used in your assignments.

Submit your assignments in print at the beginning of class and send an email copy to the instructor. Files should be appropriately named using your last name, followed by description of the assignment (ex: LASTNAME_CRITIQUE#)

For group assignments, only one submission is necessary. Please include names of all group members in the body of the submission.

**Grading Timeline**
Assignments will be graded and returned to students within the week.

**Additional Policies**

**Late assignments**
Assignments that are submitted late will lose 33% of the cumulative grade for that assignment on the first day that an assignment is late. After that, 66% of the cumulative grade for that assignment will be deducted for each day the assignment is late, up to two whole letter grades. Thus, you have 2 days past the due date to submit assignments.

**Missed classes**
You will not lose points for missing classes, however absenteeism will impact your participation in class. If you’re going to miss a class, as a courtesy, you may choose to let me know. However, it is absolutely not necessary.

**Use of technology in the classroom**
Cell phones are not permitted to be used during class. Please turn off your phone, or if you must have it on, then please silence it so that there are no disruptions.

- No recording of any kind permitted.
• No computers are to be used during class, unless it is necessary for the course session.

**Academy Student Attendance Policy**

The Academy maintains rigorous academic standards for its students and on-time attendance at all class meetings is expected. Each student will be allowed two excused absences over the course of the semester for which no explanation is required. Students are admonished to not waste excused absences on non-critical issues, and to use them carefully for illness or other issues that may arise unexpectedly. Except in the case of prolonged illness or other serious issue (see below), no additional absences will be excused. Each unexcused absence will result in the lowering of the final grade by 1/3 of a grade (e.g., an A will be lowered to A-, an A- will be lowered to B+, etc.).

Students remain responsible for any missed work from excused or unexcused absences. Immediately following an absence, students should contact the instructor to obtain missed assignments or lecture notes and to confirm new deadlines or due dates. Extensions or other accommodations are at the discretion of the instructor.

Automatically excused absences normally may not be used for quiz, exam or presentation days. Using an excused absence for a quiz, exam or presentation, such as in the case of sudden illness or other emergency, is at the discretion of the instructor.

In the case of prolonged illness, family emergencies, or other unforeseen serious issues, the student should contact the instructor to arrange for accommodation. Accommodation may also be made for essential professional or career-related events or opportunities. All accommodations remain at the discretion of the instructor, and appropriate documentation may be required.
## Course Schedule: A Weekly Breakdown

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic/Daily Activities</th>
<th>Readings and Homework</th>
<th>Deliverable/Due Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Course overview; Intro. to health innovations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Recent innovations- Case presentations and discussions</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Overview of major issues in healthcare &amp; healthcare data</td>
<td>Yock - Ch. 2.1; Hersh - Ch.2</td>
<td>Paper 1</td>
</tr>
<tr>
<td></td>
<td><em>Case presentations: One failure and one success</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Needs finding</td>
<td>Yock - Ch. 1.2-1.3;</td>
<td>Quiz 1</td>
</tr>
<tr>
<td></td>
<td><em>Guest speaker: Presentation of needs in a selected clinical setting</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Existing solutions</td>
<td>Yock - Ch. 2.2;</td>
<td>Quiz 2</td>
</tr>
<tr>
<td></td>
<td><em>Case presentations: Health innovations of the past</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Stakeholders, market analysis</td>
<td>Yock - Ch. 2.3-2.4;</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Guest speaker: Innovator of a health innovation</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Healthcare data, information and knowledge</td>
<td>Hersh - Ch.2</td>
<td>Paper 2</td>
</tr>
<tr>
<td></td>
<td>Computer and network architectures</td>
<td>Hersh - Ch.3</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Electronic health records and patient health records</td>
<td>Hersh - Ch.4</td>
<td>Quiz 3</td>
</tr>
<tr>
<td></td>
<td><em>Case presentations: Innovations and EHRs</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Precision medicine and personalized medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Case presentations: Examples</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Midterm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Concept generation</td>
<td>Yock - Ch. 3.1-3.2;</td>
<td>Paper 3</td>
</tr>
<tr>
<td></td>
<td><em>Case presentations: Health innovation needs</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Artificial Intelligence (AI) and Virtual Reality (VR)</td>
<td>Yock - Ch. 4.5</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Concept exploration and selection</td>
<td>Yock - Ch. 4.5-4.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Case presentations: Health innovation proposals</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Evidence based medicine</td>
<td>Hersh - Ch.14</td>
<td>Quiz 3</td>
</tr>
<tr>
<td></td>
<td>Consumer health informatics</td>
<td>Hersh - Ch.12</td>
<td></td>
</tr>
<tr>
<td>Week 13</td>
<td>Medical imaging</td>
<td>Hersh - Ch.16</td>
<td>Paper 4</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------</td>
<td>---------------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td>Telemedicine</td>
<td>Hersh - Ch.17</td>
<td></td>
</tr>
<tr>
<td>Week 14</td>
<td>R&amp;D strategy</td>
<td>Yock-Ch. 5.2</td>
<td>Quiz 4</td>
</tr>
<tr>
<td></td>
<td>Regulatory basics and reimbursements</td>
<td>Yock - Ch. 4.2-4.3</td>
<td></td>
</tr>
<tr>
<td>Week 15</td>
<td>Guest speaker: Future of health innovation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Case presentations: Health innovation solutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finals week</td>
<td>Final</td>
<td></td>
<td>Final</td>
</tr>
</tbody>
</table>
Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

Student Health Counseling Services - (213) 740-7711 – 24/7 on call engemannshc.usc.edu/counseling
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call suicidepreventionlifeline.org
Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 – 24/7 on call engemannshc.usc.edu/rsvp
Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086 equity.usc.edu, titleix.usc.edu
Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

Bias Assessment Response and Support - (213) 740-2421 studentaffairs.usc.edu/bias-assessment-response-support
Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.
Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

**USC Support and Advocacy - (213) 821-4710**
studentaffairs.usc.edu/ssa
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

**Diversity at USC - (213) 740-2101**
diversity.usc.edu
Information on events, programs and training, the Provost’s Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

**USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call**
dps.usc.edu, emergency.usc.edu
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

**USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call**
dps.usc.edu
Non-emergency assistance or information.