

OT 699: Building technologies that promote health and occupational engagement

Week 1

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Today's Outline



Course overview



Introductions

Dr. Liew

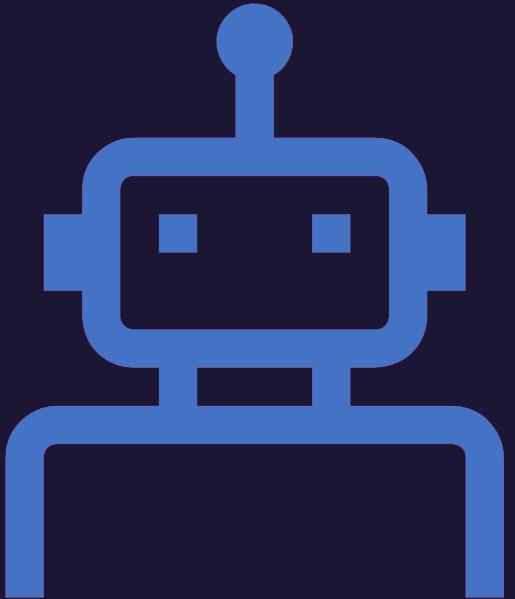
Dr. Laine

(& we will meet each
of you in class!)



Basics of computer
programming

Course Objectives



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

- Identify, describe, and develop innovations that promote improved health and increased occupational engagement (with collaboration).
- Create a business development plan for a technology that meets a clinical need, and identify the appropriate software and hardware skills that are needed to implement their concept.
- Design an initial prototype of a concept.

Why did we make this course?

1. Innovation is a key component of both the USC Strategic Plan and the Chan Division Strategic Plan
2. Technology is constantly evolving at a rapid pace, and it is critical for our graduates to be equipped to use all possible tools (including technology) to solve healthcare challenges at local, nation, and international levels
3. We often talk about “tech” and “innovation,” but most people don’t know what that really means - we want to give you hands-on examples!
4. Playing around with technology is just a lot of fun ☺

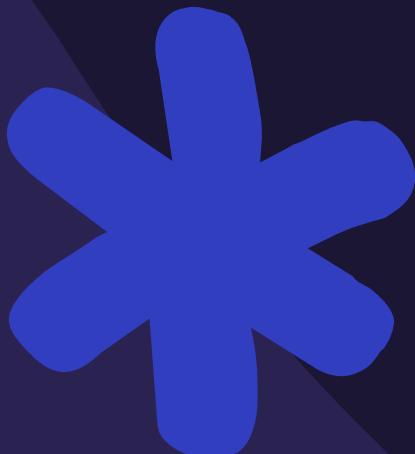
Think of this as
your tech
sandbox

A high-level overview so you can later identify which technologies you need to solve a specific problem, and you know where to look to get started

A chance for you to learn about and play around with lots of different technologies

This is new for us too! We will work with you to adapt this class to your needs as we go :)

Course Expectations



- However, based on these lectures alone, you will not be independent or proficient with any of these technologies
- Developing proficiency in each of these technologies can take weeks/months of dedicated time and effort
- Our goal is to just show you what each one is and give you a flavor of it by providing very structured, hands-on tutorials
- That way, if you identify a clinical need, you will have an idea of what tools might be useful and can dive further into any of these on your own, or collaborate with someone who is proficient (e.g., I don't have hardware/sensor proficiency, but Dr. Laine does!)

Topics

Software (Weeks 1-4)	Hardware (Weeks 4-8)	Implementation (Weeks 9-11)
Computer Programming Basics I	Prototyping and Arduinos	Innovation: Intellectual property, licensing, and identifying a need
Computer Programming Basics II	Electronic Device - Data Acquisition and Design (Sensors)	Innovation: Market analysis, value proposition, business plan
App Development	Hardware+Software Integration	Creating your own prototype design and market plan
Gamification & Game Engines	3D Printing	FINAL: Capstone project presentations

- As we go through the first 8 weeks, keep in mind that the end goal is for you to identify a clinical need, design a prototype solution, and develop a market plan around that solution!

Weekly Schedule

- This course is 11 weeks (2 hours 20 min/week)
 - ~1 hour 20 min **asynchronous** content
 - Mixture of lecture and follow-along lab work
 - Can be done at your own pace, but prior to:
 - ~1 hour **synchronous** hands-on lab, discussion and troubleshooting
 - Time to review the material, go over questions, and talk through things all together
 - Each class will start with a 4-question quiz on the material the week before (or an assignment, like drafting a business plan)

Grading

Item	Points	% of Grade
Weekly Quiz/Assignment	44 (4 points per week)	44%
Participation	11 (1 point per week)	11%
Final Project	45	45%
TOTAL	100	100%

- **55% of your grade is from weekly quizzes/assignments/participation**
 - 5 points per week → 11 weeks → 55 points
 - 4 points from the quiz at beginning of live session (or homework assignment)
 - 1 point for participation (active engagement, cameras on, discussion)
- **45% of your grade is from your final project**
 - Final exam → Capstone project presentations (April 9)
 - Rubric based on: innovation, market need, market analysis, business plan (including budget, team/skills required), and prototype design
 - Will not necessarily need to create final prototype, but should outline all the needed steps

Housekeeping

- Doodle to determine time for final presentations on Friday April 9
- Office hours: Typically myself or Dr. Laine will be available from 3-4 pm, but please email us (or let us know during the live session) if you plan to attend



By the end of this course:

- You should be equipped to think critically about clinical problems/needs and how to develop an innovative solution using technology (or not!)
- You will also be well-positioned to enter the Chan Moshayedi Innovation Award, if you should choose to (April 30, 2021)
- You should have a lot of fun tinkering with new technologies!