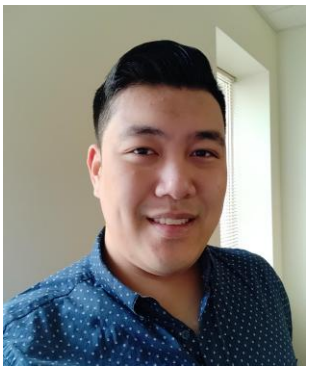
CS 343: Application Development

James Madison University, Fall 2025, 3 Credits

Class Sections:

Section 3: M/W/F, 3:00 PM – 3:50 PM
Classroom: King Hall 243

Your Instructor (aka ME)



Dr. Isaac Wang (he/him)

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Phone: (540) 568-8177

Office Hours:

- TBD

(and other times by appointment)

"Office Hours" are scheduled times I have put aside exclusively for you! This means that during these times, you can come to my office to discuss topics, get help, talk about any concerns, or anything else – no appointment necessary! I can also meet remotely on Zoom if that would be better for you.

If you need help, please post a message in our course Discord channel or DM me. If it is personal or about your grades, please contact me via email and include CS343 in the subject (e.g., "CS343 – Please help meeee") so I can reply to you sooner. I *typically* **do not respond in the evenings or on the weekends**, so please be sure to contact me early and come to office hours!

About the Course

The majority of all modern software applications you use run on the web or are web-based in some way. Creating web applications is *very* different from the simple command-line programs you've written. It's a very special architecture that requires a very special set of skills! Primarily, we will focus on "front-end" web development using **HTML**, **CSS**, and **JavaScript**. Don't know what any of those terms mean? Perfect! We'll learn all about them throughout this course. This will form a solid foundation of web technologies and prepare you for later application- and web-focused courses.

Textbook

The textbook for this course is **required:**
Connolly & Hoar's Fundamentals of Web Development, 3rd ed. (published by Pearson)

You can purchase or rent either the physical or digital version. You should also be able to get the book from the JMU Bookstore.

Goals and Objectives

At the end of this course, you should be able to:

- Summarize the key steps for publishing, retrieving, and displaying web documents. (know how to publish your code to the web "manually")
- Justify and apply accessibility standards for web documents.
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- Generate and manipulate DOM objects.
- Describe the benefits of functional programming in data manipulation.
- Evaluate the advantages and disadvantages of client-side storage technologies.
- Dynamically generate and manipulate images based on structured data.
- Create dynamic asynchronous event handler software that avoids common timing-related errors.
- Describe how authentication, authorization, and access control can mitigate common web application risks and threats.
- Apply common web-based techniques to mitigate common risks and threats arising from untrusted input and third-party software.
- Identify and consult credible software documentation and tutorials for learning new technologies.

Course Format

This course will be a combination of demonstrations, in-class activities, and labs. I am an avid proponent of "active learning." **This means that you will be expected to engage (*gasp!*) and participate (*the horror!*) during class.** I believe that we learn better by doing rather than sitting back and falling asleep during lectures.

Flipped Classroom (IMPORTANT)

This course (and others in the JMU CS curriculum) is formatted a little differently. We will follow what's called a **"flipped classroom"** model. Instead of listening to me talking, and then going home and doing homework, we will do the following:

1. You will have a short out-of-class activity assigned each week, due before class on Tuesday.
    a. The activity will have assigned readings that are aligned with helping you complete the activity. **You are responsible for completing all reading assignments along with the activity.**
2. During class, we will discuss any questions or insights about the activity/reading.
    a. I will have short lectures to summarize concepts and make sure you get my perspective.
    b. I will use in-class surveys to check your understanding of the material.
3. During class, we will complete additional activities and labs so you get practice with the topics.
    a. I will give you hands-on guidance and feedback (which you wouldn't get from a lecture)
4. Out-of-class, you will be able to apply these skills towards a semester-long project.

Weekly Prep: Reading/Activity (10%)

Each week, you will receive an activity to complete. This is something that you will likely **not** know how to do. How will you complete it then? Well, we'll give you key chapters from the book to read – these introduce concepts and help guide you to understand how to solve the activity.

This is where the bulk of your learning will happen! You are responsible for reading through all assigned chapters and completing the activity before class. In addition, you shouldn't just *skim* over the reading – nay, instead you should be actively **trying out** any code examples given and writing code for yourself.

In-Class Participation & Labs (20%)

You are expected to show up for every class session. This is your responsibility, and it's an important one! Some activities will be graded, so you must be present and participate in order to receive credit! If you need to be absent for any class period, please email me *before* class begins and I can make sure you get the material we will cover and excuse you from any graded activities.

We will have labs where you work by yourself or with a partner (yay collaboration) to complete an assignment during class. This is where you get to practice the skills you learned outside of class, as well as ask questions and refine your skills.

Project (30%)

There will be a semester-long project (divided into milestones) that incorporates the skills you learn throughout the course. This will be a group project, but each member is required to perform their share of the work. I may utilize peer grading and feedback to adjust each team member's grade accordingly.

There will be a required project presentation, to be held during our scheduled final exam time.

Exams (40%)

We will have **three** exams to check your progress throughout the semester. All exams are to be completed **in class** (you must be present or give a valid doctors' excuse or similar note confirming your absence if you miss any exam). The third exam will be held during the last regular class period, before the final exam week.

If you must be absent during an exam for a legitimate reason, please contact me at least one week beforehand to make special arrangements. Failure to make prior arrangements for a missed exam will result in a zero grade.

Grading Criteria

You are responsible for all material discussed in readings, activities, labs, and content posted on Canvas, including announcements, deadlines, policies, etc.

Your final course grade will be determined according to the following percentages:

Category	Percentage
Prep Reading/Activity	10%
In-Class Participation & Labs	20%
Project	30%
Exams	40%
Exam 1 (10%)	
Exam 2 (15%)	
Exam 3 (15%)	

Letter grades will be assigned on the scale A=90-100, B=80-89, C=70-79, D=60-69, F=0-59, with potential

minor adjustments (e.g., "+" and "-" grades) after considering the overall performance of the class and actual distribution of numeric scores. I do not assign WP or WF grades except in rare, extreme circumstances with documentation (this is departmental policy).

Late Work Policy

Assignments are typically due at 23:59 (11:59 PM) on the day indicated on the assignment unless noted otherwise. No extensions are given for assignments.

However, if you have a legitimate reason that may cause you to miss a deadline, please contact me as soon as possible (e.g., **not** at 11:58 before the deadline because you procrastinated). I do not typically offer make-up opportunities. In extreme, documented circumstances (e.g., hospitalization), I will make reasonable accommodations.

Attendance Policy

You are expected to attend and participate in **every** class. The activities and labs are designed to promote learning and build knowledge from *doing,* not just reading or hearing. However, I understand that things come up, and you might need to be absent occasionally.

I will drop a few participation grades at the end of the semester to account for these. **You are still responsible to complete any assigned labs for the days you missed.**

Course Materials

You will need to bring a laptop to every class, one that is capable of accessing the internet and running Visual Studio Code. You will also need enough free disk space to install additional web browsers and tools.

If you do not have access to a laptop, we may have a few available to borrow – please contact me if this is the case (since we will need to make sure certain tools are installed and available).

Canvas

https://canvas.jmu.edu

I will use Canvas for making announcements, posting assignments, and communicating grades. You are responsible for checking Canvas for any updates and using it to access the course material.

Gradescope

https://www.gradescope.com/

You will use Gradescope to submit assignments, and I will send you detailed feedback through the system. More details will be given in class.

Academic Honesty

Students who violate the Honor Code (http://www.jmu.edu/honorcode/code.shtml) will receive a reduced or failing grade in the course. Other penalties may be imposed, and all violations will be reported to the Honor

Council. Automated tools may be used on any assignment, at any time, to detect inappropriate collaboration and to determine the originality of submissions.

Important: You may not submit code written by other people as your own. If you use references or sources outside of resources approved by the instructor, you must include a link and a description of what you learned/applied from it. This does not give you a pass to freely copy and paste code found on the internet.

Representing someone else's work as your own, in any form, constitutes an honor code violation. Directly copying or using the same code is an honor code violation. It is also a violation of the honor code to "render unauthorized assistance to another student by knowingly permitting them to copy all or a portion of an examination or any work to be submitted for academic credit." That means that you can be written up for an Honor code violation if you share your code with someone else, even if you wrote it completely on your own.

AI/ChatGPT Policy

First and foremost, do NOT use AI to cheat or use it in any way that hinders your learning. I want to build you up to be incredible standalone developers who then use AI to reach new heights!

Here's when and how you can (and probably should) use AI:

- **Prep activities**: do **NOT** use AI to generate code. *Sparingly* as a reference. **OK** for helping fix issues.
    - **Why**? Your goal is to look at the activity and think, "hmm I don't know how to do this," and then use the assigned reading to figure it out and learn. Using AI would mean that you don't actually learn, and it would teach you things that don't align with the class.
- **In-class labs**: do **NOT** use it to generate code. **OK** for using it as a reference or to help fix issues.
    - **Why**? These are times when you get to practice and exercise the skills you developed when doing the prep. Having someone else exercise for me doesn't give me any of their gains! Treat both me and AI as a coach/helper.
    - (I would much rather you ask me for help though – this is why I am here!)
- **Participation activities**: do **NOT** use it to generate code or produce answers. *Sparingly* for other uses.
    - **Why**? These are guided activities where you engage with something and write down your own personal reflections and understanding of a topic. Activities are typically not graded; the point isn't to be correct, the point is to discover and understand new topics!
- **Project**: **OK** (encouraged even) for using it to generate code, as a reference, and to fix issues.
    - **Why**? The project is where you use all the skills you've learned to build a larger piece of software, much like the real world. You will get real experience understanding the AI-in-the-loop workflow and learning how to leverage its strengths and mitigate its weaknesses. You must still make attributions to any tools or references you utilized.
    - **Treat AI as a team member**. You wouldn't make one person do all the work, would you?
- **Exams**: do **NOT** use AI at all.
    - **Why**? Exams are how you show me how much you know! Attributing someone else's work or knowledge as your own is cheating and constitutes an honor code violation!

University Policies

Adding/Dropping Courses

Students are responsible for adding and dropping courses. Please consult the appropriate academic calendar for the exact withdrawal deadlines. I will not give "WP" or "WF" grades to students requesting a drop after the deadline except in extraordinary circumstances.

Disability Accommodations

If you have a documented disability and need accommodations in this course, please register with the Office of Disability Services (http://www.jmu.edu/ods, Student Success Center, Room 1202, 540-568-6705). They will provide you with an Access Plan Letter to verify your need for services and make recommendations for the course. I will be happy to discuss your access plan with you.

Excused Absences

Students who are unable to attend class due to JMU sponsored activities (such as sports, band, academic competition, field trips, etc.) or personal religious observances may request reasonable accommodations. Please notify me during the first week of class regarding potential absences so that we can determine alternative methods for you to complete the required work.

Disruptive Behavior

Disruptive conduct disrupts the process of teaching and learning, and such behavior will not be tolerated in the classroom, lab, online discussion or other place of student learning. Failure to live up to these responsibilities carries with it the possibility of sanctions, up to and including removal from a class, removal from a program and/or removal from the university. The full policy regarding class disruptions is available from the Academic Affairs website.

Inclement Weather

For severe weather and other unexpected circumstances, watch for announcements relating to make-up dates. See http://www.jmu.edu/JMUpolicy/1309.shtml for JMU's cancellation policy. Although the schedule may adapt to canceled classes, assignment deadlines generally do not change.

Your Well-Being

Last but not least, as a university student, there may be times when personal stressors interfere with your academic performance and/or negatively impact your daily life. If you or someone you know is experiencing mental health challenges at James Madison University, please connect with the Counseling Center located within the Student Success Center on the 3rd floor. You can learn more about available services by visiting https://www.jmu.edu/counselingctr or calling 540-568-6552. Their services are free and confidential. Other available support resources to consider include, but are not limited to, the Office of the Dean of Students, the Health Center, and Learning Strategies Instruction.