

CS 8803 - O16 Syllabus: Digital Health Equity

Spring 2023

Delivery: 100% Web-Based, Asynchronous

Dates course will run: Jan.9 – May.4, 2023

Instructor Information

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Office Hours: Thur. 12:30-1:30 pm (ET) on Zoom

TAs

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Course Description

This course introduces individual, interpersonal, and societal influences on health, and how such influences create health disparities. Using this knowledge as a foundation, the course examines how digital health technologies can be designed to achieve health equity, and how the varied influences on health shape access to, utilization of, and impact of digital health systems. Students will learn how to apply theory, empirical insights, and perspectives from the social, behavioral, and public health sciences in the design and evaluation of digital health systems that address the disproportionate barriers to health and poor health outcomes experienced by vulnerable and marginalized populations. Foundations of public health will be examined, including prevention and the prevention paradox, public health ethics, behavioral theories, and social determinants of health. Additionally, the course will have a central focus on applying human-centered design concepts to the domain of digital health equity. The course will examine various ways in which technology can be employed to reduce health disparities, such as thorough education, intervention, and collective action, and discuss the relative effectiveness of these approaches.

By the end of the course, students should be able to:

- Explain the role of individual factors, identity (gender, race, ethnicity), socioeconomic status, interpersonal factors, social networks, social support, and structural factors in the distribution of disease and barriers to wellbeing.
- Compare and contrast digital health intervention strategies for addressing the multilevel factors that contribute to health disparities.
- Apply theory, empirical insights, and perspectives from the social, behavioral, and public health sciences to design and critique digital health systems that address disparities in health.
- Apply human-centered design concepts to design and critique digital health systems that address disparities in health.
- Identify ethical challenges in digital health and strategies for approaching these challenges.

Readings

All required readings will be available on Canvas. There is no required textbook for this class.

Recommended Text

Coriel, J. *Social and Behavioral Foundations of Public Health*. Sage. 2009. Thousand Oaks: Sage.
(Referred to as **Foundations** in reading list)

Resources for Writing

Citation and bibliographic resources: Use the University's website for links to formatting information and citation generators to appropriately and consistently use citations in written class projects, as required.

<https://libguides.library.gatech.edu/how-to-use-citations>

Strunk, W and E.B. White (1999). *The Elements of Style*. (4th Edition). Boston: Allyn & Bacon.

The Georgia Tech Communication Center also provides several writing resources:

<https://www.communicationcenter.gatech.edu/>.

Class Requirements

Students will complete a variety of assignments throughout the semester. In addition, course participation will also count toward students' final course grade.

Response Papers (3 x 10%)	30%
Design Assignments	20%
Debate	10%
Class Participation	10%
Final Project:	
Abstract	2%
Midpoint Presentation	8%
Prototype	10%
Paper	10%

Response Papers: Each student is required to complete 3 response papers during the course of the semester. Students will respond to questions related to the assigned readings and course concepts. The purpose of the papers is to demonstrate your critical analysis of the readings. They should be well-written, thoughtful, and rigorously done.

Design Assignments: Students will complete 2 individual design assignments during the semester. You will be asked to create low to medium fidelity technology prototypes addressing issues of health equity.

Debate: We will have an asynchronous class debate; each student will provide a different perspective around an assigned topic that focuses on issues of ethics and equity within digital health.

Final Project: The final project will be comprised of a paper, prototype and a midpoint presentation. Students will complete these final projects in small groups.

- Project groups will submit an **abstract** describing the proposed project topic early in the semester to garner early feedback. The abstract will not be graded, but submission will count towards students' class participation grade. The **abstract must be no longer than 1 page and summarize:**
 - The health disparity issue you will pursue
 - Preliminary ideas about how interactive computing systems can address this issue
 - The resources you will need to research this topic and where you will find the information needed
 - The key informant you will interview
- Groups will be asked to prepare a **presentation**, approximately midway through the semester. This presentation must overview the team's progress towards the final prototype and paper deliverables by demonstrating accomplished work, lessons learned, and ideas to pursue.
- Project groups must submit a **paper**, which will include a literature review overviewing the health disparity issue and previous efforts to address this issue (digital and analog), findings from your key informant interview, and a design rationale for and explanation of your prototype (i.e., its key features and innovations, how it addresses your health disparity issue, and a discussion of relevant ethical considerations).
 - The literature review should include a minimum of 8 sources. Be sure to assess the quality of these sources as you decide what to include—more information on this is included below. These sources should be briefly summarized, but most important is your *synthesis* of the information. That is, beyond summarizing each individual source, you should *also* describe the common themes that run through them, points of diversion, and how they collectively provide insight into your project topic. Please give some thought to the strength of your sources and be sure to use citations appropriately.
 - If you have not completed a literature review before, there are several helpful resources online. Here is a link to one at UNC Writing Center: <http://writingcenter.unc.edu/handouts/literature-reviews>.
- Groups will be asked to create a medium-fidelity **prototype**. This prototype should be high-fidelity in look and low- to medium-fidelity in feel. You can use any digital prototyping tools that you would like to assist this process (including software tools like Figma, Invision, app prototyping kits, etc.).
 - **High-fidelity in look:** This means that the visual appearance of the prototype is your primary focus; it should look like a “production quality” interface, and it should visually display all functionality and content that users will interact with. Relatedly, users must be able to navigate to all screens in your interface. Your goal is to produce a high-quality

interface that is creative and innovative, usable, aesthetically-pleasing, well-organized, and that meets your design requirements.

- **Low- to medium-fidelity in feel:** Your interface will not be able to support all of your envisioned user interactions. This is OK. Your goal is to visually convey all of the functions and data elements that your system would support, and enable users to navigate to the various screens in your interface. You can then simulate system responses to user interactions (g., well-designed, transitions to screen mockups, and aesthetically pleasing popups), to demonstrate how your system would work. You must either simulate or implement every feature in your interface (that is, something should happen when clicking/pressing every interactive object in your system).

For some assignments, grading rubrics will be used. These rubrics will be included in course assignments; students can refer to these rubrics for further information regarding assignment expectations.

Class Participation

Full participation in this course is a critical part of your learning experience. Your contributions to class discussions, activities, and your classmates' projects are essential. As such, you are expected to read all course readings and other pre-assigned content and be an active contributor to your group project and all online discussion prompts and activities.

Class participation grades will be assessed as follows:

- Completion of online discussion prompts (4%)
 - Points across all discussion prompts will be summed; the total is worth 4% of the final grade.
- Design jam peer assessment (2%)
 - Students will complete a design jam activity in groups. Group members will be asked to provide a peer assessment of each individual in their group. These assessments will be used to determine a design jam peer assessment grade for each student.
- Final project peer assessment (4%)
 - Students will complete a final project in groups. Group members will be asked to provide a peer assessment of each individual in their group. These assessments will be used to determine a final project peer assessment grade for each student.

Grading

Assessment Philosophy: Digital health is a broad, interdisciplinary domain. There is a lot of information that a researcher or practitioner in this space needs to know and understand to be effective. It takes several different types of learning activities to gather this breadth of material. Not everything can be covered in the lectures—reading academic literature is necessary. Not everything can be learned from reading either—practice, course discussions, and group projects are called for. To assess your learning across this range of material and activities, it is necessary to have a multitude of assessment techniques. This includes individual and group work, conceptual knowledge and rote memorization, aesthetic judgments, written assignments, and design assignments. It is all important.

Students are expected to always do their own work and to follow the university's codes of academic conduct and honor code. Cases of suspected inappropriate collaboration or cheating will be immediately forwarded to the Dean of Student Affairs and will be pursued to resolution. This is an unpleasant process for all involved, so please do not put yourself in this situation.

Students are expected to conduct themselves in a professional manner—this involves turning in

assignments at the appointed time. If some form of prior commitment or circumstance prevents a student from submitting assignments on time, **PRIOR** arrangements (including documentation where appropriate) should be made with the instructor.

Letter grades are determined based on a semester-long accumulation of points, weighed in percentage as stated for each component as summarized above. Typically, the standard percent-to-letter conversion for graduate courses will be applied, such that 90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, less than 60% = F.

Prior experience suggests that work in this course will generally fall into one of four categories:

- A: Superior, striking, or unexpected pieces of work with excellent effort demonstrating a mastery of the subject matter and a thoughtful use of concepts discussed in class; work that shows imagination, clarity of presentation, originality, creativity, effort, and attention to detail.
- B: Good work demonstrating a capacity to use the subject matter, with adequate preparation and clear presentation.
- C: Work that is adequate but that would benefit from increased effort or preparation.
- D: Work that needs significantly more effort.

Assignment Submission Attempts: Canvas assignments are configured to allow students multiple submission attempts. Students are allowed up to three submission attempts. Please note that the stated deadline for each assignment is the deadline. While you may choose to update your submission after the submission deadline, that new submission date will be recorded and that date will be used to assess any late penalties. The teaching staff will grade students' most recently submitted submission for each assignment.

Ungraded Assignments

At the end of each module, there is a Knowledge Check – a short ungraded quiz that allows students to test their knowledge of the concepts covered in the eLectures. While these quizzes are not graded and do not count towards students' final grade, you are strongly encouraged to complete them to assess your learning as you progress through the course.

Extra Credit

It is the responsibility of each student to proactively monitor his or her progress in the course. Students must be attentive to their grades. If a student is not satisfied with his or her grade trajectory, the student should make an appointment to speak with the instructor **well in advance of the conclusion of the course**. The goal of such a meeting would be to assess areas in which the student needs improvement, brainstorm how the student can improve future assignment performance, and identify additional (non-graded) practice opportunities.

Extra credit assignments are rarely given and are not guaranteed. In particular, extra credit assignments will not be given to individual students; such opportunities—if available at all—would only be made available to the class at large. Extra work, after the semester, is not allowed to "bring up" a grade. A student's grade shall be earned from their performance solely on the semester's assignments.

Re-Grade Requests

Students can request a re-grade of any assignment. To do so, students must submit a written justification for the request to the instructor and TA via email, indicating which aspect of the grade you disagree with,

describing succinctly and clearly why you believe the grade is incorrect. Please be aware that re-grade requests could result in a lower grade being assigned. **Any request must be made within 2 business days following the date that the teaching staff returns the graded material.** For example, if the material is returned on a Wednesday, you have until end of day Friday to request a re-grade.

Late Policy

- Assignments are due by 11:59pm (Eastern Time) on the due date marked on the schedule.
- Late assignments will receive a 10% deduction per day that they are late, including weekend days. It is your responsibility to determine whether or not it is worth spending the extra time on an assignment vs. turning in incomplete work for partial credit without penalty.
- Each student has a total of 4 “late days” that can be used as desired to avoid the late penalty for assignments. When turning in an assignment late, make sure you clearly state how many late days you are electing to use. Late days can be used for any reason you want, you don’t need to explain yourself or ask permission ahead of time. Note that the late days exist for helping you with your own time management—use them wisely.
- Note that **late days may be used for individual assignments ONLY**, not for any group assignments (e.g., not for final project assignments, debate assignments, etc.).
- Any exceptions to this policy (e.g. long-term illness or family emergencies) must be approved by the professor.

Classroom Technology

- We will use **Canvas** to post announcements, for all course content, and for homework submissions. Paying attention to Canvas announcements will help you stay up to date with what is happening in the course. For the best experience with Canvas, please use Chrome, Firefox or Safari.
- **Turnitin** is a feature within Canvas that we will be using for assignments with significant writing components. Turnitin is software that automatically checks for instances of plagiarism. Turnitin outputs will be used by the instructional team to flag and further investigate any instances of plagiarism.
- This term we will be using the Canvas **Ed Discussion** feature for class Q&A (e.g., assignment questions, logistical questions, etc.). We have chosen this platform to enable students to get help fast and efficiently from classmates, the TAs, and the professor. Rather than emailing questions to the teaching staff, you are strongly encouraged to post your questions on Ed Discussion. You are also encouraged to review Canvas and Ed Discussion for Q&A that may be helpful to you.
- The Canvas **Discussions** feature will be used for course discussion prompts provided by the teaching team (e.g., prompts that ask students to reflect on and discuss course material) and other course activities (e.g., the design jam, debate, etc.).
- **Zoom** will be used for the (optional) synchronous office hour meetings. Please refer to Georgia Tech knowledge base to learn about [how to use Zoom at Georgia Tech](#).
- **Honorlock** will be used to verify the identity of all GT online students. All online students are required to complete onboarding quiz that uses Honorlock. You must have a broadband internet connection, a working webcam and a microphone (integrated or attached), and a laptop or desktop computer.

Class Policies

Classroom policies help create a productive learning environment.

- *Assignment Due Dates:* All assignments must be completed on time and turned in by the due date.
- *Recording:* The course content, recordings, and materials provided by the instructor in this course are for the use of the students enrolled in the course and cannot be further disseminated. Electronic video/audio recordings initiated by students are not permitted unless an explicit permission is granted by faculty.
- *Respect and Consideration:* Please, above all, be respectful and considerate of others in the class. It should go without saying, but this includes showing up on time for any synchronous meetings such as your project team meetings, and when attending the optional synchronous teaching staff office hours. Given the remote delivery of this course, please also make sure to be respectful in all online course environments (e.g., respectful communication in the online chat, etc.)
- *Honor Code:* Students are reminded of the [Georgia Tech Honor Code](#). Any act of dishonesty will result in a Fail grade.
- *Individual Work:* All individually assigned work for this class is to be done individually. You are strongly urged to familiarize yourself with the [GT Student Honor Code](#) rules. Specifically, the following is not allowed:
 - Copying, with or without modification, someone else's work when this work is not meant to be publicly accessible (e.g., a classmate's program or solution).
 - Submission of material that is wholly or substantially identical to that created or published by another person or persons, without adequate credit notations indicating authorship (plagiarism).
 - Putting your projects on public Github. Otherwise, if a student (in the future) copies your codes/projects, the student obviously violates the honor code but you will also be implicated.
- You are encouraged to discuss problems and papers with others as long as this does not involve the copying of code or solutions. Any public material that you use (open-source software, help from a text, or substantial help from a friend, etc...) should be acknowledged explicitly in anything you submit to us. If you have any doubts about whether something is legal or not, please do check with the class Instructor or the TAs.

Academic Integrity

All students must adhere to the university's Academic Integrity Policy, which can be found on the website of the [Office of Student Integrity](#). **Please be particularly aware of the policy regarding plagiarism.** As you probably know, plagiarism involves representing anyone else's words or ideas as your own. It does not matter where you got these ideas—from a book, on the web, from a fellow-student, from your mother. It does not matter whether you quote the source directly or paraphrase it; if you are not the originator of the words or ideas, you must state clearly and specifically where they came from.

Please consult the instructor or TAs if you have any confusion or concerns when preparing any of the assignments. If an academic integrity concern arises, the instructor will speak with you about it; if the discussion does not resolve the concern, the matter will be referred to the Office of Student Integrity.

Accommodations Policy

If you are a student with a disability and you need academic accommodations, please contact the Disability Services (404-894-2563) <https://disabilityservices.gatech.edu>. All academic accommodations must be arranged through that office. They will then contact the professor with instructions.