

CMPT661 / CMPT782

Web Development

Syllabus and Course Admin



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Outline for Today

- Course introduction
- Grading
- Policies

About the Instructor

- **Dr. Abdelkarim Erradi**
 - **Office:** Office **H07-C309** Engineering Building
 - **Phone:** 4403 4254

Office hours:

- After class or before class upon request
- **Best way to contact me is via Teams chat**

Why this Course?

- Web Applications are **critical applications** that **automate business processes** and **support the organization in achieving its goals**
 - There are typically characterized by:
 - Mission critical hence they need to be **secure, reliable** and **highly available**
 - Users often require fast response time & good user experience
 - Often used by a large number of concurrent users. Hence, they need to be **scalable**
- => This course **equips you with the skills** and best practices needed to design and develop Web applications with the required quality attributes

Course Objectives

1. Critically **evaluate** and **apply principles** and **technologies** for the design, develop, and deploy scalable, secure, and high-performance web applications
2. **Design, implement**, and **test** interactive, and dynamic web applications using a range of client-side and server-side technologies, considering performance, security, and user experience
3. Evaluate, select, and effectively utilize state-of-the-art application frameworks, tools, DevOps practices to **build, secure, deploy**, and **scale** web applications in diverse cloud and on-premise environments

Course Roadmap

Web
Application
Security



Web Client

Request

Response

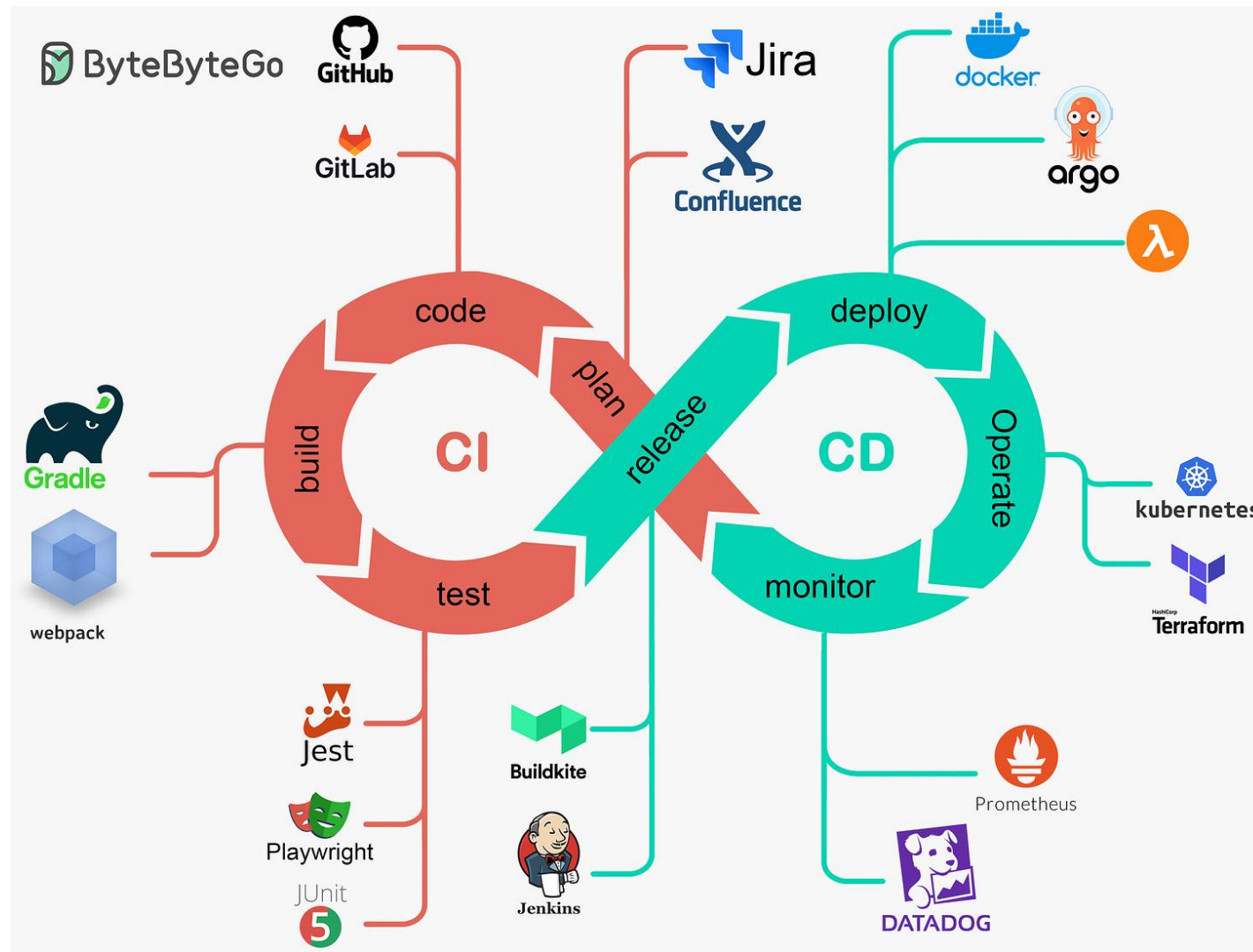


Web Server

Frontend
developme
nt

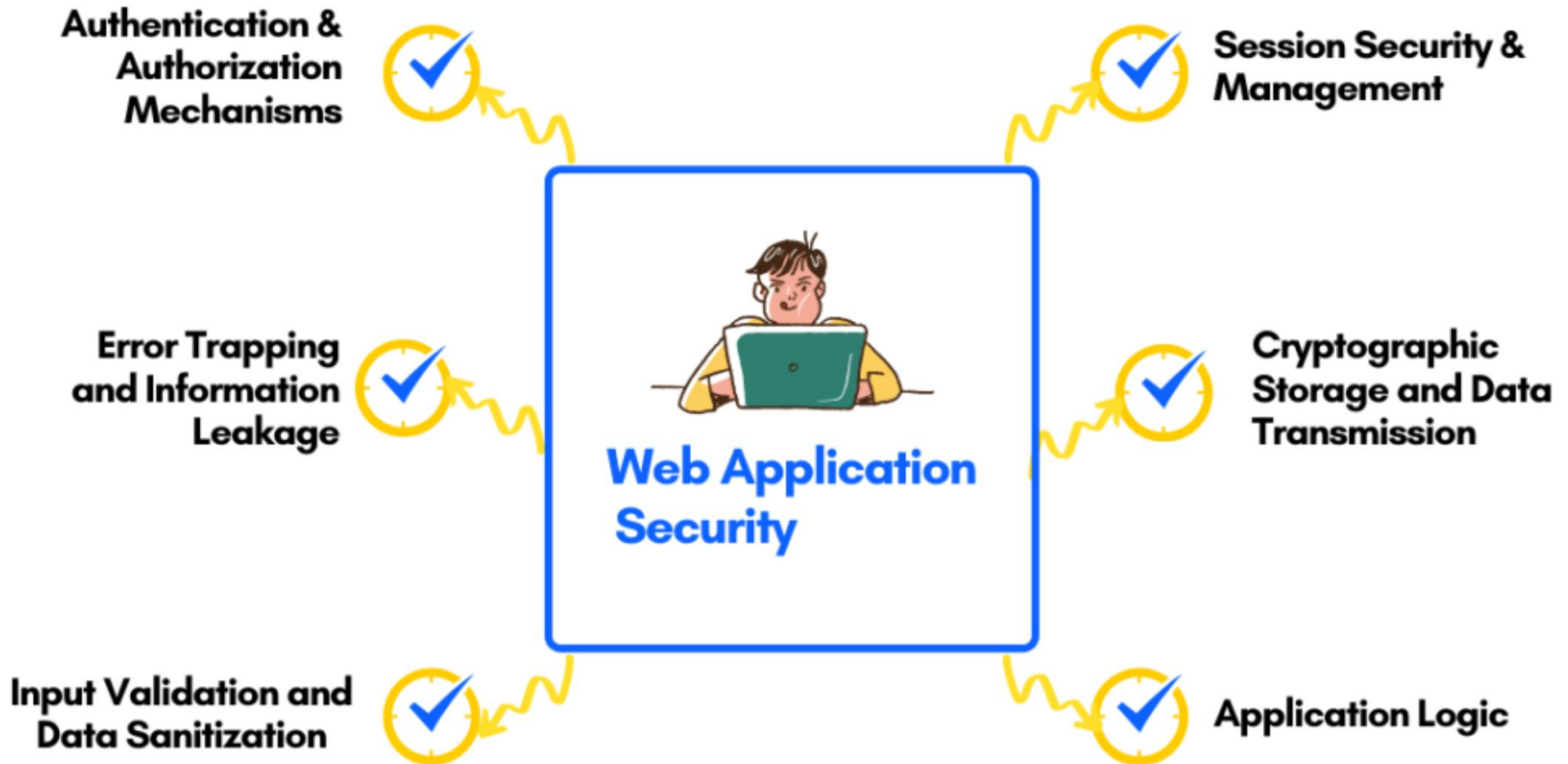
HTML for
page content
& structure

Continuous Integration and Continuous Delivery (CI/CD)

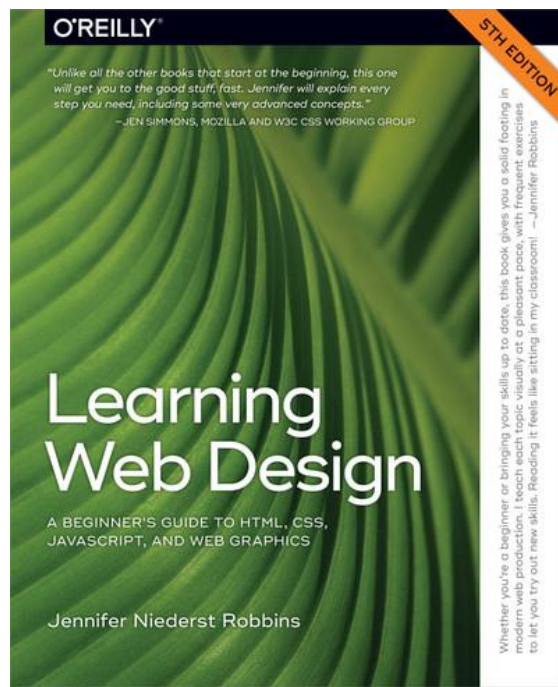


Source: <https://blog.bytebytego.com/p/a-crash-course-in-cicd>

Web Application Security



Topics	Chapter	Weeks
Course Introduction HTML	T1 - Part II. HTML for Structure	1
CSS	T1- Part III. CSS for Presentation	1
JavaScript & Client-side JavaScript	T2 - Chapters 3, 4, 5 to 10	1
Web API with Next.js	T2 - Chapter 16	1
Data Management using Prisma	Online readings	1
Multi-page full stack app using Next.js and React	Online readings	2
Midterm Exam		1
Progressive Web Apps (PWAs)	Online readings	1
Securing Web applications: authentication and authorization		1
Security threats and vulnerabilities (OWASP Top 10)		1
DevOps & Cloud Technologies		1
Scaling Web Apps		1
Student presentations		1
Total		14

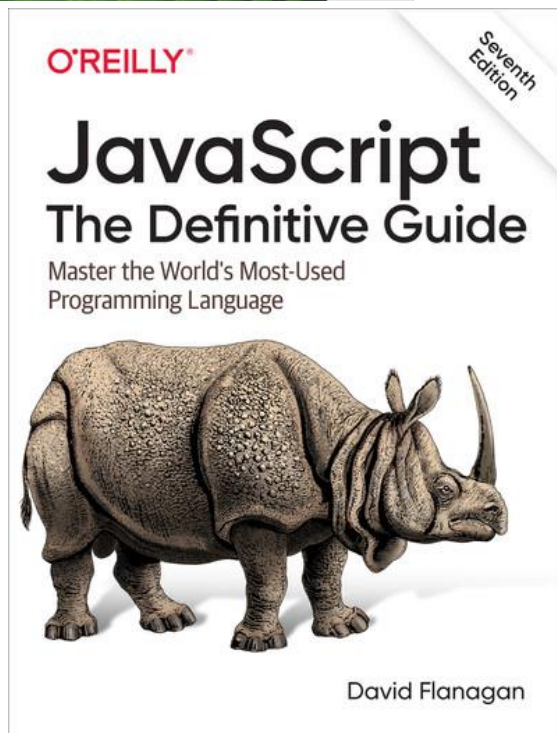


Recommended Textbooks

Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics

5th Edition, Jennifer Robbins 2018,
O'Reilly Media

(freely available as [O'Reilly eBook](#) using your QU login)




JavaScript: The Definitive Guide

7th Edition, David Flanagan
2020, O'Reilly Media [↗](#)

Your Grade is Based on:

Quizzes	10%	10% (4 out of 5) - no make-up quiz if absent
Assignments	10%	2 individual assignments
Review paper and presentation	10%	Review and synthesize research papers and present the findings
Project	20%	2 phases project: - Design, implement and test a Web application (10%) - Secure, Deploy and Scale (10%)
Midterm exam	25%	Theory (10%) & Practical (15%)* - week 8
Final exam	25%	Theory (10%) & Practical (15%)* - Consult University exam timetable

How to succeed in this course....

- ❑ Do your weekly assigned readings
- ❑ **Read the slides before you come to the class**
- ❑ **Exercise a lot – study as many examples as possible**
 -  – Understand and enhance the examples I provide as well as the ones in the textbook and the ones in the provided resources
- ❑ **Attend and participate in class**
 - ❑ Many of the exam questions are from the class explanation
- ❑ Do all the assignments and project yourself. Actively contribute to your project.
- ❑ Seek help when needed and ask questions (and do it EARLY): During Lectures/Labs & Come to office hours



"Gentlemen, I suggest we learn to swim."

We learn swimming by swimming and we learn design and programming by practicing it!

Software we will use

- VS Code <https://code.visualstudio.com/>
- GitHub
- Node.js
- Next.js
- Prisma <https://www.prisma.io/>
- For modeling we will use **Visual Paradigm**
<https://ap.visual-paradigm.com/qatar-university/license.jsp>
- Other tools will be communicated to you as we go



**GitHub will be used to deliver Slides,
Examples, Assignments, and Project**

Check <https://github.com/CMPTWebDevS25/webdev-content>
regularly!

Post your technical questions to

<https://github.com/CMPTWebDevS25/webdev-content/issues>

All Communications using Teams (No emails)

Important Notes

- **Attendance...** QU attendance policies will be enforced
 - Do not miss classes/labs
- **Start your assignments and project early!!!**
- This is a senior-level course and students are expected to learn independently as much as needed in order to complete the course requirements
 - Do not expect me to find/fix your code bugs
 - Do not expect me to find and fix your technical issues
 - => I can only give you high level suggestions and guidance

No 'Free Riding' allowed

- 'free riders' (who do not contribute much) => not acceptable and not fair for hardworking students
 - You must actively contribute to your project and do your ultimate best to deliver the best possible results
 - Otherwise you will be asked to do the project alone
 - **Report free-riders early**



Plagiarism / Cheating

- “Getting an unfair academic advantage”
 - Using other people's work as your own
 - Not doing your assignments yourself
- All the code you submit has to be your own
 - Only exception: Code I have provided or explicitly authorized
 - **NO** code you have found on the web. **NO** sharing with others.
- **Do your homework and project yourself**
 - Do NOT copy from each other or from the Internet - **I will know it!**
 - You can be picked-up randomly to explain your implementation
 - Cheating will be treated very seriously
- Penalties START with a zero on the assignment, failing the course! and other disciplinary actions as per QU policy

To do before next class

- Install the required software: VS Code & GitHub desktop (see announcement on Teams)
- Decide your team members and enter them in the spreadsheet on Teams
- Create your GitHub account (firstname-quUsername)
- Prepare any questions you might have



I wish you a fruitful and enjoyable journey!