PPDE 611: DIGITAL HEALTH
2 Units
Spring 2020, Section 50918
Fri. Jan 31, 2pm – 7pm; Sat. Feb 1, 9am – 2pm
Fri. March 27, 2pm – 7pm; Sat. March 28, 9am – 2pm
Weekly interaction via Blackboard

Location: 1/31-2/1 – RGL 209; 3/27-28 – RGL 219

Instructors: Pernell Jones & Brian Neman
Office Hours: By Appointment
Contact Info:
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Course Description

This course will focus on the origins and impact of Digital Health on the overall healthcare industry. Beginning in 2011, the healthcare industry has seen significant growth in the sector of "Digital Health". In 2015, Digital Health saw $4.5B in venture funding, up from $4.3B in 2014 and $2.0B in 2013. In the same time period, venture investments for digital health surpassed that for medical devices. Digital Health is defined as the convergence of technology and healthcare - the application of innovative technologies to current issues faced by providers, payers, consumers, and all healthcare stakeholders - effectively achieving the Triple Aim - Increasing Quality and Access while Reducing Cost.

Course Format

The course structure will consist of lectures from guest speakers (industry executives), readings, projects, presentations, and discussions. Given the course format, consisting of industry executive guest lectures, the students are expected to actively engage and participate in discussions. Students will be evaluated on their participation, including the quality and quantity of their contribution to course discussions and written assignments. The course will also include essays and a business planning manuscript.

Course Purpose

1) To introduce, inform, and prepare future healthcare executives and leaders on the subsector of Digital Health - the key players, emerging companies, themes, industry drivers, trends, and opportunities for involvement and innovation;
2) To encourage and inspire thought and action in business development, operations, investment, and entrepreneurship.

Course Learning Objectives	Cognitive / Affective	Level
1. Identify opportunities to utilize Digital Health in their careers and personal lives	Cognitive	Knowledge
2. Develop and implement strategies to incorporate Digital Health in the workplace	Cognitive	Syntheses
3. Understand the process of creating and monetizing Digital Health companies	Cognitive	Analysis

Course Notes
Additional resources will be provided on Blackboard, by email, or during class. As with any graduate class, the **schedule may be modified**.

Readings:
The Patient Will See You Now: The Future of Medicine is in Your Hands by Eric Topol
Healthcare Disrupted: Next Generation Business Models and Strategies by Jeff Elton
The Creative Destruction of Medicine by Eric Topol
The Innovator's Prescription: A Disruptive Solution for Health Care by Clayton M. Christensen
Inside the FDA by Fran Hawthorne
The Digital Doctor: Hope, Hype, and Harm at the Dawn of Medicine's Computer Age by Robert Wachter

Reading assignments are for virtual class discussions as well as in-class sessions.

PPD 559 COURSE COMPETENCY OUTLINE

MHA Competency	Level (B/I/A)	Course Objective(s)	Assessment Methods
Domain 1: Knowledge of Health Care Environment			
1.1 Demonstrate knowledge of established and evolving issues in health care, and the ability to apply this knowledge to diverse health care organizations.	I	1, 2	Weekly Reflections
Domain 2: Critical Thinking and Analysis			
2.1 Demonstrate the ability to understand a situation, issue or problem by breaking it into smaller pieces and tracing its implications in a step-by-step manner.	I	1-4	Projects and Presentations
2.2 Apply complex concepts, develop creative and innovative solutions, or adapt previous solutions in new ways.	I	1, 2, & 4	Projects and Presentations

Domain 3: Business and Management Knowledge			
3.1 Understand and use the formal and informal-decision-making structures in health care organizations and the health care industry, and the ability to analyze and improve an organization's processes	A	**1, 3**	Reflections; Projects and Presentations
Domain 4: Policy and Community Advocacy			
4.1 Understand the legislative environment and the organizational implications related to health policy at the state, local and federal levels	I	**1, 2**	Weekly Reflections, Projects
4.2 Align one's own and the organization's priorities with the needs and values of the community	I	**1, 3**	Mid-Term, Final Project
Domain 5: Communication			
5.1 Demonstrates the ability to facilitate a group, and to prepare and present cogent business presentations	I	**3, 4**	Reflections; Projects and Presentations
5.2 Demonstrates the ability to persuade others to support a point of view, position, or recommendation, while assessing and responding to the feelings and concerns of others	I	**3, 4**	Reflections; Projects and Presentations

Domain 6: Leadership			
6.1 Understands how to establish a compelling organizational vision and goals for an organization	I	**3**	Reflections; Projects and Presentations

COURSE REQUIREMENTS

In-Class Participation and Preparation - 200 Points
All students are expected to prepare for class by completing the assigned reading and sharing their thoughts during class. We want a dynamic discussion! Students will be graded on their contribution and participation throughout the 15-week semester.

Weekly Reflections - 200 Points
All Students are required to complete 10 weekly reflections (20 points each) and comment on course materials and class discussions. Your reflections are your opportunity to think about class readings and discussions and to share with your classmates how those ideas relate to your interests in health care. Each reflection should be at least two paragraphs and no more than one page (no fewer than 200 words). Reflections must include original, thoughtful, clear, substantive comments based on the readings, insights from other courses taken in the program, and from personal experiences. You will be expected to read and prepare a comment on at least one of your classmates' reflections each week. You will post your reflections and comments on the Blackboard Discussion Board for that week's class. To receive credit, you must post reflections on Blackboard before Sunday at 6:30pm. For postings after 6:30pm, students will not receive credit.

Individual Weekly Reflections Grading Rubric (20 points each)			
Component	**Exemplary (***20 points***)**	**Proficient (***15-19 points***)**	**Complete** (*10-14 points*)
Thoroughness, Clarity and Integration __/ 80%	Student presents a coherent and thorough effort with effective attention paid to integrating weekly course materials. Final product demonstrates careful and insightful consideration of week's topics and detailed reflection on their application.	Student presents a coherent effort with some attention paid to integrating weekly course materials. Final product demonstrates some consideration of week's topics and reflection on their application.	Response does not adequately demonstrate student's understanding of week's topics or thoughtful reflection on their application
Component	**Exemplary (***20 points***)**	**Proficient (***15-19 points***)**	**Complete** (*10-14 points*)
Writing Mechanics, Structure, and Organization __/ 20%	Writing mechanics: No grammar, punctuation, or sentence structure errors observed. Proper citation demonstrated. Structure and Organization: Ideas are clear, well devised, and have solid structure so that readers can readily follow along and understand the content.	Writing mechanics: Minor grammar, punctuation, or sentence structure errors observed (2 or 3 errors). Proper citation demonstrated. Structure and Organization: Content is fairly well organized, does not jump all over the place, and flows in a reasonable manner. Ideas are fairly clear, demonstrate forethought, and are structured in a manner that readers can more or less follow.	Writing mechanics: Many grammar, punctuation, and sentence structure errors are observed (7 or more). Proper citation not demonstrated. Structure and Organization: Content is not well organized or flows poorly. Ideas are unclear, not well devised, or poorly structured.

Industry Interview (Mid-Term Assignment) - 300 Points

Each student must conduct an in-person interview with a: 1) Venture Capitalist/Angel Investor (could also be a corporate investor, i.e. Cedars-Sinai's venture arm, Summation Ventures), 2) Healthy System Executive (e.g. Innovation, Partnerships, Strategy), 3) Entrepreneur (has a revenue-generating company). **Prior to conducting the interview, you must submit your questions to the professors for review**. The interview will be no

less than 2 pages, covering the range of topics and questions approved. Late papers will be assessed a 10% point reduction.

The goal of the interview is to better understand the roles and responsibilities of each player in the Digital Health space. To better understand their:

- Goals within their organizations
- Outlook on the different players/organizations in the healthcare space
- Challenges they face in their work

The hope is that the student will select an individual that they will continue to connect with long after they have completed the course. The final document must be submitted via Blackboard turnitin by 6:30pm per the syllabus, and will be 35% of your grade.

End of Year Project - 300 Points (150 Points for Written Case, 150 Points for Presentation)
The end of year project will encourage each student to implement the knowledge they've gained throughout the semester. In connection with the course's objectives, each student will create a written case (5-7 pages) and presentation (45 minutes; with Q&A) for a potential partnership opportunity between their employer (e.g. Cedars, UCLA, Providence, Healthcare Partners), and a Digital Health company. **IMPORTANT**: Submit your presentation online and bring a USB drive copy to class to project on screen.

A successful case will effectively:

- Communicate a problem their employer faces
    - Size of the problem
    - How the problem affects operations, profitability
- Communicate the solution to this problem through a partnership with a Digital Health company
    - Financial & Operational and Short & Long-Term Impact
- Communicate the implementation of this solution - a step-by-step process
    - Economic terms of a 'pilot' project (include a draft Letter of Intent)
    - Step-by-Step Gantt chart of action items to ensure a timely implementation

An effective presentation will concisely and clearly communicate the main points of the partnership, including the problem, the solution, and the implementation plan.

Class Total - 1,000 Points

Grading Breakdown

Assignment	% of Grade
Class Preparation and Participation	15%
Weekly Reflections	15%
Industry Interview Essay (Due on 3/14 at 6:30pm)	35%
Final Project (Due on 4/20 at 6:30pm)	35%
Total	**100%**

Assignment Submission Policy
- All students are required to consult **Blackboard** and email regularly for class updates.
- Submit through **Blackboard**.

Note on Use of Laptops and other Electronics

Laptops and other electronic devices are permitted in the classroom subject to the following policies, but not during guest lectures:
- All electronics must be placed in a silent (or vibrate only) mode throughout class sessions.
- Acceptable uses are limited to ones that do not distract others from instruction.

Course Schedule: Virtual Session Breakdown
Weekly Reflections: Your reflections are your opportunity to think about class readings and discussions and to share with your classmates how those ideas relate to your interests in health care. Each reflection should be at least two paragraphs and no more than one page (no fewer than 200 words). Reflections must include original, thoughtful, clear, substantive comments based on the readings, insights from other courses taken in the program, and from personal experiences.

Quizzes: It is important to actively measure each student's understanding of the concepts discussed in-class or virtually. Quizzes are typically 1-3 open-ended questions and are directly related to class readings and discussions. ***Quizzes will not be used towards grades, but will help if adjustments to readings and discussions are needed.***

Course Schedule: In-Class Session Breakdown
Reading assignments are for virtual class discussions as well as in-class sessions
Fri. January 31, 2pm – 7pm
Introduction to Digital Health;
Introduction of class members, objectives, syllabus, course requirements
Topics:
Case Study – Current Headlines
Digital Health in Health Systems, Government and Payors
GUEST SPEAKER(S): Tech/Start-up Leaders

Sat. February 1, 9am – 2pm
Topics:
Artificial Intelligence, Big Data; Bio-banking
Digital Therapeutics, Pharmaceuticals
Medical Devices and IOT

GUEST SPEAKER(S): Tech/Start-up Leaders

Fri. March 27, 2pm – 7pm;
Topics:
Telemedicine, Stroke Centers, Population Health
Clinical Trials
HIPAA, Privacy, Security, FDA Pre-Cert Program

GUEST SPEAKER(S): Biotech Founders/Executives

March 28, 9am – 2pm
Topics:
Electronic Health Records, Automation, Reporting
Physician Tools, Decision Support
Healthcare Services/Entrepreneurship

GUEST SPEAKER(S): Data Analytics Founders/Executives

SUMMARY OF CLASS AND ASSIGNMENT SCHEDULE

Week 1 01/13	Semester Begins, Virtual Introductions Class Readings *Creative Destruction of Medicine; Chapters 1 & 3* *The Digital Doctor, Chapter 25*
Week 2 01/20	Class Readings *Healthcare Disrupted, Introduction, Chapter 1*
Week 3 01/27	Weekly Reflection & Discussion Topics-Virtual *Healthcare Disrupted; Chapters 2-3* *Creative Destruction of Medicine; Chapter 2*
Week 4 02/03	**In Class January 31 and February 1** Class Readings *The Innovator's Prescription, Chapter 3-4*
Week 5 02/10	Weekly Reflection & Discussion Topics-Virtual Class Readings *The Digital Doctor, Chapter 11*

	The Patient Will See You Now, Chapter 11
Week 6 02/17	Weekly Reflection & Discussion Topics-Virtual Class Readings *Healthcare Disrupted, Chapter 8* *The Innovator's Prescription, Chapter 5*
Week 7 02/24	Weekly Reflection & Discussion Topics-Virtual Class Readings *The Innovator's Prescription, Chapter 8, 9*
Week 8 03/02	Weekly Reflection & Discussion Topics-Virtual *Inside the FDA, Chapters 3-6*
Week 9 03/09	**Industry Interview Essay Due-March 14** Weekly Reflection & Discussion Topics-Virtual Class Readings *The Innovator's Prescription, Chapter 11*
Week 10 03/16	Weekly Reflection & Discussion Topics-Virtual Class Readings *Creative Destruction of Medicine; Chapter 4*
Week 11 03/23	**In Class March 27 and March 28—Final Project Pitch (Presentation)** Class Readings *Creative Destruction of Medicine; Chapter 7*
Week 12 03/30	Weekly Reflection & Discussion Topics-Virtual Class Readings *The Digital Doctor, Chapter 9*
Week 13 04/06	Weekly Reflection & Discussion Topics-Virtual *The Digital Doctor, Chapter 10 & 12*
Week 14 04/13	Weekly Reflection & Discussion Topics-Virtual Class Readings *Creative Destruction of Medicine; Chapter 8*
Week 15 04/20	**Final Project Due: Written business case and slide-deck**
Week 16 04/27	End of Semester

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:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.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) 740-9355(WELL), press "0" after hours – 24/7 on call
studenthealth.usc.edu/sexual-assault
Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) - (213) 740-5086 | Title IX – (213) 821-8298
equity.usc.edu, titleix.usc.edu
Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
usc-advocate.symplicity.com/care_report
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity |Title IX for appropriate investigation, supportive measures, and response.

The Office of Disability Services and Programs - (213) 740-0776
dsp.usc.edu
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 Campus Support and Intervention - (213) 821-4710
campussupport.usc.edu
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.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)
ombuds.usc.edu
A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.