

****Disclaimer****

This syllabus is to be used as a guideline only. The information provided is a summary of topics to be covered in the class. Information contained in this document such as assignments, grading scales, due dates, office hours, required books and materials may be from a previous semester and are subject to change. Please refer to your instructor for the most recent version of the syllabus.

CSE 598 / HSD 598

Smart City Infrastructure and Technology

3 credits

12.00pm-2.45 pm Tuesdays

Room: Tempe COOR 195

Virtual SYNC mode on Zoom: <https://asu.zoom.us/j/8028174379>

Katina Michael

Australia (remote); +61431201172 (Signal App only)

katina.michael@asu.edu

Consultation time with Instructor:

Wed and Thurs 11am-12pm MST (scheduled) and

Wed and Thurs 6.30am-7.30am Sydney time zone (by appointment)

Optional: PIT Colloquium 10.30am-12.00pm Tuesdays ()

<https://asu.zoom.us/meeting/register/tZAqf-igrzotGdP35pryKwSRn0TJuNChXDO8>

Our space: <https://www.codesignthefuture.com/>

Course Description

In this course, students will be introduced to the principal frameworks, infrastructure and technologies used in the co-design of citizen-centered smart cities. Students will learn how to identify key stakeholders, gather evidence through interviews, create a needs identification and requirements analysis document, and assess consequences and feasibility of proposals in the real world. Students will study a diverse range of thematic areas (e.g. transport, health and safety) and smart city contexts (human versus data versus sustainability focused). They will be exposed to key emerging technology systems and configurations that impact urban centers of growth including, but not limited to: the Cloud, virtualization, IOT/RFID, sensors (e.g. motion) and actuators, robotics, autonomous systems, intelligent systems, mixed reality, artificial intelligence and machine learning, geographic information systems and location analytics, computer aided design and 3D printing, big data analytics, cyberphysical systems, cybersecurity, social media, multimedia and wearable devices, eParticipation and eGovernance, the mobile Web and next generation networks (NGN). Students will develop project management and teamwork skills. Students will be able to create professional documentation to translate needs to requirements, and make high-level design decisions, considering the different socio-economic impacts (e.g. information access and accessibility) by the project they propose.

Course Objectives

The course objectives include:

1. To introduce students to the general field of smart city infrastructure and technology, covering both core foundations and key frameworks for development.
2. To provide students the opportunity to engage in real-world global challenges that require transdisciplinary approaches to thinking and methodology.
3. To be involved in a participatory, inclusive, and consultative process of co-design in a unique application area of smart cities.
4. To understand the place of human-centered design processes where stakeholders in a socio-technical system are valued members of a design process.
5. To be exposed to commercial-grade technologies and tools that can be applied as public interest technology.

Learning Outcomes

At the end of the course, students will be able to:

1. Demonstrate the ability to work in a cross-disciplinary team. This will require students to:
 - a. Meet weekly and work together in class and remotely.
 - b. Project manage the co-design process toward an action plan.
 - c. Coordinate weekly activities toward a meaningful contribution to the project at large.
 - d. Develop fluency with peers from other disciplines toward interdependency.
 - e. Begin working like a start-up toward open solutions to the global challenge.
2. Elicit and analyze citizen-centered needs to innovate responsibly.
 - a. Liaise with end-users toward needs and desirable futures.
 - b. Sketch a holistic socio-technical ecosystem of the global challenge.
 - c. Use adequate means of engagement to garner empirical information.
 - d. Be approved for research and application with human subjects through CITI IRB training.
 - e. Learn various methods of design data collection.
 - f. Analyze data collected and create evidence of human values considered important in design.
3. Understand the role of diverse infrastructure and technology solutions as applied to one or more smart city vertical applications, including transport, education, energy, healthcare, housing, or safety, to meet user requirements.
 - a. Learn about different network types and technologies at the core, edge and access levels.
 - b. Consider cloud technologies and those that are driven by Artificial Intelligence.
 - c. Develop an awareness of how these technologies may be applied in the global challenge.
 - d. Consider various types of assessment in the adoption and application of your solution.
 - e. Balance a variety of “by design” approaches, such as privacy and security by design etc.
4. Develop or engage in a public interest technology project using a co-design methodology to the prototyping phase.
 - a. Present your findings on the open web.
 - b. Develop a personal public profile with your expertise (anonymous or otherwise).
 - c. Enhance your writing and communication skills about your practice by sharing innovation.
 - d. Garner the support of a variety of stakeholders who might be interested in outcomes.
 - e. Engage with members of the public on a needs basis, gathering vital feedback.
5. Become “at least” novice-intermediate users of collaborative tools toward project outcomes. Students will be encouraged to:
 - a. Use Google docs and/or other cloud-based software (e.g. Dropbox).
 - b. Develop skills using professional templates toward publishing and then archival software.
 - c. Use Mural or Miro or Jamboard to template their ideas and solutions.
 - d. Use Zoom and/or Signal and other remote collaborative software toward conferencing.
 - e. Journal their ideas daily online and take weekly action logs to support knowledge creation.
 - f. Develop an ability to use the web publishing front end Squarespace in co-design the future.

Quicklinks

1. Squarespace web site: www.codesignthefuture.com
2. SLACK workspace: <https://app.slack.com/client/T028A32PYN9/DL3KHMPQU>
3. MURAL workspace: <https://app.mural.co/t/cse598hsd5981140>
4. CITI ASU Research Integrity: <https://researchintegrity.asu.edu/human-subjects/training>
5. PIT Colloquium: <https://asu.zoom.us/joining/register/tZAqf-igrzotGdP35pryKwSRn0TJuNChXDO8>

A Note on my Style of Teaching Practice

Every week I will provide relevant lecture material that I will not go through in class, save for lecture 1-3 that will be predominantly a “talking head” class where I frame the semester with you actively.

I can assure you that you would never have been through an activity like the one we are going to go through together. You might have been in other simulated experiences through University, but this will be different because it will be real and it will affect real people that you know, and people that you do not.

This is about empowering both the end-users you will address and stakeholders in the greater ecosystems you will engage with, as well as your very selves. And, it will be up to you how far you take this course. The real benchmark? Is what you are willing to give me, willing to give each other, and willing to develop in yourselves.

Why is this serious? Everything you will contribute will go public. You will either choose to use your real names and profiles and photos, or develop an anonymous identity. But I will be real, and so will your advisors in that virtual space.

You will also need to coordinate yourselves in a very short amount of time. This will mean you identify your top two strengths. Computer science and engineering students, you don't have to relegate yourselves just to the “architectural” or “computational” side of things. I want you to choose a secondary strength in a non-STEM domain. Non-STEM students, you are integral to the design process. I want you to challenge yourselves and figure out where you sit in this process of creative design. Do not think “I don't know how to code so I cannot be of any use to the STEM students.” This is not the right way to think about this course, your course. I am fully engaged with multi/inter/trans-disciplinary scholarship. You are part of, and important to every part of the development process, and if I was to say “equally important” independent of your disciplinary backgrounds because your lived experience is unique. The most important people in this process are humans. Yes, the stakeholders, yes the users, but everyone that is human: that includes you, the people you might interview, the people you might liaise with at the City of Phoenix level, everyone. This is akin to a “care” challenge.

Most important to me, you learn more about yourselves in our course. That you are authentic and honest. When you don't know how to do something, don't say you do. When you need help, ask your friend or me. When you have a hunch, follow it up. Give the allotted time to this course, no less, and not more. Keep a home diary, and when x hours is up, it is up. But come prepared. Self-organising groups are paramount. Self-organising means I guide you but I don't tell you what to do and we explore together. By the end of the 15 weeks together, we have grown as a single unit, but we will have grown to different levels. Commit yourselves, and you will do very well. Come half-hearted, and you might still do well, but not as well as you wanted to.

For the technical students in CSE, I have given my word to my superiors that you will produce a technical artefact, whatever form that takes is up to you but I have ideas from having run this class for two years in a row already. But also CSE and system engineering students, come with an open mind. You might not understand the relevance of what the HSD students are talking about but be humble. Think positive. Think of ways to address needs. And think of how to overcome barriers to, e.g., privacy concerns with advanced technologies.

For the non-STEM students, I want you to “get in there” and ask lots and of questions. Think of the STEM students as your teachers, or your coaches, or co-learners. Don’t be afraid to ask a question if you think it sounds “dumb.” Nothing is dumb. Nothing is stupid. And don’t steer away from logging onto the technical resources and downloading stuff, and having a play or having a go. You might really really surprise yourself. The closer you get to the tech, the more you will be able to say something constructive about it in your future policy work, or NGO or NfP work.

You are our next generation of university students, and our hopes are that you will be (1) transdisciplinary; (2) inclusive; (3) unorthodox. You might think why #3? Because we have to try something to get ourselves out of this mess we have found ourselves in. It will take collective action, collective awareness, collective knowledge, and #1 sustainability in mind. Let’s change the world! Together.

Required Texts

The required texts are freely available here: <https://www.endhomelessnesswa.com/co-design>

We were going to do a whole comparative co-design exercise in the State of Arizona and compare it with Australia’s State of Western Australia, but due to COVID-19 the risk was too high. I actually have the IRB proposal approved for the #endhomelessness project in Arizona but you team will need to collectively, along with me, write a new IRB application for the #dementia #autism #mentalhealth project. This means you will have to do CITI training (online) in week 1 of your studies. Once you are approved we will write the IRB together using a GoogleDoc.

1. I have downloaded the “Action Plan Co-design Toolkit”
<https://drive.google.com/open?id=1Kvs9ZQ3pqMaqc0IEy6QdFgLhBAAovj8b>

Additional required texts include:

2. Co-design literature and practice:
https://drive.google.com/open?id=1gQfxonfNXBFEFrSJ43_z7YALWeIltjzG
3. Case study example (youth action plan to end homelessness):
<https://drive.google.com/open?id=18TILZYcPwZDcVly2qoQXB-ZYmaTfxhHG>
4. Policy design resources (PEXL Lab): <https://www.pexl.org.au/toolkit>
5. Presenting the action plan (aka pitch day): <https://docs.google.com/presentation/d/1WxHuY5uQRc4-hA9HxNkXmAv3rooLYV8XL8snM7XdWQ4/edit?usp=sharing>

Recommended Texts

You do not have to buy the following but please know I have been inspired by:

- Cyd Harrell’s *A Civic Technologist’s Practice Guide*; and
- Jeremy Pitt’s yet to be released book *Self-Organising Multi-Agent Systems*

The Mural Digital Canvas

I also recommend the use of Mural that can be found here: <https://www.mural.co/> Let me know if I’ve not been able to add you for any reason to my account, and I’ll rectify that ASAP. We can use Mural for our weekly meetings, or the PEXL lab resources above, anything that will help us collaborate better. You will need lots of paper, and note cards, and stickies, and whiteboard textas (if you are face to face

in class) and an eraser given I am not there. Don't go crazy, save your money, but enough for one texta or two for each person. And one sticky stack. Or decide to go paper free and login face to face and collaborate online. I do prefer paper however, and I have a thought that the people in the classroom will take advantage of the ease of tactile objects.

INTEL Software

I also have INTEL materials for you here for our technical work (use your [ASU email address](#), and it should work as it did for me):

1. [Intel® DevCloud for the Edge](#) which is a cloud environment students can apply to (anyone with an @asu.edu email domain will be automatically approved for access, there's no cost for access). The cloud environment is both a learning and development tool. This environment contains interesting Jupyter Notebooks to learn about OpenVINO, functional tutorials and sample applications. The power of Jupyter Notebooks is that of its executable code surrounded by explanatory narrative.
2. We also have [OpenVINO Jupyter Notebooks](#), which can be installed and run locally (to an Intel based PC). The [install](#) of OpenVINO Developer distribution is easy on an Intel based PC. These are very practical Jupyter Notebooks that educate developers/students about how to use the features of OpenVINO
 - a. [Model Optimizer Tools Jupyter Notebook](#). The first core component of OpenVINO is the Model Optimizer. The Model Optimizer's role is to import a developer's trained model for a number of frameworks (tensorflow, ONNX, Caffe, MXNet, Kaldi.....PyTorch and a number of others are supported by conversion to the ONNX format first) and convert to a common Intermediate Representation (IR format) so that Intel's computer architectures understand the model. The Model Optimizer also will do some optimizations on the model to perform faster: linear operation fusing, stride optimizations, and group convolutions fusing.
 - b. [Inference Engine Jupyter Notebook](#). The second core component of OpenVINO is the Inference Engine. This is the suite of APIs for OpenVINO on how to build runtime inference into an application.
 - c. Additional Jupyter Notebooks:
 - i. [Converting a tensorflow model to IR format](#).
 - ii. [Converting a Pytorch Model to IR format via ONNX](#).
 - iii. [Converting a PaddlePaddle Model to IR format via ONNX](#).
 - iv. Others such as Object Detection, Segmentation, Vision Superresolution for an Image or Video, and more

A Note on INTEL

I am putting this note here because I don't want to forget about it, and better to tell you sooner than later. There is a [hackathon](#) on Sept 24-26. If you are interested you can register as a team or as individuals to be matched with other teams that don't have enough members (people you do not know). There are currently three webinars published there for participants to learn in advance about the weekend hackathon in September. The prize pool is \$10K. Fifteen teams will be selected to participate based on project submission, and all members of each team will receive a Luxonis DepthAI smart camera called the [Oak-D-IoT-40](#). This device uses the same chip that is inside the Intel NCS2 (Intel® Movidius Myriad X VPU), but exposes much more of the chipset capabilities than Intel NCS2. It can plug into a PC or other single board computer, or run stand alone for deployment.

Non-STEM students: do not think you cannot get involved — of course you can. Just declare what you are able to bring to the table up-front and tell them you are learning at the hackathon, etc. No greater way to find out about AI than deep-dive!

Although this curriculum will only prepare you partially to sit the Intel Edge AI Certification program, if you want to sit the whole program in your own time, here is the link: [Intel Edge AI Certification program](#). The content is free to take, however the certification costs \$99, should a student or developer want to purchase the certification for resume-building purposes. If you have time and drive during this time of COVID, there is no time like the present.

Topics to Cover

Infrastructural topics that may be covered include:

1. Public Interest Technology – The “Tech for Good” Movement
2. Sustainable Development Goals – The Importance of “Place” and “Need”
3. Citizen-centric approaches using the Co-design Methodology
4. Smart City Vertical Applications – Data Driven Innovation
5. Senior Living with Smart and Ambient Buildings – [Mirabella](#)
6. Smart Homes and Living – Supply Chains, Value Chains and Care Chains
7. Smart Cars, Traffic and Transportation – A Solution for Phoenix, Arizona
8. Smart Things, Objects and Environments– The Importance of Storytelling
9. Smart Phones, Smart Devices and People – Autonomous and Intelligent Systems
10. Managing Cyberphysical Systems in Smart Cities – Reducing Citizen Vulnerability
11. Emergency Management and Response – Using Smart Tech to Fight a Pandemic

Smart city contexts that may be covered include:

1. Transportation and traffic and network operation centers.
2. Health and assistive care for vulnerable populations, especially for disabled, cognitive impaired and the ageing.
3. Education and information accessibility: learning, knowledge and innovation.
4. Energy and power plants, and electricity grids.
5. Waste management (e.g. plastics) and access to clean drinking water.
6. Climate change and the environment.
7. eGovernment, Open Government, Citizen Science, eParticipation.
8. Entertainment.
9. Retail and shopping.
10. Crime, Policing and Safety.
11. Livability indicators (Quality of Life, Affordability, Population Growth).
12. Emergency management, location services, health surveillance.
13. Medical supply chains and health infrastructure.

Technology topics that may be covered:

1. Telecommunication network types: wireless, wireless, 3G-5G, broadband, mobile, ultra-high frequency, ultra-wideband (UWB), Bluetooth Low Energy (BLE).
2. The Cloud: managed solutions, storage solutions, data management, privacy and security.
3. Sensors and tags: identification, barcodes, biometrics, radiofrequency identification, IOT, near-field communication, wearables, condition monitoring, temperature, travel speed .

4. Software and data-driven decisions: social media, big data analytics, locational analytics, geographic information systems, geospatial data, spatio-temporal data, sentiment analysis.
5. Outdoor location-based services contexts, indoor solutions, big data solutions.
6. Embedded intelligence: autonomous systems, intelligent systems, artificial intelligence, machine learning, robotics, actuators, LIDAR systems, vision systems.
7. Ambient intelligence: calm technology, positive computing, persuasive technology, ubiquitous technology, social infrastructures.
8. Visualization, dashboards, multimedia, indicators, input-output screens.
9. Open data initiatives, citizen science (eParticipation).
10. Mixed reality, augmented reality, gaming, computer aided design, 3D printing.
11. Operational scenarios: on-body, in-body, external-to-the-body/ environment.

Sociotechnical skillsets attained by the group include:

1. Participatory design approaches to citizen issues in cities.
2. Learning to work in a technical community of practice and participate in design thinking.
3. Writing an ethics application and conducting interviews with stakeholders (e.g., citizens); or locating secondary sources of data on which to establish assumptions.
4. Creating a pain-chain-reasons chart. Identifying opportunities for change.
5. Problem definition, needs identification, requirements analysis.
6. Apply for IRB approval to interact with human subjects relevant to the project brief.
7. Develop a proof of concept, phase by phase, and propose a method for public consultation. Collect feedback from potential end-users on your Action Plan.
8. Go through the six stages of the co-design process as defined in this course.

Guest lectures from specialists will be given during the session from within and outside ASU.

PIT Colloquium (Tuesday's 10.30am-12pm - optional)

Importantly I encourage you each to come to at least a few Public Interest Technology Colloquiums that are on most weeks! I will email you each week's guests, and you can make up your mind if you can be there. We will also have pre-recordings up but these might be delayed. As advertised on the header, these are every Tuesday just before your class 10:30am-12:00pm. Please come. Get connected globally. Here is the link to register for the PIT Colloquium: <https://asu.zoom.us/meeting/register/tZAqf-igrzotGdP35pryKwSRn0TJuNChXDO8>

Our Web Site

Friends consider yourselves contributors to the web site www.codesignthefuture.com. I hope you find this web space a rewarding place to contribute your ideas and reflections. There are a few rules: 1. Do not use a real photo of yourself, maybe an autogenerated photo suffices; 2. Do not use a real name but a pseudonym. Once the session is over you might consider whether you wish to declare yourself as a volunteer. I will need your non-ASU account to add you. Protonmail is a great option.

Connect with me on LinkedIn. And if you are on Twitter I am @katinamichael.

My personal web site is: www.katinamichael.com. There is a powerful search feature on the site.

Lecture Schedule (Subject to Change)

Date	Lecture Theme	Class/Process	Consult Time (Wed)	Consult Time (Thu)
Wk 1 Aug 24	Working in Teams	Welcome Introductions Hopping onto Mural - Icebreaker Go through course outline together Lived Experience / Professional Expertise Working in Teams Authenticity Distributive Leadership	Living with dementia. Organizing yourselves into teams and sub-teams. What are your skills? What do you bring to the class? What do you want to develop? <i>CITI Training to be completed week 1.</i>	No consult time, SI her state of address session. Please com
Wk 2 Aug 31	Human-Centered Design	The Co-design Process: Literature 1. Co-initiate 2. Co-discover 3. Co-inspire 4. Co-define 5. Co-develop 6. Co-deliver INTEL Guest Lecture – Jason Burris	Hopping onto Mural. Any login issues? Let's take Mural for a spin. <i>IRB Application version 1.</i>	Squarespace adven Logging into Squar Becoming an editor What does this mea Communication str
Wk 3 Sept 7	Technology Fundamentals	Humans, Business and Technology Core, Edge, Access {City>Buildings>People}	Brainstorming on the technical possibilities to help those with dementia. Operational scenarios? What's wrong or right about this thinking? Systems of innovation <i>Submit IRB Application version N.</i>	Exposure to INTEL Let's log in and see What might this me session? CSE students what these tools and tech Is there another bet Source?
Wk 4 Sept 14	Self-Organising Systems and	Launch Session (Getting the core design squad on the same page) 1. Inviting the design squad	Open queries. Team issues – toward a resolution.	Feedback on work How to archive wo

Date	Lecture Theme	Class/Process	Consult Time (Wed)	Consult Time (Thu)
	Collective Action 1	<ol style="list-style-type: none"> An overview of the design process Understanding the system: system sketch 		Who will moderate
Wk 5 Sept 21	Customers Included	<p>Launch Session (Getting the core design squad on the same page)</p> <ol style="list-style-type: none"> Greatest Hope Interviews Stakeholder mapping: Who else needs to be involved? Key decisions and task list 	<p>Open queries.</p> <p>Refining the stakeholder mapping</p>	<p>Creating an address stakeholders. Who can we approach?</p> <p>What permissions do we need?</p>
Wk 6 Sept 28	Socio-Technical Systems	<p>Workshop 1a: Co-discovery (Introducing the design team to the design process and the “Co-discover” phase)</p> <ol style="list-style-type: none"> Set the scene Table introductions System sketch Journey map interview 	<p>Open queries.</p> <p>A closer look at socio-technical systems, together.</p> <p>Systems sketch.</p>	<p>Open queries.</p> <p>Journey map.</p>
Wk 7 Oct 5	Value-sensitive Design, Values-based Design, Ethical Alignment by Design (P7000)	<p>Workshop 1b: Co-discovery (Introducing the design team to the design process and the “Co-discover” phase)</p> <ol style="list-style-type: none"> Greatest Hope exercise Introducing cohorts Action ideation matrix Design research preparation Close 	<p>Open queries.</p> <p>A closer look at value-sensitive design.</p> <p>The interview protocol, conducting interviews</p> <p>Design Research Methods 1a: interviews, shadowing, and desktop research</p> <ol style="list-style-type: none"> Journey interview- how to Expert interview- how to <p>Help! I’m stuck. I have no one to interview. What should I do? And I really want to conduct some interviews, at least one for the experience!</p>	<p>Open queries.</p> <p>Welcome to P7000! What might they be relevant to?</p> <p>Design Research Methods 1a: interviews, shadowing, and desktop research</p> <p>The interview protocol, conducting interviews</p> <ol style="list-style-type: none"> Desktop research System safari- <p>Help! I’m overwhelmed by the literature I’ve found. How do I know what to put it into folders? How might I start to analyze it?</p>
Wk 8	Fall break	Students fall break	No consult time.	No consult time.

Date	Lecture Theme	Class/Process	Consult Time (Wed)	Consult Time (Thu)
Oct 12				
Wk 9 Oct 19	Transcribing interviews and getting ready for analysis	Design Research Methods 1b: data collection 1. Journey interview- reflections from gathering primary data 2. Expert interview- reflections from gathering primary data 3. Desktop research- reflections from gathering primary data 4. System safari- reflections from gathering primary data	Open queries. Let's talk about what happened at the interviews.	Open queries. Let's talk about what happened at the desktop research.
Wk 10 Oct 26	Qualitative analysis	Design Research Methods 1c: data analysis and synthesis 1. Synthesis with affinity maps	Open queries. Help! I'm drowning in data. I am not even sure if we asked the right questions. And how are we supposed to translate this content into meaningful design decisions?	Open queries. Help! I'm drowning in data. I am not even sure if we asked the right questions. And how are we supposed to translate this content into meaningful design decisions?
Wk 11 Nov 2	Collective action and collective awareness	Workshop 2a: Co-define (Developing the core parts of your action plan for testing) 1. Catch up conversation 2. Kitchen tables conversations 3. Synthesise observations. What did we notice? 4. Individual system sketch: Future	Open queries. We are having some big technical issues, and we don't even think we are going to be using the INTEL tools and resources! <i>PIT UN running from 2nd November. Big heads up! We might be showcasing our work! Get ready to tell the world what you are doing through this on campus event. More coming your way when I know we are on! Your chance to shine!</i>	Open queries. Help! We feel stuck. We want to help our STEM students but we feel locked out. Help! We really appreciate our STEM students but we need time to document their work. Realisation? It's not just about STEM or non-STEM. It's about one single unit. C
Wk 12 Nov 9	Public interest Technology I	Workshop 2b: Co-inspire (Developing the core parts of your action plan for testing)	Open queries.	Open queries.

Date	Lecture Theme	Class/Process	Consult Time (Wed)	Consult Time (Thu)
		<ol style="list-style-type: none"> 1. Design principles for a situational cohort 2. First cut plan for situational cohorts 3. Create card sort prototype narratives 4. Prototyping and testing preparation 	<p>We are having some big technical issues, and we don't even think we are going to be using the INTEL tools and resources! Yes, I know this was last week's thing too!</p>	<p>Trying to keep the project deadlines and beginning to slip- v</p>
Wk 13 Nov 16	Public Interest Technology II	<p>Prototype and Test (Creating prototypes and testing them with stakeholders)</p> <ol style="list-style-type: none"> 1. Method 1: Narrative card sort 2. Method 2: Hypothetical announcement 3. Method 3: Pop-up testing 	<p>Open queries.</p> <p>We got part of little things working but not really anything end to end. We see light, but not enough of it. It seems we didn't scope this quite as well as we thought we had?</p> <p>Now we are downsizing our aims. We wish we had figured on this earlier.</p>	<p>Open queries.</p> <p>We need better com Seems the heavy li a few people.</p> <p>What should we or posting? We should lot earlier.</p>
Wk 14 Nov 23	Completing the Action Plan	<p>Workshop 3: Co-develop (final testing and prioritizing components of the final action plan)</p> <ol style="list-style-type: none"> 1. Settle in and introductions 2. Jargon buster 3. Narrative card sort 4. Prioritization of actions 5. Timeline actions 6. Absorb feedback 7. Final draft action plan 8. Next steps 	<p>Open queries.</p> <p>A review of yesterday's "Workshop 3."</p> <p>Our action plan doesn't read as one document. We need an extension...</p>	<p>Open queries.</p> <p>What should we do It feels like all our hitting us all at once momentum. What s need more sleep.</p> <p>Getting feedback o</p>
Wk 15 Nov 30	Preparing for the Pitch	<p>Finalise Action Plan</p> <ol style="list-style-type: none"> 1. Final write-up 2. Feedback: traditional consultation 3. Feedback: pop-up testing 	<p>Open queries.</p> <p>Preparing for the pitch.</p> <p>Yes everyone has to speak at least 3 minutes. No more than 5. One powerpoint only.</p>	<p>Open queries.</p> <p>Dry run of pitch.</p>
Wk 15	Delivering the Pitch	<p>Pitch Day - Open</p> <p><i>Inviting your loved ones to see you shine!</i></p>	No consult time.	A New Beginning

Date	Lecture Theme	Class/Process	Consult Time (Wed)	Consult Time (Thu)
Dec 1, 2 TBD	(Open Audience)			

Course Requirements (Subject to Change)

Week Due	Assignment Title
Week 2	CITI Training – Complete the module “IRB – Social & Behavioral Research (Group 2)” by visiting CITI ASU Research Integrity: https://researchintegrity.asu.edu/human-subjects/training
Week 3	IRB Application Submitted – Submit your IRB application for review and successfully get it approved based on feedback by visiting: https://researchintegrity.asu.edu/human-subjects
Week 7	In-class Participation – You need to actively participate through each week’s activities. You need to identify the dual roles you will take on during this semester and apply yourself accordingly (whether in person to face or in zoom). I want to see listening, and initiative, and most of all care of one another.
Week 10	Interviews – You need to interview a single stakeholder in an in-depth interview or choose to do equivalent work in desktop research. Interviews must be transcribed and analysed in full. The output of this assignment must be posted online.
Week 12	Web-based Participation – You need to actively contribute throughout the session with meaningful blogs and set up an authentic profile online despite you are using a pseudonym (until class completion).
Week 14	Final Action Plan – You are to follow the #endhomelessness process “action plan” and produce something akin to that for #dementia, #autism and #mentalhealth. I expect CSE students to produce a proof of concept. Every individual contributing identifies their section within the context of a single deliverable, i.e., one document that brings together your session learnings.
Week 15	Pitch Day – You are to follow the #endhomelessness pitch presentation style while incorporating sections and solutions architecture into the presentation. Everyone gets to present for up to 5 min. You will use a powerpoint presentation and template, and 30 class voices. It is an open event.

I = Individual; G = Group; * means CSE students have a slightly different task to HSD and Other students

Readings and Assignment Due Dates

Date	Lecture Theme	Class/Process	Readings (TBA)	Assignment
Wk 1 Aug 24	Working in Teams	Welcome Go through course outline together Lived Experience / Professional Experience		
Wk 2 Aug 31	Human-Centered Design	The Co-design Process: Literature 7. Co-initiate 8. Co-discover 9. Co-inspire 10. Co-define 11. Co-develop 12. Co-deliver		CITI Train
Wk 3 Sept 7	Technology Fundamentals	Humans, Business and Technology Core, Edge, Access {City>Buildings>People}		IRB Appl
Wk 4 Sept 14	Self-Organising Systems and Collective Action 1	Launch Session (Getting the core design squad on the same page) 4. Inviting the design squad 5. An overview of the design process 6. Understanding the system: system sketch		
Wk 5 Sept 21	Customers Included	Launch Session (Getting the core design squad on the same page) 4. Greatest Hope Interviews 5. Stakeholder mapping: Who else needs to be involved? 6. Key decisions and task list		
Wk 6 Sept 28	Socio-Technical Systems	Workshop 1a: Co-discovery (Introducing the design team to the design process and the 'Co-discover' phase) 5. Set the scene 6. Table introductions 7. System sketch 8. Journey map interview		

Date	Lecture Theme	Class/Process	Readings (TBA)	Assignme
Wk 7 Oct 5	Value-sensitive Design, Values-based Design, Ethical Alignment by Design (P7000)	Workshop 1b: Co-discovery (Introducing the design team to the design process and the 'Co-discover' phase) 6. Greatest Hope exercise 7. Introducing cohorts 8. Action ideation matrix 9. Design research preparation 10. Close		Participat This mark participati via Zoom
Wk 8 Oct 12	<i>Fall break</i>	<i>Fall break for students</i>		
Wk 9 Oct 19	Transcribing interviews and getting ready for analysis	Design Research Methods 1b: data collection 5. Journey interview- reflections from gathering primary data 6. Expert interview- reflections from gathering primary data 7. Desktop research- reflections from gathering primary data 8. System safari- reflections from gathering primary data		
Wk 10 Oct 26	Qualitative analysis	Design Research Methods 1c: data analysis and synthesis 2. Synthesis with affinity maps		Interviews CSE stud interviewi human-ce requireme
Wk 11 Nov 2	Collective action and collective awareness	Workshop 2a: Co-define (Developing the core parts of your action plan for testing) 5. Catch up conversation 6. Kitchen tables conversations 7. Synthesise observations. What did we notice? 8. Individual system sketch: Future		

Date	Lecture Theme	Class/Process	Readings (TBA)	Assignments
Wk 12 Nov 9	Public interest Technology I	Workshop 2b: Co-inspire (Developing the core parts of your action plan for testing) 5. Design principles for a situational cohort 6. First cut plan for situational cohorts 7. Create card sort prototype narratives 8. Prototyping and testing preparation		Web-based This assignment contributes to the www.cse.stu.edu
Wk 13 Nov 16	Public Interest Technology II	Prototype and Test (Creating prototypes and testing them with stakeholders) 4. Method 1: Narrative card sort 5. Method 2: Hypothetical announcement 6. Method 3: Pop-up testing		
Wk 14 Nov 23	Completing the Action Plan	Workshop 3: Co-develop (final testing and prioritizing components of the final action plan) 9. Settle in and introductions 10. Jargon buster 11. Narrative card sort 12. Prioritization of actions 13. Timeline actions 14. Absorb feedback 15. Final draft action plan 16. Next steps		Final Action Plan CSE Student demonstration incorporating Conceptual Design or an open
Wk 15 Nov 30	Preparing for the Pitch	Finalise Action Plan 4. Final write-up 5. Feedback: traditional consultation 6. Feedback: pop-up testing		
Wk 15 Dec 1, 2 TBD	Delivering the Pitch (Open Audience)	Pitch Day - Open <i>Inviting your loved ones to see you shine!</i>		Pitch Delivery CSE Student demonstration of their project and their overall design

Grading Scale

Assuming the point system suggested above, some breakout of points and grades should be specified. You may use the university “default” scales (<https://students.asu.edu/grades#grading>), if you wish, that go as follows:

GRADUATE

A-/ A/ A+	90.0-92.4/ 92.5-97.9/ 98-100	Excellent
B- /B/ B+	80.0-82.4/ 82.5-87.4/ 87.5-89.9	Good
C/ C+	70.0-77.4/ 77.5-79.9	Passing
D	60.0-69.9	No Graduate Credit
E	<60	Failure
EN		Failing Never Participated
XE		Failure due to Academic Dishonesty

.....
This syllabus is subject to change. It is your responsibility to read e-mail updates from the instructor as well as check the Canvas site for alterations made as events occur. Communication will be through your @ASU.EDU email only – please make sure you check it daily. E-mail questions and concerns from students are encouraged. The Instructor will try to respond to e-mailed questions within 48 hours.

(Although this is communicated implicitly elsewhere, it cannot be stated often enough to students that syllabi are subject to change. Moreover, particularly in an online class, faculty need to commit to a response time on student communications.)

Academic Integrity

Academic honesty is expected of all students in all examinations, papers, laboratory work, academic transactions and records. The possible sanctions include, but are not limited to, appropriate grade penalties, course failure (indicated on the transcript as a grade of E), course failure due to academic dishonesty (indicated on the transcript as a grade of XE), loss of registration privileges, disqualification and dismissal. For more information, see <https://provost.asu.edu/academic-integrity/policy>.

If you fail to meet the standards of academic integrity in any of the criteria listed on the university policy website, sanctions will be imposed by the instructor, school, and/or dean. Academic dishonesty includes borrowing ideas without proper citation, copying others’ work (including information posted on the internet), and failing to turn in your own work for group projects. Please be aware that if you follow an argument closely, even if it is not directly quoted, you must provide a citation to the publication, including the author, date, and page number. If you directly quote a source, you must use quotation marks and provide the same sort of citation for each quoted sentence or phrase. You may discuss assignments with other students, however, all writing that you turn in must be done independently. If you have any doubt about whether the form of cooperation you contemplate is acceptable, ask the TA or the instructor in advance of turning in an assignment. Please be aware that the work of all students submitted electronically can be scanned using plagiarism software, which compares them against everything posted on the internet, online article/paper databases, newspapers and

magazines, and papers submitted by other students. Turning in an assignment (all or in part) that you completed for a previous class is considered self-plagiarism and falls under these guidelines. Any infractions of self-plagiarism are subject to the same penalties as copying someone else's work without proper citations. Students who have taken this class previously and would like to use the work from previous assignments should contact the instructor for permission to do so.

Incompletes

A mark of "I" (incomplete) can be given by the instructor when you are otherwise doing acceptable work but are unable to complete the course because of illness or other conditions beyond your control. You are required to arrange with the instructor for the completion of the course requirements. The arrangement must be recorded using the form at <https://students.asu.edu/forms/incomplete-grade-request>. Students should be proactive and discuss this with their instructor and TA before the end of the semester. Students who do not complete this form before the end of the semester cannot be given an incomplete and will be awarded a grade based on the work they have completed. Students have one calendar year to make up the work. After that the "I" grade becomes a permanent "E" (failing) grade.

Late Assignments (TBA)

....

Grade Appeals

The School for the Future of Innovation in Society and ASU have informal and formal channels to appeal a grade. If you wish to appeal any grading decisions, please see <https://catalog.asu.edu/policies/sfis> for more information.

Student Standards

Students are required to read and act in accordance with university and Arizona Board of Regents policies, including: The ABOR Code of Conduct: Arizona Board of Regents Policies 5-301 through 5-308: <https://eooss.asu.edu/dos/srr/codeofconduct>.

Disruptive, Threatening, or Violent Behavior ([SSM 104-02](#))

All incidents and allegations of violent or threatening conduct by an ASU student (whether on- or off-campus) must be reported to the ASU Police Department (ASU PD) and the Office of the Dean of Students. If either office determines that the behavior poses or has posed a serious threat to personal safety or to the welfare of the campus, the student will not be permitted to return to campus or reside in any ASU residence hall until an appropriate threat assessment has been completed and, if necessary, conditions for return are imposed. ASU PD, the Office of the Dean of Students, and other appropriate offices will coordinate the assessment in light of the relevant circumstances.

Electronic Devices in the Classroom

Phones and other devices

Students should turn off cellphones and/or other devices (iPods, etc.) before they enter the classroom and keep them stored in their bags unless the instructor approves the use of the device for notetaking or requirements for course content. The first time a phone or electronic device causes a distraction or disruption in class, the instructor will request that the student turn off the device. After the second offense, students will be asked to leave the classroom and will lose credit for any further participation in class for that day. Multiple offenders will have points taken off of the final grade.

Laptops/Computers

Use of laptops and tablets during class will be permitted for notetaking or class approved activities. For the first occurrence, students who are obviously distracted by what they are viewing on their laptop will be asked to put the device away. After the second offense, students will be asked to leave the classroom and will lose credit for any further participation in class for that day. Multiple offenders will have points taken off of the final grade.

Professionalism in the Classroom

While learning happens throughout ASU, the classroom is a particularly important focal point. Students are asked to contribute to a collegial atmosphere where ideas can be exchanged, discussed, and debated freely by avoiding disruptions through their own behavior and the distractions of their technology. Disruptive, threatening or violent behavior will be dealt with according to the policies in the Student Services Manual, [SSM 104-02](#). Students wishing to record lectures electronically must first get permission from the instructor.

Absences

It is impossible to learn from your fellow students when you or they are not there. As such attendance is required in this course. Should you have to miss a class, contact your instructor as far in advance as possible to discuss making up assignments and/or tests. If you have an emergency and are unable to give advanced notice, please notify the instructor as quickly as possible to discuss options. Depending on the nature of the absence the instructor may elect to deduct points from your overall grade. Absences can be excused for religious observances or practices that are in accord with [ACD 304-04](#) or university sanctioned events/activities that are in accord with [ACD 304-02](#).

Prohibition of Commercial Note Taking Services

In accordance with [ACD 304-06 Commercial Note Taking Services](#), written permission must be secured from the official instructor of the class in order to sell the instructor's oral communication in the form of notes. Notes must have the note taker's name as well as the instructor's name, the course number, and the date.

Student Support and Disability Accommodation

In compliance with the Rehabilitation Act of 1973, Section 504, and the Americans with Disabilities Act of 1990, professional disability specialists and support staff at the Disability Resource Center (DRC) facilitate a comprehensive range of academic support services and accommodations for qualified students with disabilities. [Qualified students with disabilities may be eligible to receive academic support services and accommodations](#). Eligibility is based on qualifying disability documentation and assessment of individual need. Students who believe they have a current and essential need for disability accommodations are responsible for requesting accommodations and providing qualifying documentation to the DRC. Every effort is made to provide reasonable accommodations for qualified students with disabilities. Qualified students who wish to request an accommodation for a disability should contact their campus DRC at: <https://eoss.asu.edu/drc>. If you are a student in need of special arrangements we will do all we can to help, based on the recommendations of these services. For the sake of equity for all students, we cannot make any accommodations without formal guidance from these services.

Graduate Student Resources

If you are a graduate student, please feel free to take advantage of the following:

- 1) "[Graduate Wellness Resources](#)" – a one-page guide to Financial, Social, Emotional, and Physical Health and Wellness Resources for ASU Graduate Students was developed by the GPSA

- 2) “[10 Best Practices in Graduate Student Wellbeing](#)” – proven ways to help graduate students better care for themselves under the increasing demands of graduate school

Sexual Violence and Harassment

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at <https://sexualviolenceprevention.asu.edu/faqs>.

As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. ASU Counseling Services, <https://eoss.asu.edu/counseling> is available if you wish to discuss any concerns confidentially and privately. ASU online students may access 360 Life Services, <https://goto.asuonline.asu.edu/success/online-resources.html>.

Student Uploads to Online Course Shells

Students must refrain from uploading to any course shell, discussion board, or website used by the course instructor or other course forum, any material that is not the student's original work, unless the students first comply with all applicable copyright laws. Faculty members reserve the right to delete materials on the grounds of suspected copyright infringement.

Drop and Add Dates/Withdrawals

Please refer to the [academic calendar](#) on the deadlines to drop/withdraw from this course. Consult with your advisor and notify your instructor if you are going to drop/withdraw this course. If you are considering a withdrawal, review the following policies:

[Withdrawal from Classes](#)

[Medical/Compassionate Withdrawal](#)

Email Communications

All email communication for this class will be done through your ASU email account and the Canvas site. You should be in the habit of checking your ASU email regularly as you will not only receive important information about your class(es), but other important university updates and information. You are solely responsible for reading and responding if necessary to any information communicated via email. For help with your email log into your MyASU account and under the Service tab you can file a “new ticket” to get assistance.

Food Resources

With an understanding that college and graduate life can be challenging in many ways and it can be difficult to balance our studies with other needs, such as food needs, the SFIS Graduate Student Organization (GSO) has curated a list of food resources to ease this challenge. This list can be found at the SFIS GSO website: <https://www.sfisgso.org/home/resources/food-resources>. It includes information on food resources available in and around ASU campus. A few gift cards are available for grocery stores in Tempe, for students who believe they are in a financial need for food purposes. These

can be requested using the request form provided in the GSO website. GSO also has an active Whatsapp group for students to share information on free food on campus and surroundings. Please refer to this website for exploring these resources or contact info@sfigsgso.org. Follow GSO on Instagram and Facebook @sfigsgso for more information.

Syllabus Supplement for ASU SYNC COURSES

Suggested Statements

ASU Sync Course

This is an ASU Sync course, which is a technology-enhanced approach designed to meet the dynamic needs of the class. Sync classes allow students to either be in the classroom or to learn remotely through live class lectures, discussions, study groups and/or tutoring. Please let the professor know whether you plan to attend in person or remotely. Note that you are welcome to change your decision at any point in the semester. Do, however, give the professor some advanced warning so that the course can be arranged accordingly. You can find out more information about ASU Sync for students here, <https://provost.asu.edu/sync/students> and <https://www.asu.edu/about/spring-2021>.

Because this course will be taught as an ASU Sync course, there will be a number of times when you will interface with the professor and other students via Zoom. When engaging in these parts of the course do make sure that you use your proper name and are dressed appropriately.

You are encouraged to use a PC or Apple laptop or desktop equipped with a built-in or standalone webcam. You will need an internet connection that can effectively stream live broadcasts (e.g. 3G, 4G, Cable or DSL Wifi).

If you are not able to personally finance the equipment needed to attend class via ASU Sync, ASU has a laptop and WiFi hotspot checkout program available through the ASU Library: <https://lib.asu.edu/laptops-and-hotspots>

COVID-19

The university has developed a multifaceted response to the COVID-19 pandemic. For the latest information on these efforts and your role as a student, please refer to: <https://eoss.asu.edu/health/announcements/coronavirus>

Until further notified, in order to protect our community from the spread of COVID-19, ASU policy requires faculty, staff, students and visitors to wear face coverings in classrooms, labs, offices and community spaces. In the classroom we also ask you to maintain at least six feet of distance from all other people in the room.

We understand that the current situation is causing stress for all members of the ASU community. We will all need to be flexible and respond to situations as they arise. If at any time you are concerned about your health or wellbeing, feel free to contact ASU's health services department: <https://eoss.asu.edu/health/contact> or the ASU Counseling center: <https://eoss.asu.edu/Counseling>

Campus Resources

As an ASU student you have access to many resources on campus. This includes tutoring, academic success coaching, counseling services, financial aid, disability resources, career and internship help and many opportunities to get involved in student clubs and organizations.

Tutoring: <https://tutoring.asu.edu/student-services/tutoring>

Counseling Services: <https://eoss.asu.edu/counseling>

Financial Aid: <https://students.asu.edu/financialaid>

Major/Career Exploration: <https://students.asu.edu/programs>

Career Services: <https://career.asu.edu/>

Student Organizations: <https://eoss.asu.edu/clubs>