CIS 371 Web Application Programming

Syllabus

Lecturer: Dr. Yong Zhuang

About this course

In this course, we dive deep into how websites and web apps are built and run. We'll look at the common methods and tools used in web development and study the different programming and markup languages that make websites work. We'll also cover important topics like how to connect websites to databases, making sure websites meet standard guidelines, and how to keep websites safe from security threats.

Course Objectives:

After completing this course, students should be able to:

- Apply foundational knowledge of HTML to structure web content effectively.
- Create stylesheets to control the visual appearance of web pages.
- Craft modern front-end web applications using JavaScript and TypeScript.
- Write server-side scripts to support the functionalities of a web application.
- Utilize Ajax to fetch data from the server and dynamically update content without reloading the entire page.
- Employ web APIs effectively to send and receive data between the client and server.
- Analyze large-scale problems and construct comprehensive websites as solutions.

Contact Information

Instructor:	Dr.Yong Zhuang
E-mail:	yong.zhuang@gvsu.edu
Office:	MAK D-2-234
Office Hours:	MW, 12:00 pm-1:00 pm, in-person (MAK D-2-234) and remote (Zoom)
Course Page:	Blackboard & https://gvsu-cis371.github.io
Zoom:	Meeting ID: 396 668 6420, Password: 587684
Section 01:	**Class time:** MWF 2:00 pm - 2:50 pm
	Room: MAK D-1-117
	Midterm: (Monday) February 17, 2:00 pm - 2:50 pm
	Final exam: (Wednesday) April 23, 2:00 pm - 3:50 pm

Course Logistics & Prerequisites

- No assigned textbook
  - most materials about web development is available online
- Check **Blackboard** on a regular basis for
  - announcements,
  - course material,
  - assignments
- Check **Course Website** regularly
- Zoom session (in case of snow days)
  - Login via https://gvsu-edu.zoom.us
  - Use the link and password posted on Bb

Grading

Course Component	Overall Weight
Quizzes	30%
Assignments & Projects	30%
Midterm Exam	20%
Final Exam	20%
Total	**100%**

The instructor reserves the right to make minor adjustments to the point distribution.

Grading

Grade A	Grade B	Grade C	Grades D & F
$A \geq 93\%$	$B+ \geq 87\%$	$C+ \geq 77\%$	$D+ \geq 67\%$
$A- \geq 90\%$	$B \geq 83\%$	$C \geq 73\%$	$D \geq 60\%$
	$B- \geq 80\%$	$C- \geq 70\%$	$F < 60\%$

Assignments, Due Dates

- **Due dates:** All assignments will be due at 11:59pm Michigan time on the due date.
- **Late policy:** Each student is required to complete all learning activities by the due date deadline. No learning activities or assignments are accepted late. All assignments, graded discussions, quizzes, exams, etc., are submitted electronically. No assignments are accepted via email, printed, or any other method.

Attendance

- Students are responsible for material, announcements, and learning activities covered in class, including in-class quizzes. Obtain lecture notes from a classmate if you miss class.
- In-class quizzes are an integral part of the course. Missing a quiz due to absence will result in no credit for that quiz unless prior arrangements are made or a valid excuse is provided.
- Exam questions may refer to material covered only in class. There is a direct relationship between attendance and your grade. Simply put, if you miss class, your grade is negatively impacted.
- Per University policy, "In case of excessive absences, the instructor may refuse to grant credit for the course." https://www.gvsu.edu/catalog/navigation/academic-policies-and-regulations.htmanchor-45.

Academic Honesty

- Document Collaborations: Clearly note any collaborations on individual assignments.
- No Code Sharing: Direct electronic transfer of code between students is not allowed.
- Cite Internet Sources: If you use code from the internet, provide an active link and ensure it doesn't constitute the entire solution.
- Engage Online Respectfully: Participate in forums for discussion, not for sharing solutions or soliciting complete answers.
- Discuss Conceptually: Talk about problems using non-technical, conceptual language rather than sharing specific code.
- Ultimately, you are responsible for all aspects of your submissions. You should be able to explain and defend your submission if the work is entirely your own.

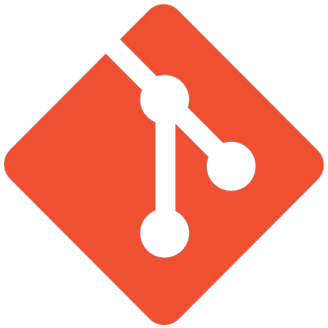
Prerequisites

- Formal Prerequisites: (CIS 162 or CIS 260) and (CIS 333 or CIS 353)
- Fluent in Java (or other object-oriented(OO) Languages)
  - You should be able to solve most problems at codingbat.com in a couple of minutes. If you struggle in solving these problems, then ***you are not ready*** to take this course
- Self Learner
  - Skilled in high-level programming **concepts**, and able to teach yourself the basics of other C-like languages (Java|Type)Script
- Good understanding of OO techniques: inheritance, methods, interface, ...

Expected Java Fluency

- Accessing object properties (without using a “getter” functions)
- Using loops on arrays of objects
- Writing own functions/methods
- Passing arguments into functions
- Function return value
  - Returning “result” from a function
  - Using a function “result”

Programming Tools



git

Debugger (in browser)

docker

Recommended

Programming Tools

Visual Studio

Visual Studio Code

Academic Resources

- **The writing center:** The Fred Meijer Center for Writing, with locations at the Allendale and Pew/Downtown Grand Rapids campuses, is available to assist you with writing for any of your classes. For more information about these services and locations, please visit their website: http://www.gvsu.edu/wc/
- **Speech lab:** The Grand Valley Speech Lab is a peer-to-peer communication center that helps students with all elements of oral presentations. For more information about this service, please visit their website: https://www.gvsu.edu/speechlab/

Academic Resources

- **Research consultants:** The Center for Scholarly and Creative Excellence (CSCE) promotes a culture of active, engaged, ethical scholarship. It supports innovative faculty and student research and collaborative partnerships in the broader community. For more information, please visit their website: https://www.gvsu.edu/csce/
- **Library:** GVSU's library offers a vast collection of online resources available for students. Visit their website for more details: https://www.gvsu.edu/library/
- **Disability support resources:** If any student in this class has special needs because of a disability, please contact Disability Support Resources at http://www.gvsu.edu/dsr/ (DSR) at 616-331-2490.

Tentative Course Content

☞ **January 20, Martin Luther King, Jr. Day Recess:** No classes!
☞ **March 2-9 Spring Break:** No classes!

Week	Topics Covered
1	Introduction, HTML, and CSS Basics
2	CSS Grid, and Flexbox
3	Docker
4	TypeScript Basics
5	TypeScript Advanced Topics
6	Midterm Exam Guide, and Exercises
7	Midterm Exam, HTTP, JavaScript Modules, and Vue.js Introduction
8	Vue.js Advanced Topics
9	Spring Break (No Class)
10	Pinia Basics, and Promises
11	Advanced Pinia, and Vue Router
12	Vuetify Basics
13	Firestore Basics, Project Review, and Project Work
14	Firebase Authentication, Fetch, and Axios
15	ExpressJS, Final Exam Guide, and Project Review
16	Final Exam

Course Website

***subject to change throughout the semester**

Warming Up

- Individual introduction
  - Name and what do you want to be called
  - Describe your background and experience in web development.
  - Specific topics you seek to learn from this class

About Me

- You can call me Dr. Zhuang (draw on), or Yong (you own)
- Education:
  - Ph.D., M.S. in Computer Science from the University of Massachusetts
- Experience/Interests:
  - My research interests include web application design, machine learning, and data mining.
- Personal Interests:
  - I enjoy spending time in city parks, hiking, and playing board games with friends and family.