ECI 519: SpecialTopics in Learning Design andTechnology
Introduction toWebsite andWeb App Development: Spring 2021

Instructor Information

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Office Hours: By appointment, via phone or Zoom
Preferred Method of Communication: Email

Course Feedback Expectations

Please contact me via email (mjsamber@ncsu.edu) with any questions about the course project or other assignments. I will strive to answer any emails within 12 hours (M-F) and 24 hours on the weekend, and grade submitted assignments within 7 days of being submitted. In addition, students will be provided ongoing opportunities, and are strongly encouraged, to provide course feedback for to help improve the design of current and future course implementations.

Course Information

Credit Hours: 3
Course Meetings and Assignments: All course assignments and forum posts will take place using the WolfWare platform (wolfware.ncsu.edu). Virtual meetings will take place via Zoom.

Course Text

The course text will be located at http://mjsamberg.github.io/courses/. This text is an open-source text and is licensed under Creative Commons (CC-BY-SA-NC) and you are free to copy and remix the content as needed for your notes. While you may work ahead, you should note that I will be making changes to the text throughout the semester until a unit officially goes live. If a section of the text is unclear or needs additional detail, please let me know and I'll add it. If you are familiar with GitHub, Pull Requests and Issues are welcome on the repository.

Course Overview

Catalog Description: This course will explore the basics of website development including HTML, CSS, and JavaScript along with best practices for web design including design, accessibility, and version control. The course will also use web technologies including APIs, frameworks, and Google Apps Script to explore creation of basic web applications and interactive web content. The course will have a specific focus on the use of these tools in educational and learning contexts.

Required Materials

Students must have access to a computer with reliable high-speed Internet access to participate in the course. A webcam and microphone are strongly recommended for synchronous meetings.

There are no required texts for this course beyond the course text mentioned above. The only required software will be Google Drive and Google Docs. All students are expected to use their NC State-issued Google accounts for course correspondence and assignments. All course materials will be freely available or accessible via Unity ID and password.

Students must create an account on GitHub and link their NC State email address in the "Emails" page in their GitHub.com profile. While students may use the GitHub Command Line Interface, the use of GitHub Desktop (https://desktop.github.com) is recommended. For many assignments, we will be using the Repl.it client built into GitHub Classroom (information on this will be distributed in Week 1). Students are also required to download and install VSCode at http://code.visualstudio.com and encouraged to also create a free account at CodePen.com.

All forums and assignments will be submitted through NC State instance of Moodle (WolfWare). To log in, go to https://wolfware.ncsu.edu using your Unity ID and password, and locate "ECI 519", section "601".

On Coding Frustration

Before we dive into the syllabus, a quick note about what's known as "coding frustration". Success in this course is as much patience and the ability to Google as it is about technical skill. We are going to be learning a new language over this semester (three of them, in fact). Computers don't "know what you mean" – programming is exactingly literal. Things may not look exactly like you expect on the first time. You may spend an hour debugging, only to find a missing semicolon or a wrong variable name, or you typed the word "blue" in one place and "red" in another. Joseph Gentle has offered tips for new programmers at https://josephg.com/blog/what-i-tell-all-new-programmers/ and students are encouraged to read this article.

This frustration is the reason that live lectures will be available and the reason there will be office hours twice weekly. If you get frustrated with a problem, turn in your work so far, walk away, and come to office hours.

Course Structure

Course Readings

Each unit will contain a chapter in the course text. Students are expected to review the chapter, including the links provided within each chapter.

In-Person Sessions

Weekly in-person sessions will be held on Tuesday evenings from 7:00-9:00 p.m. Attendance at these sessions is optional. The first hour will be an interactive lecture format, reviewing the material from the readings in-depth. These will be recorded. The second hour will be open Q&A and lab time for people who need assistance with the weekly assignment.

Open lab time will also be available from Thursday from 7:00-8:00 p.m. During open lab time, I will be available on Zoom to answer questions and help with assignments.

Weekly Assignments

Each weekly reading will have an assignment at the end. Assignments are due the Sunday after the unit posts but may be turned in up to one week late without penalty. Assignments turned in for the first time more than one week after the due date will not be submitted.

Assignments will be graded as 0 or 1 – "done" or "not done" according to the specifications. Once you have turned in the assignment, you'll receive feedback and have unlimited opportunities to get the assignment done according to the specifications by the end of the semester so you should turn in *something* each week, even if it is only partially done.

All assignments will be submitted to GitHub classroom. Many assignments will be additive – you can reuse and extend assignments from one week to the next.

Summative Activity

Your summative activity will be to design either your personal or classroom website or a basic webapp for use in your classroom or work context. You're encouraged to use the weekly assignments to create pieces of this as you go.

Course Objectives

- Create basic web pages using HTML and CSS
- Apply JavaScript and APIs to create dynamic web pages
- Understand principles of effective design and user experience
- Integrate accessible design patterns into web applications
- Utilize web technologies in educational contexts

Course Agenda

Dates	Major Focus	Topics for Unit Will Include
1/19-1/24	History and Tools	- History of the World Wide Web - Computer Science Education in K-12 - GitHub and CodePen
1/25-1/31	HTML	- HTML 5 - HTML Document Object Model (DOM) - Basic Elements of an HTML Page - Semantic HTML - Nesting and Validation
2/1-2/7	HTML	- Links - Tables - Images
2/8-2/14	Cascading Style Sheets	CSS Overview

		• Colors, Images, Lists, and Tables • Classes and Selectors • Inline and linked styles • Inheritance • Text and Image Styling
2/15-2/21	Cascading Style Sheets	• Box Model • Boxes in Boxes • Responsive Design and Media Queries • Transformations
2/22-2/28	Cascading Style Sheets	• Frameworks
3/1-3/7	Accessibility and UX	• Accessibility Principles • ARIA Landmarks • Color and Contrast Principles • WCAG Guidelines
3/8-3/14	Accessibility and UX	• UX Design Principles • Site Design Workflows
3/15-3/21	JavaScript	• Syntax Basics
3/22-3/28	JavaScript	• Loops • Arrays
3/29-4/4	JavaScript	• The Document Object Model • Selectors, data input, and forms • JSON • APIs
4/5-4/11	Google Apps Script	• Projects and Manifests • OAuth • TypeScript
4/12-4/18	Client/Server Apps	• Overview • Technologies
4/19-4/25	Playground	
4/26-5/10	Final Project	

Grading

Course grading will work on a total points system, with all assignments receiving a grade of 0 or 1. All initial attempts must be submitted at no later than one week past the due date and must be done according to the specifications in order to receive a grade of 1. Once the assignment has been submitted, you may resubmit as many times as needed through the end of the semester until the assignment meets the specifications. Assignments not initially submitted by one week past the due date will not earn credit.

The final project will be worth 3 points and will have a scoring rubric distributed later in the semester.

Grading: 17: A+, 16: A, 15: A, 14: B+, 13: B, 12: B-, 11: C+, 10: C, 9: C-, 8: D+, 7: D, 6: D-, <5: F

Course Policies

Late Assignments

Late assignments for forum posts will not be accepted. Late submissions for projects will be reduced 5 points per day until submitted. Accommodations for late projects can be made, but you need to contact me as early as possible.

Code of Conduct

It is expected that all students participate in course activities in a professional manner. All students in the course are free to express their ideas and opinions without fear of reprisal. While healthy discussion is encouraged, any bullying, personal attacks, harassment, disrespect, offensive language, or trolling will not be tolerated and will be referred to the University for disciplinary action.

This course will encourage discussion about experiences in schools and districts, students are expected to respect the confidentiality of their peers and the experiences being discussed. Violation of this confidentiality will not be tolerated.

University Policies

Academic Integrity

Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct. Therefore, students are required to uphold the university pledge of honor and exercise honesty in completing any assignment.

Please refer to the Academic Integrity web page for a detailed explanation of the University's policies on academic integrity and some of the common understandings related to those policies.

Students may be required to disclose personally identifiable information to other students in the course, via electronic tools like email or web-postings, where relevant to the course. Examples include online discussions of class topics and posting of student coursework. All students are expected to respect the privacy of each other by not sharing or using such information outside the course.

Students are responsible for reviewing the NC State University PRR's which pertains to their course rights and responsibilities:
- Equal Opportunity and Non-Discrimination Policy Statement and additional references
- Code of Student Conduct
- Grades and Grade Point Average
- Credit-Only Courses
- Audits

It is the policy of the State of North Carolina to provide equality of opportunity in education and employment for all students and employees. Accordingly, the university does not practice or condone unlawful discrimination in any form against students, employees or applicants on the grounds of race, color, religion, creed, sex, national origin, age, disability, or veteran status. Further, North Carolina State University regards discrimination on the basis of sexual orientation to be inconsistent with its goal of providing a welcoming environment in which all its students, faculty, and staff may learn and work up to their full potential.

Accommodations for Students with Disabilities

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with the Disability Resource Office at Holmes Hall, Suite 304,Campus Box 7509, 919-515-7653 . For more information on NC State's policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation (REG02.20.01)

Trans- and Non-Binary Inclusivity

In an effort to affirm and respect the identities of transgender students in the classroom and beyond, please contact me if you wish to be referred to using a name and/or pronouns other than what is listed in the student directory. Please also share your preferred name and/or pronouns in the Unit 1 Introductions Forum. All students will be expected to use the preferred names and pronouns for their colleagues.

FERPA Notice

Under the Federal Family Education Rights and Privacy Act of 1974 (FERPA) and NC State's FERPA regulation (http://www.ncsu.edu/policies/student_services/REG11.00.1.php), a student's education records are protected from disclosure to third parties. Because of the public nature of Web-based assignments in this course and due to the possibility that some student assignments may be viewed by third parties online, we are required to collect your e-signature acknowledging your awareness and acceptance of this course format. Please enter your e-signature on the form provided on this Web page: http://tinyurl.com/cv5nmrp

Course Evaluations

ClassEval is the end-of-semester survey for students to evaluate instruction of all university classes. The current survey is administered online and includes 12 closed-ended questions and 3 open-ended questions. Deans, department heads, and instructors may add a limited number of their own questions to these 15 common-core questions.

Each semester students' responses are compiled into a ClassEval report for every instructor and class. Instructors use the evaluations to improve instruction and include them in their promotion and tenure dossiers, while department heads use them in annual reviews. The reports are included in instructors' personnel files and are considered confidential.

Online class evaluations will be available for students to complete during the last two weeks of the semester for full semester courses and the last week of shorter sessions. Students will receive an email directing them to a website to complete class evaluations. These become unavailable at 8am on the first day of finals.

Contact ClassEval Help Desk: classeval@ncsu.edu

ClassEval website

More information about ClassEval

Syllabus Modification Statement

Our syllabus represents a flexible agreement, outlining the topics covered and the order they will be covered in. This syllabus may be modified over the course of the semester based on the needs of the class and external factors such as COVID-19. All syllabus modifications will be subject to review and feedback from students one week before they are finalized.

COVID-19 Statement

Due to the Coronavirus pandemic, public health measures have been implemented across campus. Students should stay current with these practices and expectations through the Protect the Pack website (https://www.ncsu.edu/coronavirus/). The sections below provide expectations and conduct related to COVID-19 issues.

Health and Participation in Class

We are most concerned about your health and the health of your classmates and instructors/TAs.

- If you test positive for COVID-19, or are told by a healthcare provider that you are presumed positive for the virus, please work with your instructor on health accommodations and follow other university guidelines, including self-reporting: https://healthypack.dasa.ncsu.edu/coronavirus/. Self-reporting is not only to help provide support to you, but also to assist in contact tracing for containing the spread of the virus.
- If you feel unwell, even if you have not been knowingly exposed to COVID-19, please do not come to class.
- If you are in quarantine, have been notified that you may have been exposed to COVID-19, or have a personal or family situation related to COVID-19 that prevents you from attending this course in person (or synchronously), please connect with your instructor to discuss the situation and make alternative plans, as necessary.
- If you need to make a request for an academic consideration related to COVID-19, such as a discussion about possible options for remote learning, please talk with your advisor for the appropriate process to make a COVID-19 request.

Health and Well-Being Resources

These are difficult times, and academic and personal stress is a natural result. Everyone is encouraged to take care of themselves and their peers. If you need additional support, there are many resources on campus to help you:

- Counseling Center (https://counseling.dasa.ncsu.edu/)
- Health Center (https://healthypack.dasa.ncsu.edu/)
- If the personal behavior of a classmate concerns or worries you, either for the classmate's well-being or yours, we encourage you to report this behavior to the NC State CARES team: (go.ncsu.edu/NCSUcares).
- If you or someone you know are experiencing food, housing or financial insecurity, please see the Pack Essentials Program (https://dasa.ncsu.edu/pack-essentials/).

Community Expectations Related to COVID-19

We are all responsible for protecting ourselves and our community. Please see the Community Standards and Rule 04.21.01 regarding Personal Safety Requirements Related to COVID-19 https://policies.ncsu.edu/rule/rul-04-21-01/
Please also keep in mind the following:
- **Face Coverings:** As a member of the NC State academic community you are required to follow all university guidelines for personal safety with face coverings, physical distancing, and sanitation. Face coverings are required in this class and in all NC State buildings. Face coverings should be worn to cover the nose and mouth and be close fitting to the face with minimal gaps on the sidesIn addition, students are responsible for keeping their course/work area clean. Please follow the cleaning guidelines described by the University.
- **Course Attendance**: NC State attendance policies can be found at: https://policies.ncsu.edu/regulation/reg-02-20-03-attendance-regulations/ . Please refer to this course's attendance, absence, and deadline policies for additional details. If you are quarantined or otherwise need to miss class because you have been advised that you may have been exposed to COVID-19, you should not be penalized regarding attendance or class participation. However, you will be expected to develop a plan to keep up with your coursework during any such absences. If you become ill with COVID-19, you should follow the steps outlined in the "Health and Participation in Class" section above. COVID 19-related absences will be considered excused; documentation need only involve communication with your instructor.
- **Course Meeting Schedule**: Your course might not have a traditional meeting schedule in Fall 2020. Be sure to pay attention to any updates to the course schedule as the information in this syllabus may have changed. Please discuss any questions you have with the instructor.
- **Classroom Seating:** To support efficient, effective contact tracing, please sit in the same seat when possible and take note of who is sitting around you; instructors may also assign seats for this purpose.
- **Technology Requirements:** This course may require particular technologies to complete coursework. Be sure to review the syllabus for these expectations, and see go.ncsu.edu/syllabus-tech-requirements to find out more about technical requirements for your course. If you need access to additional technological support, please contact the Libraries' Technology Lending Service: https://www.lib.ncsu.edu/devices.

Course Delivery Changes Related to COVID-19

Please be aware that the situation regarding COVID-19 is frequently changing, and the delivery mode of this course may need to change accordingly, including from in-person to

online. Regardless of the delivery method, we will strive to provide a high-quality learning experience.

If the delivery mode has a negative impact on your academic performance in this course, the university has provided tools to potentially reduce the impact:

- **Enhanced S/U Grading Option**: https://studentservices.ncsu.edu/your-resources/covid-19/spring2020-sat-grading/
- **Late Drop**: https://studentservices.ncsu.edu/your-resources/covid-19/spring2020-latedrop/

In some cases, another option may be to request an incomplete in the course. Before using any of these tools, discuss the options with your instructor and your academic advisor. Be aware that if you use the enhanced S/U, you will still need to complete the course and receive at least a C- to pass the course.

Other Important Resources

- Keep Learning: https://dasa.ncsu.edu/students/keep-learning/
- Protect the Pack FAQs: https://www.ncsu.edu/coronavirus/frequently-asked-question
- NC State Protect the Pack Resources for Students: Resources for Students | Protect the Pack
- NC State Keep Learning, tips for students opting to take courses remotely: Keep Learning Tips for Remote Learning
- Introduction to Zoom for students: https://youtu.be/5LbPzzPbYEw
- Learning with Moodle, a student's guide to using Moodle: https://moodle-projects.wolfware.ncsu.edu/course/view.php?id=226
- NC State Libraries Technology Lending Program