**Mobile Health Technologies**

Seidenberg School of Computer Science & Information Systems

Spring Semester 2015

#### GENERAL INFORMATION

Professor: Pramod Gaur, PhD

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Office Hours: Via e-mail appointment

Class Session: 3-credit course for online or online/onsite blended mode

Class Location: Online and Onsite: Graduate Center, One Martine Ave, White Plains, NY

#### COURSE DESCRIPTION

This introductory course offers a multidisciplinary overview of the emerging technologies used in Mobile Health (mHealth) Industry. (mHealth) is the provision of health information and services via mobile phones and tablets. Innovations in this area promise solutions to the need for the broader access to affordable and effective health care by enabling consumers and their care givers to take charge of their health and wellbeing. Undergraduate Juniors and Seniors with IT, Business or Health Sciences background may be interested in this course. Minimum level of computer technology knowledge is a prerequisite. Students will develop foundational knowledge of how different stakeholders and industries are operating and engaging with one another in this rapidly growing healthcare technology sector, as well as learning to identify and capitalize on diverse and growing business and career opportunities.

#### COURSE GOALS

* Provide an overview of the emerging mobile health industry
* Explore selected applications and technologies used by patients and providers
* Highlight interdependencies and synergies between stakeholders of healthcare ecosystem
* Understand scalable and sustainable business models and emerging career opportunities
* Understand role of connected health technologies & solutions in management of aged population health and wellbeing

#### COURSE TOPICS to be COVERED

* Key Markets and Applications
* Enabling mobile technologies
* Regulatory and Policy Environment
* Continuum of Connected Health –Wellness and Prevention to Acute and Chronic Care
* Use of Cloud Computing and big data analytics for better healthcare outcomes

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**COURSE OUTCOMES**

* Provide an overview of the mobile health industry
* Explore selected mobile applications and technologies
* Highlight the need of cross-discipline synergies to design and implement mobile health solutions
* Apply the acquired knowledge on a project consisting of the design of a mobile health solution
* Provide exposure to role models and industry experts who can help clarify career paths and inspire entrepreneurship opportunities in mobile health
* Awareness of dramatic impact of information technology on every aspect of modern healthcare.
* Develop an understanding of personal healthcare data security, ethics, and privacy issues.
* To ensure successful application and understanding of the course concepts, students will engage in hands-on group projects to apply the acquired knowledge on a project consisting of the design of a mobile health solution

**COURSE MATERIALS**

**Text Book**: Health Informatics: Practical Guide for Healthcare and Information Technology Professionals (Sixth Edition). By Robert E. Hoyt and Ann K. Yoshihashi. Additional information for this course will be made available electronically and posted for your review and download purposes, or accessible via URLs and/or video links. Each chapter of the text book has associated articles, links and videos to expand student knowledge

[Chapter 1 Overview of Health Informatics](http://www.informaticseducation.org/Chapter1.htm)

[Chapter 2 Healthcare Data, Information and Knowledge](http://www.informaticseducation.org/Chapter2.htm)

[Chapter 3 Healthcare Data Analysis](http://www.informaticseducation.org/Chapter3.htm)

[Chapter 4 Electronic Health Records](http://www.informaticseducation.org/Chapter4.htm)

[Chapter 5 Health Information Exchange](http://www.informaticseducation.org/Chapter5.htm)

[Chapter 6 Health Data Standards](http://www.informaticseducation.org/Chapter6.htm)

[Chapter 7 Architectures of Information Systems](http://www.informaticseducation.org/Chapter7.htm)

[Chapter 8 Health Information Privacy and Security](http://www.informaticseducation.org/Chapter8.htm)

[Chapter 9 Health Informatics Ethics](http://www.informaticseducation.org/Chapter9.htm)

[Chapter 10 Consumer Health Informatics](http://www.informaticseducation.org/Chapter10.htm)

[Chapter 11 Mobile Technology and mHealth](http://www.informaticseducation.org/Chapter11.htm)

[Chapter 12 Online Medical Resources](http://www.informaticseducation.org/Chapter12.htm)

[Chapter 13 Medical Information Retrieval](http://www.informaticseducation.org/Chapter13.htm)

[Chapter 14 Evidence Based Medicine and Clinical Practice Guidelines](http://www.informaticseducation.org/Chapter14.htm)

[Chapter 15 Disease Mangement and Disease Registries](http://www.informaticseducation.org/Chapter15.htm)

[Chapter 16 Quality Improvement Strategies](http://www.informaticseducation.org/Chapter16.htm)

[Chapter 17 Patient Safety and Health Information Technology](http://www.informaticseducation.org/Chapter17.htm)

[Chapter 18 Telemedicine](http://www.informaticseducation.org/Chapter18.htm)

[Chapter 19 Medical Imaging Informatics](http://www.informaticseducation.org/Chapter19.html)

[Chapter 20 Bioinformatics](http://www.informaticseducation.org/Chapter20.htm)

[Chapter 21 Public Health Informatics](http://www.informaticseducation.org/Chapter21.htm)

[Chapter 22 E-Research](http://www.informaticseducation.org/Chapter22.htm)

**COURSE CALENDAR**

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| --- | --- | --- | --- | --- |
| **Week** | **Date** | **Topics** | **Readings** | **Assignment due** |
| 1 | **01/28**  **Onsite**  **Online** | **Live Lecture**  Overview of Mobile Health Technology | Txt Book Chapter 11  PDF and Video Files | **DUE 02/04**  Study Txt Book Chapter 10  Read/watch Files Posted on BlackBoard – Discussion Board |
| 2 | **02/04**  **Onsite**  **Online** | **Live Lecture**  mHealth Technology: Part 1  Use Cases for Wellness & Prevention | Txt Book Chapter 10  PDF and Video Files | **Due 02/04**  Study Txt Book Chapters 14,15  Read/watch Files Posted on BlackBoard – Discussion Board |
| 3 | **02/11**  **Onsite**  **Online** | **Live Lecture**  mHealth Technology: Part 2  Use Cases for Chronic Disease and Remote Patient Monitoring | Txt Book Chapters 14 and 15  PDF and Video Files | **DUE 02/11**  Study Txt Book Chapter 18  Read/watch Files Posted on BlackBoard – Discussion Board |
| 4 | **02/18**  **Onsite**  **Online** | **Live Lecture**  mHealth Technology: Part 3  Use Cases for Acute and Sub-Acute Care Delivery | Txt Book Chapter 18  PDF and Video Files | **DUE 02/18**  Study Txt Book Chapters 2,4,5  Read/watch Files Posted on BlackBoard – Discussion Board |
| 5 | **02/25**  **Onsite**  **Online** | **Live Lecture**  Health Data, Information and Knowledge | Txt Book Chapters 2,4,5  PDF and Video Files | **DUE 03/04**  Study Txt Book Chapters 6,7  Read/watch Files Posted on BlackBoard – Discussion Board |
| 6 | **03/04**  **Onsite**  **Online** | **Live Lecture**  Health Data Standards, Big Data and Cloud Computing | Txt Book Chapters 6,7 | **DUE 03/11**  Read/watch Files Posted on BlackBoard – Discussion Board |
| 7 | **03/11**  **Onsite**  **Online** | **Live Lecture**  First Half Course Review | First Half Course Highlights and Summary | Prepare and/or work on Mid Term Exam |
| 8 | **03/18**  **Onsite**  **Online** | **Spring Break**  **NO CLASS** |  |  |
| 9 | **03/25**  **Onsite**  **Online** | **MID TERM EXAM**  Format – 15 Multiple choice questions =30 pts; 10 situation analysis and response questions = 60 pts | Study and Take Mid Term Exam: | **DUE 04/01**  Study Txt Book Chapters 8,9  Read/watch Files Posted on BlackBoard – Discussion Board |
| 10 | **04/01**  **Onsite**  **Online** | **Live Lecture (Guest Lecture)**  Health Information Privacy, Security and Ethics  Class Project - Introduction | Txt Book Chapters 8,9  Guest Speaker notes PDF  PDF and Video Files for Class  Project Introduction | **DUE 04/08**  Study Txt Book Chapters 19,20  Read/watch Files Posted on BlackBoard – Discussion Board |
| 11 | **04/08**  **Onsite**  **Online** | **Live Lecture**  Medical Imaging Technologies and Use cases | Txt Book Chapters 19,20  PDF and Video Files | Read/watch Files Posted on BlackBoard – Discussion Board |
| **12** | **04/15**  **Onsite**  **Online** | **Live Lecture**  Mobile Health App Use Cases | Continuum of Care Solutions Using Mobile Health App | Prepare and/or work on Class Mobile Health App Project |
| 13 | **04/22**  **Onsite**  **Online** | **Live Lecture**  Class Project Progress Interim Presentation and Discussions | Class Projects Material Shared | Prepare and/or work on Class Mobile Health App Project |
| 14 | **04/29**  **Onsite**  **Online** | **Live Lecture**  Final Project Presentations Live & Video Recorded Presentations | Final Class Projects Material Shared | Prepare and/or work on Class Mobile Health App Project |
| 15 | **05/06**  **Onsite**  **Online** | **Live Lecture**  Course Review and Final Exam Tips | Study and work on Final Exam | Prepare and/or work on Final Exam |
| 16 | **05/13**  **Onsite**  **Online** | **FINAL EXAM**  **Take Final Exam** | Provide Course Evaluation Form | **DUE**  Complete Course Evaluation |

**CIS XXX Grading / Assessment**

**Category Weighted %**

|  |  |
| --- | --- |
| Homework/Assignments (assigned throughout the semester) | 20% |
| Midterm Exam | 25% |
| Mobile Health App Class Project | 30% |
| Final Exam | 25% |
| **Total** | **100%** |

**Grades will be based on the following points and percentages:**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Points | 0 - 59 | 60 - 64 | 65 - 69 | 70 - 72 | 73 - 76 | 77 - 79 | 80 - 82 | 83 - 86 | 87 - 89 | 90 - 92 | 93 - 100 |
| Grade Points | 0.0 | 1.0 | 1.3 | 1.7 | 2.0 | 2.3 | 2.7 | 3.0 | 3.3 | 3.7 | 4.0 |
| Letter Grade | F | D | D+ | C- | C | C+ | B- | B | B+ | A- | A |

**COURSE EXPECTATIONS**

Attendance at all scheduled class sessions is mandatory. Please consult the assignments section of Blackboard for information on what text is required in class.

It is expected that students will participate actively by submitting assignments according to due dates listed on the syllabus / assignment list, completing assigned readings as listed on the syllabus / assignment list, and participate regularly in the Discussion Board area of the online site.

**GROUP TERM PROJECTS**

There will be two major assignments where you will work with a team of your classmates on a group project designed to help you to use the skills in Health IT and Care Delivery that you learn and develop in this course. As a result, a significant part of your course work and final grade will depend on the contributions of other people – as their grades and experience will depend on you.

DISABILITY ACCOMMODATIONS AND ACADEMIC HONESTY

* The University's commitment to equal educational opportunities for students with disabilities includes providing reasonable accommodations for the needs of students with disabilities. To request an accommodation for a qualifying disability, a student must self-identify and register with the Coordinator of Disability Services for his or her campus. No one, including faculty, is authorized to evaluate the need and arrange for an accommodation except the Coordinator of Disability Services. Moreover, no one, including faculty, is authorized to contact the Coordinator of Disability Services on behalf of a student. For further information, please see [Information for Students with Disabilities on the University's web site](http://www.pace.edu/page.cfm?doc_id=5108).
* Secondly, students must accept the responsibility to be honest and to request ethical standards in meeting their academic requirements. The Academic Integrity policy of Pace University states that it is unethical to plagiarize, to cheat on an examination, or to turn in work that is not yours. That means you CANNOT COPY WORK FROM SOMEONE ELSE OR PRINT TWO COPIES OF THE SAME ASSSIGNMENT TO BE SUBMITTED BY TWO INDIVIDUALS. Each student must do his/her own work and upload it to Blackboard using his/her account. Students who fail to meet the responsibility for academic integrity subject themselves to sanctions ranging from a reduction in grade or failure in the assignment in which the offense occurred to suspension or dismissal from the University.
* It is easy for an instructor to tell when data has been duplicated between students. All instructors reserve the right to challenge work they feel has not been completed independently.

**ADDITIONAL INFORMATION**

* **Assignments:** Late or missing assignments will not be accpted!   
    
  If you are experiencing any emergency or other situation that prevents you from handing in work on time, I need to know about the problem prior to the due date for the homework or project. Please notify me via e-mail or voice mail.  
  + - * **Your Pace email account:** You must use your Pace email account to communicate with your Pace instructors. I will communicate with you via your Pace email account. It is your responsibility as a student to regularly read your email and respond promptly to communications from me and all of your instructors. You also have the option of forwarding all email sent to your email account to a different email account, for example, you can forward your email messages to a hotmail or aol account that you read on a regular basis.
      * **Email:** You are welcome and encouraged to email me with problems and comments. All email will be responded to promptly. Please be sure to include your full name in any email you send.