

# INST652

## Design Thinking and Youth

### Course Description

Designing with youth involves unique processes that must take into consideration aspects of who youth are (e.g., age ranges, developmental stages) and the contexts in which they interact (e.g., schools, libraries, homes, families). This course covers methods of design thinking specifically within and for youth contexts. We will cover design-thinking methods including user-centered design, understanding user needs, ideation, contextual design, participatory design, iterative prototyping, and visual design. These topics will specifically be studied in the context of designing with and for youth.

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

- Develop an in-depth understanding of the design process.
- Develop an in-depth understanding of youth contexts that informs and guides design.
- Develop skills in brainstorming and ideating innovative approaches and technologies for youth and with youth.
- Develop skills in iterative design of new technologies and experiences for youth and with youth.
- Execute a design project from ideation to formative testing and iteration.
- Present design results in oral and written form.

### Required Text

As assigned (See list at the end of this syllabus). Readings listed in the syllabus without a direct link are available through the *Course Reserves* link in Canvas. If you have issues retrieving the articles via Canvas, you must procure the readings on your own. There is no required textbook for this course.

### Relevant Course Policies

#### Academic Integrity

The University is an intellectual community. Its fundamental purpose is the creation and dissemination of knowledge. Like all other communities, the University can function properly only if its members adhere to clearly established goals and values. Essential to the fundamental purpose of the University is the commitment to the principles of truth and academic honesty. The Code of Academic Integrity is designed to ensure that the principle of academic honesty is upheld. While all members of the University community share this responsibility, The Code of Academic Integrity is designed so that special responsibility for upholding the principle of academic honesty lies with students.



**Dr. Mega Subramaniam**  
[mmsubram@umd.edu](mailto:mmsubram@umd.edu)  
[@mmsubram](mailto:@mmsubram)  
301-405-3406

**Preferred Pronoun:**  
She/her

**Class Meets:**  
Online

**Office Hours**  
Via appointment

**Course Communication**  
Via Canvas and Canvas messaging system  
[elms.umd.edu](https://elms.umd.edu)

## Accessibility and Accommodations

The University of Maryland is committed to creating and maintaining a welcoming and inclusive educational, working, and living environment for people of all abilities. The University of Maryland is also committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of the University, or be subjected to discrimination. The University of Maryland provides reasonable accommodations to qualified individuals. Reasonable accommodations shall be made in a timely manner and on an individualized and flexible basis. Discrimination against individuals on the grounds of disability is prohibited. The University also strictly prohibits retaliation against persons arising in connection with the assertion of rights under this Policy.

Accessibility & Disability Service (ADS) facilitates reasonable accommodations to qualified individuals. For assistance in obtaining an accommodation, contact Accessibility and Disability Service at [301.314.7682](tel:301.314.7682), or [adsfrontdesk@umd.edu](mailto:adsfrontdesk@umd.edu). More information is available from the [Counseling Center](#).

**After receiving an Accommodations Letter from ADS, as a student you are expected to meet with the course instructor online via Zoom or a student preferred video conferencing system or have a phone call, to share a copy of the Accommodations Letter via Canvas message and to obtain their signature on the Acknowledgement of Student Request form. You and your instructor will discuss a plan for how the accommodations will be implemented throughout the semester for the course. Specific details regarding the implementation of certain ADS approved accommodations agreed upon between you as the student and the individual course instructor must be documented on an Acknowledgment of Student Request Addendum, signed by the instructor, and submitted to ADS. You as the student are responsible for submitting the signed original forms to ADS and retaining a copy of the signed Acknowledgment of Student Request for your records. Please do this before the second week of class.**

## Office of Civil Rights & Sexual Misconduct

This is where students who believe that they have been denied reasonable accommodations can file a complaint.

## **Attendance Policy**

Regular participation in this class is the best way to grasp the concepts and principles being discussed. However, in the event that participation must be missed due to an illness or family or personal emergencies, the policy in this class is as follows:

1. For every medically necessary delayed assignment submission, a reasonable effort should be made to notify me in advance of the due date. The notification (preferably in the form of a message through Canvas) must identify the assignment that will be delayed and the reason for the delay, and acknowledging that the information provided is accurate.
2. If you are delayed more than TWO times consecutively (without advance notification), I may require documentation signed by a health care professional or a self-certified document is also acceptable.
3. That said, please take note that I understand that we are still in the midst of a pandemic, so please feel free to share with me if you have any personal, family, or health issues that you have to deal with and may not be able to submit assignments for an extended period of time. Together, we will map out a submission timeline for the remaining assignments.

## Extension

Timeliness is extremely important in graduate work, and extensions will only be available during personal or family emergencies. Students who need to request an extension should discuss the matter in advance with the instructor. If an extension is granted, the work must be submitted within the extension period to avoid grade penalties. Unexcused delays in submission of the assignments will result in a deduction of half of a letter grade for each day the assignment is late.

Please visit <https://academiccatalog.umd.edu/graduate/policies/> for the Office of Graduate Studies' full list of campus-wide policies and follow up with me if you have questions.

## Syllabus Change Policy

This syllabus is a guide for the course and is subject to change with advance notice.

## Special Care Message

These are extremely strenuous times. We are still in the midst of a pandemic that seems to be peaking again. Some of us have lost loved ones (or have colleagues or friends who did), and are in constant fear on who is going to get sick and what is going to happen next. As your professor, these are my commitments to you throughout the semester:

- **My paramount commitment to you: I will prioritize your well-being.**
- **I will invite your feedback – I ask you to actively provide feedback to improve the quality of our activities, assignments, and interaction. I ask that you be co-designers of our learning experiences in this course.**
- **I will listen to your concerns – At any moment, if you are having difficulty with the course, please reach out to me. I will listen to you and we will map out a pathway for you to achieve the course objectives.**
- **I will be flexible with expectations – If you have any questions or concerns about assignment deadlines, please reach out to me.**

**Together, we will pursue creative solutions to the messy work of teaching and learning in this course.**

*(adapted from Dr. Remi Kalir, University of Colorado, Denver, @remikalir)*

## Get Some Help!

Taking personal responsibility for your own learning means acknowledging when your performance does not match your goals and doing something about it. I hope you will come talk to me so that I can help you find the right approach to success in this course, and I encourage you to visit [tutoring.umd.edu](https://tutoring.umd.edu) to learn more about the wide range of campus resources available to you. In particular, everyone can use some help sharpen their communication skills (and improving their grade) by visiting [ter.ps/writing](https://ter.ps/writing) and schedule an appointment with the campus Writing Center. You should also know there are a wide range of resources to support you with whatever you might need (see [go.umd.edu/assistance](https://go.umd.edu/assistance)), and if you just need someone to talk to, visit [counseling.umd.edu](https://counseling.umd.edu) or [one of the many other resources on campus](#).

Most services are free because you have already paid for it, and **everyone needs help**... all you have to do is ask for it.

## Basic Needs Security

If you have difficulty affording groceries or accessing sufficient food to eat every day, or lack a safe and stable place to live and believe this may affect your performance in this course, please visit [go.umd.edu/basic-needs](http://go.umd.edu/basic-needs) for information about resources the campus offers you and let me know if I can help in any way.

## Names/Pronouns and Self Identifications

The University of Maryland recognizes the importance of a diverse student body, and we are committed to fostering inclusive and equitable classroom environments. I invite you, if you wish, to tell us how you want to be referred to both in terms of your name and your pronouns (he/him, she/her, they/them, etc.) in your “Who am I?” VoiceThread. The pronouns someone indicates are not necessarily indicative of their gender identity. Visit [trans.umd.edu](http://trans.umd.edu) to learn more.

Additionally, how you identify in terms of your gender, race, class, sexuality, religion, and dis/ability, among all aspects of your identity, is your choice whether to disclose (e.g., should it come up in classroom conversation about our experiences and perspectives) and should be self-identified, not presumed or imposed. I will do my best to address and refer to all students accordingly, and I ask you to do the same for all of your fellow Terps.

## Communication with Instructor

If you need to reach out and communicate with me, please send me a message via Canvas messaging. While I will do my best to respond to Canvas messages within 24 hours, you will more likely receive responses from me on during the weekdays, and not on weekends.

I will send a weekly announcements via Canvas. You must make sure that your email & announcement notifications (including changes in assignments and/or due dates) are enabled in ELMS so you do not miss any messages. You are responsible for checking your email and Canvas/ELMS inbox with regular frequency.

## Emergency Preparedness

Please check the University's inclement weather number (**301-405-SNOW [7669]**), which is used for inclement weather and other emergency situations. The University announces closings for snow early each day, not the night before. While local television and radio stations report on University closings, the information is not always correct. Information about the status of the campus and procedures for delayed openings and campus closings is available at <http://www.umd.edu/emergencypreparedness/>.

## Course Method

In order to engage various learning styles in an online environment, this course will utilize various assessment methods to measure the achievement of learning objectives for each module. There will not be any mandatory synchronous meetings throughout the semester. Online synchronous office hours will be available via appointment – feel free to message me via Canvas to set up a time for us to chat on the phone or via Zoom.

It is essential that every student read the course readings, participate in asynchronous assignments/activities planned for each module, and complete all the assignments. Students must watch the recorded class lectures and read the assigned readings before completing the assignments planned for each module. Class lectures for each module will be released a few days before the first day of the module.

Based on critical examination of course readings, each student should develop an analytical stance concerning the issues in the course. The students are expected to question, challenge, argue, and discuss issues and topics related to that module's readings.

## Classroom Environment

As a graduate seminar, the classroom environment should be professional and respectful. Discussions should be based on course readings and critical thinking. With a diversity of perspectives and experience, we may find ourselves in disagreement and/or debate with one another. As such, it is important that we agree to conduct ourselves in a professional manner and that we work together to foster and preserve a virtual classroom environment in which we can respectfully discuss and deliberate controversial questions. Because of our commitment to issues of diversity, equity, and inclusion (DEI) at the iSchool, we will infuse our learning in this course (whenever possible) with DEI readings, concepts, issues, and strategies.

I encourage you to confidently exercise your right to free speech—bearing in mind, of course, that you will be expected to craft and defend arguments that support your position. Keep in mind, that free speech has its limit and this course is NOT the space for hate speech, harassment, and derogatory language. I will make every reasonable attempt to create an atmosphere in which each student feels comfortable voicing their argument without fear of being personally attacked, mocked, demeaned, or devalued.

Any behavior (including harassment, sexual harassment, and racially and/or culturally derogatory language) that threatens this atmosphere will not be tolerated. Please alert me immediately if you feel threatened, dismissed, or silenced at any point during our semester together and/or if your engagement in discussion has been in some way hindered by the learning environment.

## Netiquette Policy

Netiquette is the social code of online classes. We share a responsibility for this course's learning environment. Creating a cohesive online learning community requires us to support and assist each other. To craft an open and interactive online learning environment, communication has to be conducted in a professional and courteous manner at all times, guided by common sense, collegiality and basic rules of etiquette.

## Tips for Success in an Online Course

1. **Participate.** Discussions are a critical part of the course. You can learn a great deal from discussing ideas and perspectives with your peers and professor. Participation can also help you articulate your thoughts and develop critical thinking skills.
2. **Manage your time.** Make time for your online learning and participation in discussions each week. Give yourself plenty of time to complete assignments including extra time to handle any technology related problems.
3. **Log in regularly.** Log in to ELMS-Canvas several times a week to view announcements, discussion posts and replies to your posts.
4. **Do not fall behind.** This class moves at a quick pace and each week builds on the previous. It will be hard to keep up with the course content if you fall behind in the pre-work or post-work.
5. **Use ELMS-Canvas notification settings.** Canvas ELMS-Canvas can ensure you receive timely notifications in your email or via text. Be sure to enable announcements to be sent instantly or daily.
6. **Ask for help if needed.** If you need help with ELMS-Canvas or other technology, IT Support. If you are struggling with a course concept, reach out to me for support.

## Course Evaluation

Please submit a course evaluation through CourseEvalUM in order to help faculty and administrators improve teaching and learning at Maryland. All information submitted to CourseEvalUM is confidential. Campus will notify you when CourseEvalUM is open for you to complete your evaluations for fall semester courses. Please go directly to the [Course Eval UM website](#) to complete your evaluations. By completing all of your evaluations each semester, you will have the privilege of accessing through Testudo, the evaluation reports for the thousands of courses for which 70% or more students submitted their evaluations.

## Grades

Students' grade will be determined through performance on module assignments for Modules 1 through 6 (inclusive of class participation), a semester long project, and responses to presentations by other students in the course.

Learning Assessments	#	Points Each	Category Total
Module Postings and Responses	6	50	300
Semester Long Project Part 1	1	200	200
Semester Long Project Part 2	1	300	300
Semester Long Project Part 3	1	100	100
Responses to Presentations	5	20	100
<b>Total Points:</b>			<b>1000</b>

Each component is expected to reflect the highest professional standards, and both substantive and technical quality will be considered in determining your grade for each. Thoroughness, accuracy, salience, and effective organization are required; correct English grammar, spelling, punctuation, and usage are expected. Adherence to University policies on matters of intellectual integrity is also imperative. The grade range that will be used to determine the final grade for this class is:

Letter grade	Range
A	94 - 100
A-	90 - 93.9
B+	87 - 89.9
B	83 - 86.9
B-	80 - 82.9
C+	77 - 79.9
C	73 - 76.9
C-	70 - 72.9
D+	67 - 69.9
D	63 - 66.9
D-	60 - 62.0
F	0 - 59.9

## Course Schedule

<b>WEEK/MODULE</b>	<b>TOPIC</b>	<b>ASSIGNMENT</b>	<b>DUE DATE (AT 11.59 PM ET)</b>
<b>1 JAN 24 – FEB 6</b>	<b>COURSE OVERVIEW INTRODUCTIONS</b>	1. Using VoiceThread, tell us who you are by creating an introduction of yourself using some form of media (e.g., slides, photos, video, and/or audio) that includes the following: <ul style="list-style-type: none"> <li>• Your name, your preferred pronoun</li> <li>• Your degree program and areas of interest</li> <li>• What inspired you to take this course?</li> </ul> 2. CITI training – see module assignment description below	Who are you?: 1/31 CITI training certificate due: 2/6
<b>2 FEB 7 – FEB 20</b>	<b>WHAT IS DESIGN? WHAT IS DESIGN THINKING?</b>	Develop two “How Might We....?” questions for space, systems, programs, and services (choose two out of these, and for each create two “How Might We....?” questions) that you would like to tackle as part of your future and current work - see module assignment description below.	Posting due: 2/14 Feedback due: 2/20
<b>3 FEB 21 – MAR 6</b>	<b>KNOWING YOUR DESIGN PROJECT</b>	Create a project topic and a reading list, with a one- or two-line description on why you chose these readings and another short paragraph of the summary of each reading. Also, describe why design thinking will be useful in the context of designing for and with youth for your project topic - see module assignment description below.	Posting due: 2/28 Feedback due: 3/6
<b>4 MAR 7 – MAR 19</b>	<b>INSPIRATION</b>	Design and implement an interview or observation – see module assignment description below	Posting due: 3/14 Feedback due: 3/19 Semester long project Part 1 due: 3/19
<b>MAR 20 – MAR 27</b>	<b>SPRING BREAK</b>		
<b>5 MAR 28 – APR 10</b>	<b>IDEATION</b>	Share plan for the participatory design session that you will conduct with the youth – see module assignment description below	Posting due: 4/4 Feedback due: 4/10
<b>6 APR 11 – APR 24</b>	<b>ITERATION</b>	Design prototypes based on big ideas – see module assignment description below	Posting due: 4/18 Feedback due: 4/24

	<b>TOPIC</b>	<b>ASSIGNMENT</b>	<b>DUE DATE (AT 11.59 PM ET)</b>
<b>7 APR 25 – MAY 8</b>	<b>PROJECT WORK (CATCH UP MODULE)</b>	No module assignment You will work on finishing up the semester long project, do additional design sessions (if desired), and finish the remaining deliverables.	
<b>8 MAY 9 - 16</b>	<b>FINAL PRESENTATIONS AND PROJECT SUBMISSION</b>	See semester-long project description below.	Semester long- project Part 2 due: 5/12; Part 3 due: 5/13 Responses to presentation due: 5/16

**Note:** This is a tentative schedule, and subject to change as necessary – monitor the course Canvas page for current deadlines. In the unlikely event of a prolonged university closing, or an extended absence from the university, adjustments to the course schedule, deadlines, and assignments will be made based on the duration of the closing and the specific dates missed.



## ASSIGNMENTS

### Module 1 – Who are you? (Due 1/31)

Using Voice Thread, create a 2 to 5 minute long video introduction of yourself by sharing who you are, your preferred pronouns (if you wish to share it), your background, your major and specialization (if applicable) at UMD, what you currently do, why you are taking this course, and a fun fact about yourself. For those of you who are not comfortable on video, please feel free to share an audio recording, or a video recording with one or more slides (without your video). Say hi back to at least two of your peers 😊.

### Module 1 – CITI Training (Due 2/6)

The University of Maryland's Institutional Review Board (IRB) requires that all researchers on campus who work with human subjects complete an ethics training course prior to their work with human subjects. All published research projects must be IRB approved and members of the research team must have IRB certification. Although you will not be required to publish the results of our work from this class, you will be working with human subjects for your project and assignments in this course. You will therefore need to complete this training.

For this assignment, you will need to complete the University of Maryland's required CITI training. You can find the link and instructions here: <https://research.umd.edu/irbtraining>. Specifically, you only need to complete the Social and Behavioral Research - Basic/Refresher course. To turn in this assignment, attach the pdf of your completion report to your submission on Canvas. Make sure that you keep this file for your own records so that you will have this if and when you begin working on research projects. If you have completed the course previously, you may submit your completion report from your previous completion for this assignment. You will not be allowed to proceed with the other assignments for this course if you don't complete the CITI training.

### Module 2 (first posting due 2/14, and second posting due on 2/20)

Each of you have different goals and interests when it comes to design. After doing the readings and also watching the lecture, consider what challenges in your current and future work where you can use design thinking. For the first posting, as shared in the IDEO toolkit (pages 16 and 17), develop “How Might We....?” questions for space, systems, programs, and services (choose two out of these, and for each create two “How Might We....?” questions) that you would like to tackle as part of your future and current work. Your second posting will be providing feedback to your peers' posting – ask questions or provide comments that further help them to refine these challenges.

### Module 3 (first posting due 2/28, and second posting due on 3/6)

In the process of designing with and for youth, while we would like ideas to emerge from youth, you may have larger programming or product ideas that you would like to focus on. Some broad ideas can include making, computational thinking, health literacy, gaming, family learning, etc. Module 3 is the first step in defining your semester-long project topic. You should find 4-6 relevant readings that inform your understanding of the project topic (more readings are definitely encouraged!). You should choose articles that will help you to delve deeper into understanding the topic you are designing within and a topic in which you will have access to youth and youth service providers (e.g., teachers, museum professionals, librarians, technicians, health providers, etc.).

Some example topics you might consider are (and I have provided an example of an article that you may read depending on the topic that you have chosen):

- *Smart technologies/ AI use*: Beneteau, E., Guan, Y., Richards, O.K., Zhang, M.R., Kientz, J., Yip, J.C., & Hiniker, A. (2020). Assumptions checked: How families learn about and use the Echo Dot. In *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT, formerly the UbiComp conference)*.
- *Coding and computational thinking*: Fofang, J. B., Weintrop, D., Moon, P., & Elby, A. (2021). Thinking through Representation: Interpreting Representational Fluency Across Contexts in Computational Thinking Enhanced Activities. In de Vries, E., Hod, Y., & Ahn, J. (Eds.), *Proceedings of the 15th International Conference of the Learning Sciences - ICLS 2021*. (pp. 979-980). Bochum, Germany: International Society of the Learning Sciences.
- *Civic engagement*: Penney, J. (2019). 'It's my duty to be like "this is wrong"': Youth political social media practices in the Trump era. *Journal of Computer-Mediated Communication*, 2019(00), 1–16. <https://doi.org/10.1093/jcmc/zmz017>
- *Digital literacy*: Subramaniam, M., Taylor, N. G., St. Jean, B., Follman, R., Kodama, C., & Casciotti, D. (2015). As simple as that?: Tween credibility assessment in a complex online world. *Journal of Documentation*, 71(3), 550-571.
- *Early literacy*: Campana, K., Mills, J. E., Capps, J. L., Dresang, E. T., Carlyle, A., Metoyer, C. A., ... Kotrla, B. (2016). Early literacy in library storytimes: a study of measures of effectiveness. *The Library Quarterly*, 86(4), 369–388. <https://doi.org/10.1086/688028>
- *Health literacy*: St. Jean, B., Subramaniam, M., Taylor, N. G., Kodama, C., & Casciotti, D. (2015). Impacts of the HackHealth After-School Program: Motivating Youth through Personal Relevance. *Proceedings of the 78<sup>th</sup> Annual American Society for Information Science & Technology Conference*, 52(1), 1-11
- *Social media*: Lenzi, M., Vieno, A., Altoè, G., Scacchi, L., Perkins, D.D., Zukauskienė, R. and Santinello, M. (2015), Can Facebook Informational Use Foster Adolescent Civic Engagement?. *American Journal of Community Psychology*, 55: 444-454. <https://doi-org.proxy-um.researchport.umd.edu/10.1007/s10464-015-9723-1>
- *Youth as makers*: Blikstein, P. (2013). Digital Fabrication and 'Making' in Education: The Democratization of Invention. *FabLabs: Of Machines, Makers and Inventors*, 1-21.
- *Gaming*: Pearce, K. E., Yip, J. C., Lee, J. H., Martinez, J. J., Windleharth, T., Li, Q., & Bhattacharya, A. (2021). "I need to just have a couple of White claws and play animal crossing tonight": Parents coping with video games during the COVID-19 pandemic. *Psychology of Popular Media*. <https://doi.org/10.1037/ppm0000367>

- *Families*: Subramaniam, M., Kumar, P., Morehouse, S., Liao, Y. & Vitak, J. (2019). Leveraging funds of knowledge to manage privacy practices in families. *Proceedings of the 82<sup>nd</sup> Annual Association for Information Science & Technology Conference*. 56(1), p. 245–254.
- *Science Learning*: Ahn, J., Clegg, T., Yip, J., Bonsignore, E., Pauw, D., Cabrera, L., Hernly, K., Pitt, C., Mills, K., Salazar, A., Griffing, D., Rick, J., & Marr, R. (2018). Science Everywhere: Designing Public, Tangible Displays to Connect Youth Learning Across Settings. In *Proceedings of SIGCHI Human Factors in Computing Systems, New York, 2018*.

The above are just sample topics, you are not limited to these topics. Once you have found and read the readings, you will post the list of readings, a one or two line description on why you chose these readings, and a short summary of each reading in the Module 3 discussion board as your first posting. Also, describe why design thinking will be useful in the context of designing for and with youth for your project topic, as a culmination of your readings that you have collated, the Druin article assigned for this week, and the articles that you read last week. Your second posting will be providing feedback to your peers' posting – be generous and helpful to your peers by suggesting other readings, and finding readings that can be useful for your topic that was found by others. In this process, you may also find classmates that are focusing on a similar topic, and you are welcome to exchange ideas and readings!

Module 4 (first posting due 3/14, and second posting due on 3/19)

This module assignment will be done in the context of your semester-long project. **You will need access to youth between the ages of 0-21 to complete the semester long project.** Based on your narrowed project topic, develop an interview guide for a 20-30 minute interview. Conduct two 20-30 minute interviews with youth about their experiences within your project context (e.g., if you are developing a program centered around games for learning, you would want to interview youth who are interested in gaming about their experiences gaming, which games they like, which ones they want to try, who they game with, ideas they have for a program, etc.). Another option is to do one interview with youth and another interview with youth service providers (e.g. teachers, museum professionals, librarians, technicians, health providers, etc.). You can also choose to do a youth-led interview, where you have youth interview one another and you report on their findings and the process of helping youth conduct their own interviews. You can also interview parents/caregivers of very young children, who cannot be interviewed. Another additional option is to do one interview with youth or youth service providers, and then do an observation of youth interacting with a system, space, program, or service.<sup>1</sup> Your first posting must include the following:

- Your interview and/or observation guide
- Your notes from the interview and/or observation (e.g., what participants said that stood out to you)
- Reflections about interview and/or observation guide and the process of conducting interviews/observations more generally
  - o What worked well?
  - o What would you do differently?

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<sup>1</sup> If you are interested in using a different method that was discussed in the readings (other than interviews and observations), please feel free to do so and modify the prompts for Module 4 appropriately, but with the permission from the instructor.

I recommend doing interviews virtually, unless in circumstances where you are using your own family members (quarantined together) or the youth that you were already meeting in person to complete the project (through work, etc.). Your second posting will be providing feedback to your peers' posting – be generous and helpful to your peers by suggesting other questions that they could have asked or sharing your thoughts on the points raised on what worked well or did not work well for your peers.

#### Module 5 (first posting due 4/4, and second posting due on 4/10)

This module assignment will be done in the context of your semester-long project. For this assignment, you will further refine your “How Might We?” questions and brainstorm prototypes (i.e., design ideas for learning experiences) for your project, plan the participatory design session/ideation techniques that you will conduct with the youth who would eventually use your design. You can also plan to do participatory design sessions with groups of stakeholders (e.g., groups of children, or intergenerational groups of children and adults) – this decision needs to be based on the project topic, who you are designing for, and your accessibility to the target audience.

Choose a participatory design technique we have learned about (e.g., bags-of-stuff, layered elaboration, mixing ideas, etc.). Based on the technique you are using, you should come up with a plan for the session. This can be a brief plan since sessions do not need to be highly scripted (sample plan will be shared in the course lecture/module). You should post on the discussion board:

- Your plan for the session, including:
  - The *question of the day* you would like to ask for your session
  - The *design technique* you will use and why. Please also state:
    - What materials you will need for this technique? Is there a prototype at this stage?
    - How you plan to carry it out (i.e., instructions you'll provide to the group).
  - How you will structure or keep track of the *big ideas*?

Your second posting will be providing feedback to your peers' posting – be generous and helpful to your peers by providing suggestions on their planned session, so that they can revise their plan and conduct the session for Part 2 of the semester-long project.

#### Module 6 (first posting due 4/18, and second posting due on 4/24) (Will be flexible with the dates, if needed)

This module assignment will be done in the context of your semester-long project. It is time to delve deeper into the design prototypes of your proposed technology/program. For the first posting, describe how you took the big ideas that came out of design session that you have done for the semester long project, and continued with the design iteration. You should design two alternative prototypes (with sketches, mock-ups, etc.) and share it with your peers. Be sure to show photos or drawings of artifacts that were created during the session.

Your second posting will be providing feedback to your peers' posting – be generous and helpful to your peers by providing suggestions on their prototypes, so that they can revise their prototypes.

## SEMESTER LONG PROJECT

In your semester-long project, you will accomplish the following goals:

- Identify a technology-related<sup>2</sup> task or problem
- Develop interface/design alternatives for a program/learning experience in your context (could be a technology product that you are trying to design for youth, a technology-infused program at a library/museum for youth, a learning environment that you are designing for learning, etc.)
- Develop prototypes of your design (e.g., activity plans, sequences, interactions, specifications of tools you will use, etc.)

This project should provide you with hands-on experience within youth contexts and the tasks that interface designers face every day. **You will need access to youth between the ages of 0-21 to complete the semester long project. I recommend doing all work virtually, unless in circumstances where you are using your own family members (quarantined together) or the youth that you were already meeting in person (through work, etc.) to complete the project.** For each part of the project, you must submit a report via Canvas. As with any written report, in addition to grading the document based on content, I will also be grading based on degree of professional preparation, expressiveness, grammatical soundness, and the ease with which it can be viewed and understood. A good design effort can easily be hampered by poor communication of what was done. Make sure that you produce a report that is illustrative of your efforts and process.

First, your assignment will be to narrow down a particular issue or topic with respect to the larger topic that you would like to address. You will do this through the Module 3 assignment. Then, the semester long project is delivered in three parts. For Project Part 1, you will use methods we discuss in class as well as relevant readings to understand the needs of youth with respect to the context of your topic. In Project Part 2, you will design two alternative prototypes of learning experiences/program activities/technology to address the user needs you identified previously using participatory design techniques. You will do this partially through Module 6 assignment. In Project Part 3, you will share your process with the rest of your classmates.

### **Project Part 1: Inspire**

Due: 3/19

The key goal of this first substantive part of the project is to deeply understand the **problem space** that you are addressing - who are the “youth” and pertinent users who interact with youth in this problem space, and the issues and constraints that are involved in the problem. If the task is accomplished through an existing system or interface or program or environment, you should perform an interpretive evaluation of that “system” to help you learn more about it. The most important goal of Part 1 is to identify important characteristics of the problem that will influence your subsequent design. A major mistake that students make in Part 1 is to suggest potential solutions without first identifying the problem and its characteristics. You'll have plenty of time for

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<sup>2</sup> Technology is defined broadly in this course. If you have identified a non-technology task/problem, please feel free to contact me to obtain permission to work on this task/problem.

designs of possible solutions in Part 2. For now, suppress the urge to problem-solve and concentrate your efforts fully on developing an in-depth understanding of the problem at hand.

In class (via readings and discussion board), we will discuss observation and interviewing (and maybe other techniques that you may decide to use) for acquiring this kind of information. In addition, your understanding of the problem should be informed by readings specifically related to your topic (including, but not limited to the readings you found for Module 3). Your report and deliverable for this part should deeply examine the problem of study through reading relevant literature and through your own interviews and/or observations. In general, you should be attempting to answer these questions:

- Who are the potential users?
- Who are the potential stakeholders?
- What are their goals? What tasks do they seek to perform?
- What functionality should any system provide to these users?
- What constraints will be placed on your eventual design?

I recommend the following structure for your report. Remember to state how you collected your data and justify the methods that you used. If you selected one method over other possible methods, include a brief statement of why you chose not to use those other methods. Because of the nature of your project, technology may not be currently used to address the problem or issue you are investigating, but you may be interested in pursuing a technological solution. In such cases, be sure to describe the ways the current issue or problems are being addressed.

- [10 pts] An overview of the problem or opportunity and a statement of why an interface or system or a program or a learning environment is necessary or advantageous to solve it. Share your “How Might We...?” questions.
- [60 pts] Discuss the methods you used for collecting data about your users. Specifically state what data you collected (e.g., interviews, observations, participant observation, etc.). Discuss the details of your data collection (e.g., number of participants, length of time you did observations, etc.). Also discuss your justification for your methods (e.g., why you chose one technique over another, how you decided upon procedural details of your data collection).
- [30 pts] A description of the important characteristics of the youth (such as age, race, abilities, etc.) who will use the system as well as any other adult stakeholders who will use your system. This section should be grounded in both the topic specific readings you found and the interviews/observations you did.
- [30 pts] A description of the tasks that will be performed by the users/youth to solve the problem.
- [20 pts] A description of the larger *social and technical system* in which your design will intersect. Examples of social systems include youth collaboratively working on solutions with teachers or other youth, or locations where this solution will be used such as schools or libraries, etc. Technical systems may be if this will be a plug-in for an existing software or will be used independently as an app on their phone or an addition to an existing technical system that is already in place. This section should also be informed by both the project specific readings you chose and the interviews and/or observations you did.

- [10 pts] An initial list of criteria that should be used in the eventual evaluation of your design. Essentially, you want to answer: How will you know later that your design was successful and allowed youth to achieve their intended goals?
- [30 pts] A discussion of the implications of what you learned above. Go beyond the usability criteria in this section. This item is critical. Don't only describe the target users, tasks, environment, etc. You must also tell us how these attributes should or will influence your eventual designs. In other words, how did what you learn from Part 1 will shape the design of that you will submit in Part 2 of the semester long project? I will be very careful to look for this information in your report.
- [10 pts] Grammar, typo-free, and ability to communicate your thoughts and points clearly.

I have some examples of a Part 1 submission submitted by students in Spring 2019 and Spring 2021 in the Assignment area on Canvas. This is simply an example to demonstrate how a Part 1 submission may look like, and not to be treated as an uber example.

## **Project Part 2: Ideate and Iterate**

*Due: 5/12*

The key goal of Part 2 of the project is to use the knowledge gained in Part 1, as well as that from class, to develop multiple design alternatives for your problem based on your work in Part 1 of understanding youth contexts. This is the stage of ideation and iteration. These alternatives should also explore the design space of the problem through designing with youth.

In this part of the project you will develop mock-ups, storyboards, and sketches of your interface designs and obtain feedback using participatory design methods with youth (and/or other adult stakeholders). That is, you should provide pencil-and-paper or electronic images of the interface at various stages. You do not need to build a working prototype. In fact, I recommend that you do not try to develop full prototypes in this part so that you can focus your time and effort on a broad exploration of the many design possibilities that exist for your problem or task.

Although I am not looking for a full-scale prototype, your design sketches should be sufficiently detailed for a potential user to provide useful feedback about the design. Along with your design mock-ups, you should provide a brief narrative walk-through of how the proposed system will work. Perhaps most importantly, you should also include your justifications for why design decisions were made, and what you consider to be the relative strengths and weaknesses of your different designs.

The design process you follow here is important. You should arrive at your different designs through participatory design methods with youth and adult stakeholders who would interact with your system. You should seek to create some fundamentally different design ideas.

Your project report should include all the explanatory material mentioned above as well as all the design sketches, drafts, storyboards, etc., that you generated and a description of the participatory design methods and techniques you used. Make sure that your report adequately reflects the design process that you undertook. The key in this part of the project is to develop different design ideas, not just a set of minute variations on some basic design. At a minimum, you must submit two different designs. It cannot be stressed enough that I seek significantly different design ideas; quality is more

important than quantity. In particular, I would much rather see two very different designs described in great detail than five or six rather similar designs described in shallow detail.

Use the following structure for your report.

- [4 pts] Project Description: Write an updated **one-paragraph** description of your project. Simply re-introduce the general area of application, intended tasks it will support and the intended youth and adult stakeholders. Share your “How Might We...?” questions.
- [16 pts] Requirements Summary: Briefly state key requirements from your system. Again, the goal here is to re-introduce the requirements developed in Part 1, though it is OK if you introduce new or altered requirements here. Provide a walk-through of the space, system, program, or service.
- [40 pts] Design Methodology: Discuss your methods for designing your prototypes. Talk about how you incorporated methods or techniques we discussed in class (e.g., bags of stuff, etc.) in your design process.
- [40 pts] Design Summary: Briefly describe the design alternatives that you considered exploring, including alternatives that you did not ultimately pursue. Do not cover **every** idea that you discarded, but rather group them and discuss as a whole. Make sure to justify your choices (Why did you not pursue certain avenues? Why did you decide to pursue the designs that you actually produced?). Justifications need not be lengthy; a few sentences for each should suffice.
- [160 pts] The designs: Present EACH design prototype that you created. Remember that you should present at least two designs. Cover each design in its own section by presenting the following information (the designation of points will be revised if you submit more than two prototypes).
  - [12 pts/design] A brief overview of the design.
  - [40 pts/design] Illustrations of the design (sketches, storyboards, etc.).
  - [28 pts/design] An assessment of this design (advantages, disadvantages, and the degree to which your requirements can be met by the design). Include feedback from potential users in the assessment as well as references from the project readings. Make sure to express how you gathered this feedback.
- [30 pts] Requirements changes: You more than likely modified, added to, or removed elements of your requirements and usability criteria as a result of conducting the design process. Discuss these in this section... what were they and how did they arise? What requirements may be difficult to realize?
- [10 pts] Grammar, typo-free, and ability to communicate your thoughts and points clearly

I have an example of a Part 2 submission submitted by students in Spring 2020 and Spring 2021 in the Assignment area on Canvas. This is simply an example to demonstrate how a Part 2 submission may look like, and not to be treated as an uber example.

### **Project Part 3: Presentation of your prototypes and process**

*Due: 5/13*

Using a video recording tool of your choice, put together a presentation of your prototypes, and how you got there (essentially a quick summary of Part 1 and Part 2). Your presentation should be no more than 20 minutes. It does not need to cover every section of your project report, but summarize the



main steps and takeaways from your work. This will be graded for submission, as long as your presentation covers a presentation of your prototypes, summarizes the main steps and takeaways from your work.

## Responses to Presentations

*Due: 5/16*

You will view **at least five** of your classmates' recorded presentations then respond in writing to specific questions about these students' presentations. The questions that will be provided will be designed to help you focus your attention on the elements of design thinking. You will submit your responses via the Presentation Responses Assignment submission in Canvas.

## REQUIRED READINGS

### Module 2: What is Design? What is Design Thinking?

Bauhaus. (2011, Jan 11). *What is Design* [Video file]. Available at <http://www.youtube.com/watch?v=6U0nkIFHzQI&list=PLNpgw0zcyFDRFPvTQQ7joM1MTufEIS1kn&index=1> (A video about what constitutes design)

Gibbons, S. (2022). Design thinking 101 [Video at the end of the page]. Available at: <https://www.nngroup.com/articles/design-thinking/> (A video about what constitutes design thinking)

Liedtka, J., & Ogilvie, T. (2011). Chapter 2: Four Questions, Ten Tools. *Designing for growth: A design thinking tool kit for managers*. Columbia University Press. [Available via Course Reserves]

IDEO. (n.d.). Tim Brown on Change by Design [Video file]. Available at <http://vimeo.com/channels/ideo#5861210>

IDEO. (2015). Design Thinking for Libraries: A toolkit for patron-centered design (Web-version) Chapter 1, p. 3-24. Retrieved from <http://designthinkingforlibraries.com/>

### Module 3: Knowing your design project

Druin, A. (2002). The role of children in the design of new technology. *Behaviour and Information Technology*, 21(1), 1-25. Available at <https://wiki.inf.ed.ac.uk/pub/ECHOES/Participatory/Druin-BIT-Paper2002.pdf>

**[and you will collate your own readings, see Module 3 description above]**

### Module 4: Inspiration

IDEO. (2015). Design Thinking for Libraries: A toolkit for patron-centered design (Web-version) Chapter 2, p. 25-48. Retrieved from <http://designthinkingforlibraries.com/>

IDEO. (n.d.) Birth 2 Business [Video file]. Available at <http://vimeo.com/channels/ideo#5824861>

Bekker, M., Beusmans, J., Keyson, D., & Lloyd, P. (2003). KidReporter: A user requirements gathering technique for designing with children. *Interacting with Computers*, 15(2), 187-202. [Available via Course Reserves]

Fails, J. A., Guha, M. L., & Druin, A. (2013). Methods and techniques for involving children in the design of new technology for children. *Foundations and Trends® in Human–Computer Interaction*, 6(2), 85-166. Available at <http://www.cs.umd.edu/hcil/trs/2013-23/2013-23.pdf>

- Read Section 5.1: Fictional Inquiry (Requirements Gathering, Brainstorming)
- Read Section 5.9: Focus Groups (Requirements Gathering; Brainstorming; Iterating; Evaluating)

## Module 5: Ideation

IDEO. (2015). Design Thinking for Libraries: A toolkit for patron-centered design (Web-version) Chapter 3 p. 49-78. Retrieved from <http://designthinkingforlibraries.com/>

Fails, J. A., Guha, M. L., & Druin, A. (2013). Methods and techniques for involving children in the design of new technology for children. *Foundations and Trends® in Human–Computer Interaction*, 6(2), 85-166. Available at <http://www.cs.umd.edu/hcil/trs/2013-23/2013-23.pdf>

- Read other techniques in Section 5 that was not read in Module 4

Lee et al. (2021). The show must go on: A conceptual model of conducting synchronous participatory design with children online. In *Proceedings of the 2021 SIGCHI Conference on Human Factors in Computing Systems* (CHI '21).

Available at: [http://bigyipper.com/wp-content/uploads/2021/01/The-show-must-go-on\\_preprint\\_Final.pdf?fbclid=IwAR0QtJ8tB-KJGHn5td3\\_zoYbyt2i6SqUQVJ33oSsWIMuLiyqjj6NO55IMck](http://bigyipper.com/wp-content/uploads/2021/01/The-show-must-go-on_preprint_Final.pdf?fbclid=IwAR0QtJ8tB-KJGHn5td3_zoYbyt2i6SqUQVJ33oSsWIMuLiyqjj6NO55IMck)

Subramaniam, M. (2016). Designing the library of the future for and with teens: Librarians as the ‘Connector’ in Connected Learning. *Journal of Research on Libraries and Young Adults*, 7(2), 1-18. Available at: <http://www.yalsa.ala.org/jrlya/2016/06/designing-the-library-of-the-future-for-and-with-teens-librarians-as-the-connector-in-connected-learning/>

## Module 6: Iteration

IDEO. (2015). Design Thinking for Libraries: A toolkit for patron-centered design (Web-version) Chapter 4, p. 79-101. Retrieved from <http://designthinkingforlibraries.com/>

## Module 7: Getting to Scale

IDEO. (2015). Design Thinking for Libraries: A toolkit for patron-centered design (Web-version) Chapter 5, p. 102-121. Retrieved from <http://designthinkingforlibraries.com/>