

# WEB 3420: MEAN STACK WEB DEVELOPMENT

3 CREDIT HOURS - SPRING 2020

## COURSE SYLLABUS

### INSTRUCTOR

Abdulmalek Al-Gahmi, PhD

### CONTACT INFORMATION

**Office:** TE 110-E

**Email:** aalgahmi@weber.edu

**Phone:** 801-626-7915

### CLASS MEETING

**Tue/Thu:** 9:30am - 10:45am @ TE 109-F

### OFFICE HOURS

**Mon/Wed:** 1:30pm -2:00pm @ TE 110-E

**Tue/Thu:** 11:00am - 12:30pm @ TE 110-E

7:00pm - 7:30pm @ Davis D2 304-A

### CO-REQUISITES

WEB 3200: Dynamic Languages for Web Development

### COURSE DESCRIPTION

MEAN is a collection of JavaScript-based technologies — MongoDB, Express.js, Angular, and Node.js — used to develop web applications. This course introduces development techniques that capitalize on the strengths of every layer in the MEAN stack.

## LEARNING OBJECTIVES

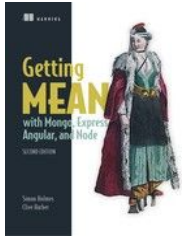
At the conclusion of this class, the students will be able to:

- Differentiate between front-end and back-end web development;
- List the pros and cons of Single Page Applications (SPA's);
- Distinguish between public-facing and private pages;
- Create and manage a NoSQL database using MongoDB;
- Build a secure full-stack web application using the MEAN stack;
- Design and consume a REST API; and
- Deploy a full-stack application built using the MEAN stack and use GitHub to manage its source code.

## LEARNING RESOURCES

### TEXTBOOKS

No textbook is required for this class, but the following books are useful as references and are available for FREE:



#### **Getting MEAN with Mongo, Express, Angular, and Node**

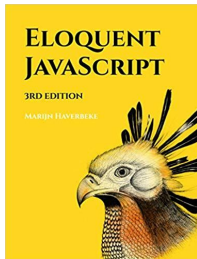
**Edition:** 2nd

**By:** Simon Holmes and Clive Harber

**Pub. Date:** May 2019

**ISBN:** 9781617294754

**Online:** [Safari Books Online](#)



#### **Eloquent JavaScript**

**Edition:** 3rd

**By:** Marijn Haverbeke

**ISBN:** 978-1593279509

**Online:** <http://eloquentjavascript.net>

### CANVAS

Canvas is where course modules, assignments, grades, and announcements will reside. It can be accessed from <https://canvas.weber.edu>. For Canvas-related technical support, please click the HELP link in the top right corner of your screen. You can also call WSU Online at (801) 626-6499 or email [wsuonline@weber.edu](mailto:wsuonline@weber.edu).

### ONLINE RESOURCES

- Software/Frameworks (the MEAN stack)
  - M: MongoDB Community - <https://www.mongodb.com/community>
  - E: Express - <https://expressjs.com/>
  - A: Angular - <https://angular.io/>
  - N: Node.js - <https://nodejs.org/en/>
- Text Editors:
  - Visual Studio Code: <https://code.visualstudio.com>
- Online Resources
  - MDN Web Docs: <https://developer.mozilla.org/en-US/>
  - Emmet Cheat Sheet: <https://docs.emmet.io/cheatsheet-a5.pdf>
  - GitHub: <https://github.com/>
  - Git Cheat Sheet: <https://services.github.com/on-demand/downloads/github-git-cheat-sheet.pdf>
  - Heroku (Server platform): <https://www.heroku.com/home>

## LEARNING ACTIVITIES

The class will consist of lectures, discussions, quizzes, programming assignments, and a final project. Students are expected to attend classes, read the weekly-assigned materials, actively participate in class activities, and submit assignments on time.

### READINGS

Weekly reading assignments will be posted to Canvas. These readings may be from the reference books above or in the form of relevant online articles, tutorials, and/or blog posts. Students are highly recommended to read the assigned materials before coming to class.

### QUIZZES

There will be two quizzes accounting for 20% of the final grade and testing your JavaScript and TypeScript skills.

### ASSIGNMENTS

There will be 5 programming assignments accounting for 45% of the final grade. Assignments are released on Thursdays and are due at 11:59 pm on Friday of the week after. Late assignments will be accepted with a 10% penalty per day up to 5 days to provide for unforeseen circumstances. Assignments are downloaded from and submitted to GitHub. Up to 10% of the submitted assignments' grades will be towards making sure that the code is easily readable, clearly documented, and properly indented.

### FINAL PROJECT

The final project is worth 35% and is where you put everything you learned in this class together by using all the components of the MEAN stack to create a fully functional web application/component of your choosing. Up to 10% of the project grade will be towards making sure that the code is easily readable, clearly documented, and properly indented.

### SCHEDULE

The following is a tentative high-level weekly schedule of this class; it is subject to change at any time. Always refer to Canvas for more details and due dates.

#	WEEK OF	TOPIC*	ASSESSMENT
1	Jan 6	Introduction; NPM; GitHub; TypeScript; Angular	
2	Jan 13	Angular: components and services	PA-1
3	Jan 20	Angular: Routing	
4	Jan 27	Angular: Forms and validations	PA-2
5	Feb 3	Angular: HTTP requests and observables	Q-1 (TypeScript)
6	Feb 10	MongoDB	PA-3
7	Feb 17	Mongoose: data models and schemas	

8	Feb 24	Node.js and Express	PA-4; Q-2 (JavaScript)
9	Mar 2	Spring Break; no classes	
10	Mar 9	Building a REST API	
11	Mar 16	Building a full-stack web application	PA-5
12	Mar 23	Sessions and user authentication	
13	Mar 30	Putting it all together	
14	Apr 6	App Deployment (Heroku); Final project	
15	Apr 13	Final project	
16	Apr 20	Finals week	

\* PA = Programming Assignment, Q = Quiz

## GRADING

### SCALE

The final grade will be calculated based on the following scale with the passing grade being C or above.

<b>A:</b> 100 – 94	<b>A-:</b> <94 – 90	
<b>B+:</b> <90 – 87	<b>B:</b> <87 – 84	<b>B-:</b> <84 – 80
<b>C+:</b> <80 – 77	<b>C:</b> <77 – 74	<b>C-:</b> <74 – 70
<b>D+:</b> <70 – 67	<b>D:</b> <67 – 64	<b>D-:</b> <64 – 60
<b>E:</b> <60		

### DISTRIBUTION

The final grade is broken down as:

**20%** Quizzes

**45%** Assignments

**35%** Final Project

## POLICIES/STATEMENTS

### EXTRA CREDIT

No extra credit is available beyond what is already specified above.

### LATE POLICY

Quizzes and final project cannot be made up unless arrangements are made to take them ahead of time. Late assignments will be accepted with a 10% penalty per day up to 5 days to provide for unforeseen circumstances.

### **ALLOCATED TIME**

You should anticipate spending two to three hours of study per week for each credit hour of a university course. Computer and programming classes typically require time in the upper range. An online class is not easier; it is harder. You have to do more reading and learning on your own.

### **TIPS FOR SUCCESS**

- One cannot learn a new software and/or a programming language by just reading textbooks or watching videos; practice is critical when learning. So write as many programs as you can.
- The most effective way to get a C or above in this class is to stay current with the course topics and submit assignments on time. Your grades will be based on the degree to which you fulfilled the requirements of this course and not on you needing to get a C or above.

### **INCOMPLETE GRADES**

An "Incomplete" may be given only when the student, having satisfactorily completed approximately 80% of the required work, is unable to complete the classwork for a legitimate reason (such as illness or accident) and can reasonably finish on his/her own.

### **COURSE FEES**

Course fees are designed to cover the costs of lab equipment maintenance and replacement including desktop and server computer systems and software; consumable materials and supplies; and support for lab aides, student tutors, and online instructional resources.

### **ACADEMIC DISHONESTY**

Students are expected to maintain academic ethics and integrity in regards to performing their own work. The WSU Student Code specifically prohibits the following activities:

- a. Cheating, which includes but is not limited to the following examples:
  - i) Copying from another student's test;
  - ii) Using materials during a test not authorized by the person giving the test;
  - iii) Collaborating with any other person during a test without authorization;
  - iv) Knowingly obtaining, using, buying, selling, transporting, or soliciting in whole or in part the contents of any test without authorization of the appropriate University official;
  - v) Bribing any other person to obtain any test;
  - vi) Soliciting or receiving unauthorized information about any test;
  - vii) Substituting for another student or permitting any other person to substitute for oneself to take a test;
  - viii) Knowingly obtaining academic credit for work that is not one's own regardless of the source of the work;
  - ix) Knowingly involved in arranging fraudulent academic credit or false transcripts.
- b. Plagiarism, which is the unacknowledged (uncited) use of any other person's or group's ideas or work. This includes purchased or borrowed papers;
- c. Collusion, which is the unauthorized collaboration with another person in preparing work offered for credit;
- d. Falsification, which is the intentional and unauthorized altering or inventing of any information or citation in an academic exercise, activity, or record-keeping process;

- e. Giving, selling, or receiving unauthorized course or test information;
- f. Using any unauthorized resource or aid in the preparation or completion of any course work, exercise, or activity;
- g. Infringing on the copyright law of the United States which prohibits the making of reproductions of copyrighted material except under certain specified conditions.

School of Computing policy dictates that any verifiable evidence of student academic cheating, as defined and determined by the instructor, will result in:

1. an automatic failing grade for the class and
2. a report to the Dean of Students that will include the student's name and a description of the student's dishonest conduct.

### **ACCOMMODATIONS FOR DISABILITIES**

Any student requiring accommodations or services due to a disability must contact Disability Services in Room 181 of the Student Services Center (or Room 256 at the Davis Campus). Disability Services can also arrange to provide course materials (including this syllabus) in alternative formats upon request. You can also call 801-626-6413 (Ogden) or 801-395-3442 (Davis) or visit <http://www.weber.edu/ssd> for more details.

### **DISCLAIMER**

The instructor reserves the right to make changes to this syllabus, as he sees fit, anytime during this class.