

## CHIP 400 - Digital Health Innovations & Impact

This class enables and inspires students to use their skills to innovate within the digital health ecosystem. Class discussions will deepen and expand student knowledge of the landscape of digital health. Group work will mostly occur outside of class time. All discussions, deliverables, and group activities will support the final project - prototyping and pitching a new digital product to meet customer needs. Lecture topics include patient engagement and consumerism, user centered design, diagnostics and digital therapies, health access, and population health, interoperability, regulatory agencies, and emerging technologies. We will also hear from industry experts as guest lecturers.

### Course Objectives

By the end of the course, the student will be able to:

- Describe digital health and elements of the interdependent healthcare system
- Identify and define interoperability standards
- Describe current emerging technologies and use cases within digital health
- Understand privacy and security laws related to digital health
- Describe population health
- Understand and implement a user-centered design approach
- Develop prototype presentation and sales pitch skills

**Time:** Thursday 12:30pm ET – 1:45pm ET

**Location:** Zoom

**Credits:** 1.5 Hours

**Instructor:** Dale Henion

**Office Hours:** 2pm-3pm Thurs after class via class Zoom link

**Email:** [daled@live.unc.edu](mailto:daled@live.unc.edu) (best way to contact me)

Fall Semester 2020



## Course Schedule

Class meets by Zoom: <https://unc.zoom.us/j/94037095180>

Session	Date	Topic	Deliverables Due
1	1/12	Introduction and Course/Project Review	#1 (1/13)
2	1/19	What is Digital Health	
3	1/26	Forces of Innovation	
4	2/02	User Centered Design (intro)	#2 (2/1)
5	2/09	User Centered Design - <i>Guest Speaker (Fei Yu)</i>	
6	2/16	Population Health	
7	2/23	Population Health - <i>Guest Speaker (Coretta Smith)</i>	
8	3/02	Patient Engagement	
9	3/09	User Engagement – <i>Guest Speaker (Corey Mercy)</i>	
10	3/16	Pathways to Commercialization - <i>Guest Speaker (Peter Liao)</i>	#3 (3/17)
11	3/23	Spring Break	
12	3/30	Interoperability Standards & Regulatory Agencies	
13	4/06	Advanced Care at Home – <i>Guest Speaker (Bailey Beauclair)</i>	
14	4/13	Emerging Technologies	Class Discussion
15	4/20	Final Presentation	#4 (4/20)

## Supplemental Reading

### Books

Pereau, K. & Lenson, B. (Eds.). (2019). *The Digital Health Revolution*. Los Angeles, CA: TranscendIT Health. ISBN-10: 0578409720  
ISBN-13: 978-0578409726

Sonnier, P. (2017). *The fourth wave: Digital health - a new era of human progress*. San Diego, CA: [www.StoryofDigitalHealth.com](http://www.StoryofDigitalHealth.com). ISBN-10: 9781976791550 ISBN-13: 978-1976791550

### Articles

Holte, A.J., Molloy, I.B., Werth, P.M., Jevsevar, D.S., (2021).  
Do Patient Engagement Platforms in Total Joint Arthroplasty Improve Patient-Reported Outcomes? *The Journal of Arthroplasty*, 36(12), 3850-3858.  
<https://doi.org/10.1016/j.arth.2021.08.003>

Katz, L.B., Aparicio, M., Cameron, H., Ceppa, F., (2022). Use of a Meter With Color-Range Indicators and a Mobile Diabetes Management App Improved Glycemic Control and Patient Satisfaction in an Underserved Hispanic Population: “Tu Salud”—A Randomized Controlled Partial Cross-Over Clinical Study. *Diabetes Spectr*, 35(1): 86–94. <https://doi-org.libproxy.lib.unc.edu/10.2337/ds20-0101>

OConnor, S., Hanlon, P., ODonnell, C.A., Garcia, S., Glanville, J., Mair, F.S., (2016). Understanding factors affecting patient and public engagement and recruitment to digital health interventions: a systematic review of qualitative studies. *BMC Medical Informatics and Decision Making*, 16(120): <http://doi.org/10.1186/s12911-016-0359-3>

Santo, K., Richtering, S.S., Chalmers, J., Thiagalingam, A., Chow, C.K., (2016). Mobile Phone Apps to Improve Medication Adherence: A Systematic Stepwise Process to Identify High-Quality Apps. *JMIR Mhealth Uhealth*, 4(4): [doi:10.2196/mhealth.6742](https://doi.org/10.2196/mhealth.6742)

**Sakai:** We will use Sakai (<https://www.unc.edu/sakai/>) in this course to submit assignments, return grades, share lecture notes, provide access to assigned readings and other class resources.

### **Course Project:**

- Analyze market and develop a technology proposal
- Identify problem you're trying to solve
- Define business and technical requirements
- Identify tools used to build product offering
- Build prototype - mock up UI, and other functionality
- Estimate development effort and cost; startup cost
- Present project to a mock panel of industry experts.

## Grading

Your grade for this course will be based on the course project and class participation. The approximate breakdown within those categories is as follows:

75% - Course project

5% - Deliverable #1 – team role self-identification and area of interest

5% - Deliverable #2 – group member list and project topic/scope

20% - Deliverable #3 – project draft for feedback

35% - Deliverable #4 – final project presentation

10% - Peer/self-Evaluation

10% - Emerging Technology – your group will present an emerging digital technology to the class and why it is likely to be impactful for healthcare.

15% - Class Participation - attendance, coming prepared, active engagement in discussion, completion of knowledge self-assessments in Sakai.

## Graduates

Points	What it means
H	High Pass
P	Pass
L	Low Pass
F	Fail
IN	(Inc) Work Incomplete
S	Satisfactory Progress on Research, Dissertation, Thesis, etc.
AB	(Abs) Absent from final exam
NG	No Grade Assigned

## Undergraduates

Points	What it means	Grade
95>	Mastery of course content at the highest level of attainment that can reasonably be expected	A
92-94 87-91 83-86 80-82	A totally acceptable performance demonstrating an adequate level of attainment	A- B+ B B-

Points	What it means	Grade
77-79 73-76 70-72 67-69 60-66	A marginal performance in the required exercises demonstrating a minimal passing level	C+ C C- D+ D
<60	For whatever reasons, an unacceptable performance	F

## Course Policies and Expectations

### Communications

- **Course announcements** will be posted on Sakai. Announcements may include information about the week's work, or other timely information.
- **Email** is the best way to contact me.
- **Virtual Office Forum in Sakai** should be used for any general questions about course, assignments, etc. I will monitor the forum and respond within 24 hours. Before posting a question, please check the syllabus, schedule and course notes in Sakai to see if they contain the answer to your question.

**Class attendance** is crucial to fulfilling learning objectives of the course that relies heavily on information presented by instructor/guest lecturers and in-class discussion.

- Be on time for class;
- If you know in advance that you will have to miss a class, arrive late to class, or leave early from class, please let me know ahead of time;
- If you miss class unexpectedly, please let me know why you were absent before the next class meeting

**Class preparation** is key to getting the most out of each class.

You are expected to come to class having completed the readings from textbook and other resources linked from the class schedule in Sakai. Be prepared to ask questions and take part in discussion.

### Assignment Submission

All course project deliverables are to be submitted via Sakai by the start of class on the day they are due. For group deliverables (#2 and #3), only one member of the team needs to submit on behalf of the group.

### Academic Integrity and Diversity

Fall Semester 2020

UNC-Chapel Hill has had a student-administered honor system and judicial system for over 100 years. Because academic honesty and the development and nurturing of trust and trustworthiness are important to all of us as individuals, and are encouraged and promoted by the honor system, this is a most significant University tradition. You are responsible for being familiar with UNC-Chapel Hill [Honor System](#).

The UNC Honor Code applies to all work included in this course. Section II. B. of the [Instrument of Student Judicial Governance](#) gives examples of actions that constitute academic dishonesty

In support of the University's diversity goals and the mission of the School of Information and Library Science, SILS embraces diversity as an ethical and societal value. We broadly define diversity to include race, gender, national origin, ethnicity, religion, social class, age, sexual orientation and physical and learning ability. As an academic community committed to preparing our graduates to be leaders in an increasingly multicultural and global society we strive to:

- Ensure inclusive leadership, policies, and practices;
- Integrate diversity into the curriculum and research;
- Foster a mutually respectful intellectual environment in which diverse opinions are valued;
- Recruit traditionally underrepresented groups of students, faculty, and staff; and
- Participate in outreach to underserved groups in the State.

The statement represents a commitment of resources to the development and maintenance of an academic environment that is open, representative, reflective, and committed to the concepts of equity and fairness.