Syllabus – Accessible Computing – Spring 2022

Course Information

Course Number: CSCE 489/689
Course Title: Accessible Computing
Section: 501/601
Time: TR 5:30 – 6:45 PM
Location: ZACH 350
Credit Hours: 3

Instructor Details

Instructor: J. Michael Moore
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E-Mail: jmichael@cse.tamu.edu
Office Hours:

- Posted on Canvas.
- [Make an appointment.](https://calendly.com/jmichaelmoore) (https://calendly.com/jmichaelmoore)

Course Description

Universal Design has become a necessity in software development. Not only is creating content for everyone, including those with disabilities, the right thing to do, laws mandate equal access. This course explores the characteristics of many traditionally disenfranchised user populations due to disability. It gives students experience evaluating, designing and developing digital technology that empowers people by accounting for various user characteristics including disability. Students will be exposed to the evolution of accessible technology over time, see what is currently available, and speculate about future technologies that can be developed that further facilitate equitable access. Students will apply what they learn by creating accessible software solutions. It will be useful to know HTML and CSS.

Course Prerequisites

CSCE 315 or permission of the instructor or graduate student status.

Diversity, Equity, and Inclusion

Accessibility

See [Americans with Disabilities Act (ADA) Policy](#) under University Policies below.

While the new [Disability Accommodation Portal (AIM Portal)](#) will ease sharing accommodation information, you must still make an appointment with me to discuss your accommodations. In addition to accommodations, I can help you develop strategies to become successful in this course.

Prior to being a professor, I worked as a certified sign language interpreter in the state of Texas while getting my MS and PhD degrees in computer science. I have a great interest in providing an environment where students with disabilities can thrive. I wish I could accommodate anyone for any need. However, the university requires that I only provide accommodations for students registered with Disability Resources. I'm always fascinated with the rich tapestry of diversity which make up my classes. In fact, I've taught a special topics course a few times on Accessible Computing which focuses on how to create accessible applications and programs.

"I'd prefer that you get your accommodations and not need them, rather than trying without your accommodations and finding out that you needed them."

Earlier in my career I noticed a disturbing pattern. Students would try to get through the first exam without using their accommodations. I suspect this was due to negative experiences with other instructors. Frequently, they said they just wanted to try it without the accommodation. After the first exam, there would be a rush of students submitting their accommodation letters. These instances have greatly decreased since I've been explicit about my preferences.

Preferred Name and Preferred Gender Pronouns

Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records.

Non-Discrimination Policy

Texas A&M is committed to the fundamental principles of academic freedom, equality of opportunity and human dignity. To fulfill its multiple missions as an institution of higher learning, Texas A&M encourages a climate that values and nurtures collegiality, diversity, pluralism and the uniqueness of the individual within our state, nation and world. All decisions and actions involving students and employees should be based on applicable law and individual merit.

Texas A&M University prohibits students, employees, and third parties from engaging in discrimination and/or harassment on the basis of race, color, sex, gender identity, age, religion, disability, national origin, sexual orientation, genetic information, veteran status, or any other characteristic protected by federal, state, or local law. In addition, acting in complicity with another who engages in any of these forms of prohibited conduct, or retaliating against a person who participates in protected activity, is also prohibited.

Harassment of a student in class, i.e., a pattern of behavior directed against a particular student with the intent of humiliating or intimidating that student will not be tolerated. The mere expression of one's ideas is not harassment and is fully protected by academic freedom, but personal harassment of individual students is not permitted.

Professionalism and Respect

You are expected to treat your instructor and all other participants in the course with courtesy and respect. Your comments to others should be factual, constructive, and free from harassing statements. You are encouraged to disagree with other students, but such **disagreements need to be based upon facts and documentation** (rather than prejudices and personalities).

Unprofessional or disrespectful conduct will result in a lower grade on an assignment. Warnings will not be given; part of the learning process in this course is respectful engagement of ideas with others.

Students will need to contribute in intelligent, positive, and constructive manners within the course. Behaviors that are abusive, disruptive, or harassing may result in disciplinary actions as specified within the Student Rules. The student rules can be found at the website page: http://student-rules.tamu.edu/statement

Sensitive or controversial topics might be discussed in this course. Comments posted within this course are to remain confidential to the audience of this course; do not copy or share messages or writings from this course with others not in this course section.

Students in this course are also responsible for being familiar with the Universities student rules and policies: http://student-rules.tamu.edu/

Course Learning Outcomes

At the end of this course students should be able to:

- List common classes of disabilities.
- Given a particular disability:
    - Explain likely challenges faced by those individuals.
    - Describe designs and rationales that mitigate challenges and provide examples.
    - Explain in terms of culture and identity.
- Articulate need for accessibility to employers / clients.
- List and explain laws related to disability and accessibility.
- Explain accessibility as a civil right.
- List accessible technologies
    - List problems a given technology addressed and explain how it addressed them.
    - List other populations that benefit and explain how they benefit.
    - Describe ideas for new technologies or improvements to current ones.
- Identify facilitators and barriers to using technology and provide examples.
    - Describe designs/approaches that help mediate barriers.
- Explain the POUR accessibility principles.
- List and explain the different accessibility standards for web content, user agents, and authoring tools.
- Apply WC3 accessibility standards.
- Generate software and programs that comply with W3C accessibility standards.
- Evaluate technology based on accessibility standards.
- Create accessible documents and presentations.
    - Give accessible presentations.
- Develop a design for a particular person/persona with a disability that also works as a universal design.
    - Explain how the design facilitates interactions for a person with the target disability.

- o Explain how the design is universal and / or why aspects were not able to be universal due to the specific individual's needs.
        - o Create a software implementation or prototype of the design.
    - Identify when guidelines do not work.
        - o Design alternatives that that fulfill the spirit of accessibility, even when something satisfies standards.
        - o Implement alternatives in software solutions.
    - Create accessible prototypes and software using guidelines or alternatives that best enable equitable user interaction.

Textbook and/or Resource Materials

Required Textbooks

- ***Ensuring Digital Accessibility Through Process And Policy,*** Jonathan Lazar, Daniel Goldstein, and Anne Taylor, Morgan Kaufmann, 2015.
    - o ISBN-13: 978-0128006467
- ***A Web For Everyone: Designing Accessible User Experiences,*** Sarah Horton and Whitney Quesenbery, Rosenfeld Media, 2013.
    - o ISBN-13: 978-1933820972

Required Computer

- You must have your own computer for consuming online content that fulfills the Texas A&M Computer Requirements.
- You can check out a temporary laptop from ZACH 383 if you are enrolled in a CSCE class.

Bandwidth

You should have sufficient bandwidth to interact with the class using the online tools.

Technology to Capture an Image

At times you may be asked to create a sketch or diagram to submit electronically. You need the ability to get the diagram into a format that can be uploaded. You could sketch on paper and take a picture with your camera, sketch on a tablet device, or use a scanner. You should be able to do this quickly, especially if needed for an exam question.

Grading Policy

If you want to challenge any grading, you must do so within one week of when the grade is published.

We reserve the right to audit the grades for any assignments submitted to this course. During the audit process, we can decrease or increase your score. This could result in lowering the score of already released grades.

Grading Scale

Rounded % total	Letter Grade
100 - 90	A
<90 and ≥ 80	B
<80 and ≥ 70	C
<70 and ≥ 60	D
<60	F

Assignments (25%)

You will have several assignments throughout the semester that you must do individually.

See Make Up & Late Work policy.

Quizzes (20%)

Weekly Quizzes assess knowledge, application, and synthesis of concepts. No quizzes on presentation weeks.

See Make Up & Late Work policy.

Disability Presentation (10%[489], 5%[689])

Students will research a particular disability and share a summary of the characteristics of the disability, clear examples of challenges that population faces when using technology, and accommodations/strategies currently used.

Part of your grade will be based on you participating in grading other student's presentations.

See Make Up & Late Work policy.

Current Research Presentation (10%[489], 15%[689])

489

Students will read a paper from a refereed source related to disability/accessibility and present that information.

689

Students will compile a literature survey comprised of at least 10 related papers about an accessibility topic. Students must identify themes and gaps in the research. Results will be presented in a document that summarizes the results of the research. Students must also present the themes and gaps identified.

489 & 689

Part of your grade will be based on you participating in grading other student's presentations.

See Make Up & Late Work policy.

Group Class Activities (15%)

You will work in groups to do activities to share with the class.

- You will get credit if you attend class and you submitted evidence of your participation.

See Make Up & Late Work policy.

Team Project (20%)

Students will design and implement software for an interaction that attempts to provide equitable interactions for a particular person/persona with a disability or create a universal design for a more generic interaction that explicitly addresses disability.

See Make Up & Late Work policy.

Late Work Policy

Individual Assignments and Team Project Late Work

Work is due at the beginning of class in all required forms as specified in the prompt (e.g hard copies and electronic copies as stipulated). Due dates are set with ample time for completion so short-term illnesses are accounted for in the due date. However, if you have an unexpected long-term excused absence with documentation please contact the instructor and individual accommodations will be

discussed. Individual assignment and team project submissions can be submitted late and will be decreased by 10% once it is late and an additional 10% per day or fraction of a class after that.

Make Up Policy

See University Policies below.

It is *your* responsibility to keep up with the class, even when unexpected events interfere.

Excused Absences

Before you can do any make up work, you must provide your instructor with any documentation for your excused absence. Job interviews are not considered excused absences unless explicitly approved in advance by the instructor.

- Submit any documentation for excused absences online.

Quiz Make Up

You may only make up quizzes missed due to a university excused absence. Note that if advanced notice is not feasible, you have two business days to provide notification. A zero will be assigned for quizzes due to an unexcused absence. Documentation must be submitted prior to making up a missed exam.

Presentation Make Up

If you have submitted documentation for an excused absence, we will create a situation where you can present to other students. This likely will be presenting to the entire class during a class period. Contact your instructor to discuss options.

Group Class Participation Make Up

You should always complete class activities even if you are absent. If you have an excused absence, to receive credit you must:

1. Ensure you have submitted your documentation of an excused absence.
2. Visit with two classmates about the activity and insights and get them to send a message to the instructor in Canvas saying they talked to you. Note if someone says they talked with you and in reality did not then both of you have committed an act of academic misconduct.
3. Visit the instructor or TA during office hours or via appointment to discuss the activity.

Course Schedule (tentative)

I'm still scheduling guest speakers, so some topics might need to slide to accommodate their schedules.

Week	Topics
1	Introduction to Accessible Technology; History of Accessible Technology
2	Universal Design; Accessible Documents/Presentations; Discriminatory Impact of Digital Inaccessibility
3	Diversity, Equity, and Inclusion; HTML & CSS; A Web for Everyone; Designing for Differences
4	Well Defined Goals; Populations Part 1
5	Populations Parts 2 and 3
6	Different Ability Presentations
7	Accessibility Standards; WCAG; ATAG
8	Screen Readers; ARIA; Easy Interaction; Helpful Wayfinding;
9	Supports Meaning; Creates Conversation; Laws and Regulations
10	Project Design Presentations; Evaluation and Compliance
11	Current Research Presentations
12	Populations Part 4; Accessible Media; Universal Usability
13	Case Studies; Integrated Process; The Future; Culture Change
14	Project Presentations

Important Due Dates

- Disability Presentations: Feb 22, 24
- Quizzes will be done weekly.
- Current Research Presentations: Apr 5, 7
- Literature Review (CSCE 689): Apr 8
- Team Project
  - Idea Meeting deadline: Feb 25
  - Project Design Presentation: Mar 29
  - Final Project Presentations: Apr 26, 28
  - Video Demo: May 3
  - Final Report: May 3
- Assignments
  - Accessible Technology Infographic: Jan 28
  - Make an Inaccessible Document Accessible: Feb 4
  - Create an Accessible Web Page Bio: Feb 11
  - Designing for a Persona: Feb 18
  - Accessible Webpage: Mar 11
  - WCAG Evaluation Report: Apr 1
  - ATAG Evaluation Report: Apr 8
  - Court Case Summary Infographic: Apr 14
  - Elevator Pitch: Apr 22

University Policies

This section outlines the university level policies that must be included in each course syllabus. The TAMU Faculty Senate established the wording of these policies.

NOTE: Faculty members should not change the written statements. A faculty member may add separate paragraphs if additional information is needed.

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to Student Rule 7 in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to Student Rule 7 in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" (Student Rule 7, Section 7.4.1).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" (Student Rule 7, Section 7.4.2).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See Student Rule 24.)

Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" (Section 20.1.2.3, Student Rule 20).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact the Disability Resources office on your campus (resources listed below) Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see University Rule 08.01.01.M1):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with Counseling and Psychological Services (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's Title IX webpage.

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus

Students who need someone to talk to can contact Counseling & Psychological Services (CAPS) or call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org.

Statement on the Value of Vaccinations and Masking to Protect Against SARS-CoV-2

To help protect Aggieland and stop the spread of COVID-19, Texas A&M University urges students to be vaccinated and to wear masks in classrooms and all other academic facilities on campus, including labs. Doing so exemplifies the Aggie Core Values of respect, leadership, integrity, and selfless service by putting community concerns above individual preferences. COVID-19 vaccines and masking — regardless of vaccination status — have been shown to be safe and effective at reducing spread to others, infection, hospitalization, and death.