Course Overview
The course will address the disruptive nature of emerging technology applications in healthcare. Topics covered will include digital health, electronic medical records, personalized medicine and diagnostics, wireless sensing and remote monitoring, cloud connectivity, telemedicine, mobile health platforms, social networks, big data and predictive analytics, and bioinformatics. The course will also include representatives from venture capital and the tech start-up community.

The class is designed for MBA students as well as other graduate level students who are interested in healthcare or one of the many technology industries driving the transformation of healthcare. While previous training or experience in healthcare or technology is not required, students should feel comfortable reading about and discussing the technologies presented as they pertain to the healthcare industry.

The objectives of this course are:

(1) to achieve a comprehensive understanding of the current and future role of technology in healthcare;

(2) to develop a predictive sense for how different technologies will affect the key stakeholders in healthcare – patients, physicians, providers, payors, and the pharmaceutical/medical product industries; and

(3) to identify management and business strategy challenges surrounding the implementation and utilization of technology in the healthcare industry.

The course will consist of 10 sessions that are 2 hours in length. Instruction will combine a seminar format with guest speakers leading the sessions and discussion sessions facilitated by the course faculty to encourage student interaction. Preparatory readings are posted on the course website and required for each session to prepare students with an overview of the technology to be discussed and provide relevant business context. These readings are also necessary to participate in the class discussions, which are a substantial portion of the course grade. Additional background references are available to those students with an interest in a particular technology area. Instructor slides will be available online following the class, and speaker slides will be available online at the speaker’s discretion.
Instructors
Roy Doumani, Professor, UCLA School of Medicine & Executive Director, UCLA Business of Science Center
  Office: CNSI 5236
  Email: roy@doumani.net

Jennifer McCaney, Lecturer, UCLA Anderson School of Management
  Office: CNSI 5236
  Email: jennifer.mccaney@anderson.ucla.edu

Teaching Assistant
Brad Turner, MBA/MD candidate, UCLA Anderson, 2016
  Email: brad.turner.2016@anderson.ucla.edu

Course Administrator
Samantha Le, Administrative Director, UCLA Business of Science Center
  Email: samanthale@mednet.ucla.edu

Networking
Each week, networking opportunities with the guest speaker(s) will be available to groups of 4 to 6 students, either before or after class. Sign-ups will be provided online via the course website. Students are encouraged to sign up for a speaker networking session; however, participation is not mandatory, and students with scheduling conflicts with not be penalized. Dinner or refreshments will be provided.

Course Material
Required readings will be assigned for every session, ranging from technical to business-oriented content and will span a range of sources. The collection of readings is curated for each session to provide students with: (1) a broad market overview of the technology, with a focus on the healthcare market, including market leaders and/or new entrants; (2) insights on organizational challenges and articles from key stakeholders, including physicians, policy-makers, and manufacturers; and (3) forward-looking articles that address innovation and entrepreneurial opportunities.

Required readings will be available in a course reader and may also be available through UCLA library resources. Readings are the responsibility of the student, and each session one to two students will be asked to give a short introduction to the class based on the readings. Please note that the reading list may change or additional readings may be assigned as the quarter progresses.

Recommended readings below are not required but are encouraged as an additional resource for students who have a strong interest in the subject area.
Recommended Reading
C. Christensen, The Innovator’s Prescription: A Disruptive Solution for Health Care, 2008
M. Porter, Redefining Health Care: Creating Value-Based Competition on Results, 2006

Grading
Course grading will be divided between class participation and attendance and an individual deliverable and a team presentation, which will be the primary deliverables for the quarter. Class participation will be based on the quality of student contributions to the discussions, not quantity. More than one unexcused absence will result in a letter grade drop. Team presentations will occur during finals week, and students will only be required to be present for their assigned time slot. It is anticipated that all team members will receive the same grade for the team presentation, however, the instructors will use their discretion and feedback from peer reviewed evaluations in making a final decision.

Class Participation & Attendance – 30%
Individual Deliverable – 45%
Team Presentation – 25%

Course Deliverables
Students will complete an individual deliverable and a final team presentation at the end of the quarter. Students will have two options for the individual deliverable:

(1) a professional quality opinion paper on a technology topic presented in class; or

(2) a business proposal for a new venture related to an opportunity created within any one of the healthcare technology markets discussed.

During week 5 of the quarter, students will be asked to submit a one-paragraph summary of their individual deliverable topic, including the area of technology focus (not to exceed 250 words), which will be reviewed by the course faculty. This is due by 12 pm on February 3rd to brad.turner.2016@anderson.ucla.edu in the file name format “Student Last Name_Student First Name_Summary.” Students will be grouped into core technology teams based on the material submitted for this deliverable. Students will also have the option of submitting team member preferences, which should be noted at the bottom of the page on their outline. Teams will be announced at class during week 6 on February 10th.

The final individual deliverable will be due by 12 pm on Tuesday, March 10th to brad.turner.2016@anderson.ucla.edu in the file name format “Student Last Name_Student First Name_Final Deliverable” or “Student Team Name_Final Presentation.” Length: Individual paper not to exceed 5 pages, and team presentation not too exceed 10 slides or 10 minutes. The final
student team presentations will take place in Gold Hall, B117 on Tuesday, March 17th from 4:10 to 7pm. A copy of each team’s presentation will be due by 12 pm on Tuesday, March 17th.

Please note that a hard copy of all materials is due in class on the date of the deliverable, however, materials received via email after the 12 pm deadline will be considered late.

Class Schedule

Pre-Session 1 Class Overview

Readings:
J. Bigalke, W. Copeland, and P. Keckley, “I’m OK, Your’re OK…but Will We be All Right?” Deloitte Review, no. 9, 2011

Session 1 – Tuesday, January 6th

Electronic Medical Records & Hospital Management Strategies for Healthcare IT

Guest Speakers:
Michael Pfeffer, MD, Chief Medical Information Officer, UCLA Hospital
Ellen Pollack, RN, Chief Nursing Informatics Officer, UCLA Hospital

Readings:
“Improving Care: Priorities to Improve Electronic Health Record Usability,” American Medical Association, September 2014
Session 2 – Tuesday, January 13th

Wearable Computing – Smart Glasses in Healthcare

Guest Speakers:
Sarah Rocio, Product Manager, Augmedix

Readings:
A. Sachdev, “Paramedics Try Out Google Glass in Ambulances,” The Seattle Times, August 12, 2014

3D Printing & Technology for Healthcare in Developing Countries

Guest Speakers:
Mick Ebeling, Co-Founder, Not Impossible Labs
Elliot Kotek, Co-Founder & Editor-in-Chief, Not Impossible Labs

Readings:
J. Groopman, “Print Thyself: How 3-D Printing is Revolutionizing Medicine,” The New Yorker, November 24, 2014
A. Chang, “With Ingenuity and a 3-D Printer, Group Changes Lives,” Los Angeles Times, April 25, 2014
Session 3 – Tuesday, January 20th

Telemedicine Technology Platform

Guest Speakers:
Dave Skibinski, President & CEO, SnapMD

Readings:
A. McWilliams, “Global Markets for Telemedicine Technologies,” BCC Research, September 2014:

Chapter 3 Telemedicine Overview, pp. 10-35


“SnapMD Launches Connected Care Telemedicine Platform,” PRWEB, October 20, 2013

Predictive Analytics & Remote Patient Intelligence

Guest Speakers:
Dave Sentrian, Founder & CEO, Sentrian

Readings:


Session 4 – Tuesday, January 27th

Robots for Remote Presence Monitoring

Guest Speakers:
Yulun Wang, Chairman & CEO, InTouch Health
Tim Wright, VP, Corporate and Market Strategy, InTouch Health
Paul Vespa, MD, Professor of Neurosurgery and Neurology and Director of Neurocritical Care, UCLA Hospital

Readings:

Session 5 – Tuesday, February 3rd

Next Generation Sequencing & Personalized Medicine

Guest Speakers:
Frank Oaks, VP, System Integration, Illumina
Richard Shen, VP, Consumables Product Development, Illumina

Readings:
“Quantitative Advances Since the Human Genome Project (HGP),” NIH News, pub. April 12, 2013
Introduction: Understanding the Impact of Technologies, pp. 23-28
Next-generation Genomics, pp. 86 – 94
E. Hayden, “Is the $1,000 genome for real?” Nature News & Commentary, January 15, 2014

Special Session – Friday, February 6th

Imagining Care Anywhere Tour – Kaiser Permanente, Garfield Innovation Center

Hosts:
- Karin Cooke, Manager, Innovation Fund for Technology, Kaiser Permanente
- Faye Sahai, VP, Innovation & Advanced Technology, Digital Health Technology & Strategic Initiatives, Kaiser Permanente

Readings:
- See Session 6

Session 6 – Tuesday, February 10th

Leveraging Technology & Innovation to Improve Patient Care – Managed Care Perspective

Guest Speaker:
- Nolan Chang, MD, Kaiser Permanente
- Sajid Sindha, Assistant Medical Group Administrator, Kaiser Permanente

Readings:
- E. Singer, “Massive Project to Study the Link between Genetics and Health,” MIT Technology Review, July 26, 2011
Session 7 – Tuesday February 17th

The Disruption of Healthcare & Venture Capital Perspective on Digital and Mobile Health

Guest Speaker:
Jack Young, Director, Qualcomm Life Fund, Qualcomm Ventures

Readings:
H. Greenspun and S. Coughlin, “mHealth in an mWorld: How Mobile Technology is Transforming Healthcare,” Deloitte, 2012
C. Barton, “Mobile Health (mHealth) Technologies and Global Markets,” BCC Research, March 2014
Chapter 7: Leading Therapies for mHealth, pp. 78-88
Table 9: mHealth Challenges and Opportunities by mHealth Application, p. 97

Session 8 – Tuesday February 24th

Social Network Platforms to Achieve Better Health Outcomes

Guest Speakers:
Naimish Patel, VP, Product Marketing, Rally Health

Readings:
Session 9 – Tuesday March 3rd

Analytical Approaches for Optimizing the Healthcare Ecosystem & IBM’s Watson

Guest Speaker:
TBD, IBM

Readings:
“Data-driven Healthcare Organizations Use Big Data Analytics for Big Gains,” IBM Software White Paper, February 2013

Session 10 – Tuesday March 10th

Digital Health Incubator and Seed Fund – How do Pitches Get Funded?

Proposed Guest Speaker:
Mitchell Mom, Venture Associate, Rock Health

Readings:
TBD

Final Team Presentations – Tuesday March 17th 4:10 – 7pm