

## Book

[Node.js, MongoDB and Angular Web Development: The definitive guide to using the MEAN stack to build web applications \(2nd Edition\)](#) – Oct 23, 2017, by Brad Dayley, Brendan Dayley, Caleb Dayley

The free online full text [here](#), access through Toronto Public Library

Part 2 [TOC as PDF](#)

**NOTE:** The chapters of the textbook provide a fairly deep exploration of the different subject. The course will be based on only certain chapters of the book. This will provide students with a general overview of skills and knowledge needed and allow students the chance to delve deeper into subjects they are interested in or want to learn more about.

## Course description

This course will be an introduction to the fundamental knowledge and skills needed for full stack development. We will be covering Angular as our front-end framework, learn to implement NoSQL databases like MongoDB and how to work within a Express framework and a Node.js environment. Students enrolling in this course are expected to have prior working knowledge of HTML, CSS and JavaScript from previous courses taken.

## Outline

### 1. Week

- Я не Stuff
- Introduction to Full Stack and MEAN Stack
- Review of Javascript
- ES6 Features
- **Lab:** JavaScript refresher

### 2. Week

- **NPM: Node Package Manager**
  - Packages and Package Managers
  - npm and npm Registry
  - Versioning and package.json
- **Getting started with Angular**
  - What is a Single Page Application (SPA)
  - Introduction to Angular
  - Introduction to TypeScript
- **Introduction to TypeScript**
- **LAB:** Github submission + TypeScript coding

### 3. Week

- **The Architecture of Angular Apps**
  - Structure of Angular Projects
- **Angular Fundamentals**
  - Building Blocks of Angular
- **Components**
  - Angular CLI
- **QUIZ**
- **LAB:**

### 4. Week

- **Displaying Data and Handling Events**
  - Data Binding and Event Binding
- **Directives**
- **QUIZ**
- **LAB:**

#### 5. Week

- **Building Reusable Components**
  - View Encapsulation/ShadowDOM
- **Routing & Navigation**
- **QUIZ**
- **LAB:**

#### 6. Week

- **Consuming HTTP Services**
  - Observables & RxJS
  - Pipes
- **Template Driven Forms**
  - Angular Material
- **QUIZ**
- **LAB:**

#### 7. Week **MID-TERM EXAM**

#### 8. Week **INTERSESSION WEEK**

#### 9. Week

- **Angular Advanced Concepts**
  - Angular Modules
  - Angular Material Design
- **Getting started with Node.js**
  - V8: The Javascript Engine
  - The Node Core
  - Using Require
  - Revisit NPM
- **Node Fundamentals - I**
  - Modules, Export, Require
  - Intro to Events and Event Emitter
- **HTTP and being a Web Server**
- **QUIZ**
- **LAB:** Create simple Node.js Web Server project, handle basic HTTP requests

#### 10. Week

- **Node as a Web Server – Revisited**
  - TCP/IP and HTTP
- **Express**
  - Routes and Routing
  - Query String and Post Parameters
  - RESTful API and JSON
  - Structuring an API application
- **QUIZ**
- **LAB**

#### 11. Week

- **Mongo DB**
  - Comparing SQL & No SQL
  - Javascript, JSON and Databases
  - MongoDB and Mongoose
  - CRUD Operations with Mongoose
- Implementing Express based backend using MongoDB
- **\*LAB:** Setting up MongoDB and Mongoose, simple fetching data from Node.js with GET request. Testing API with Postman.

#### 12. Week

- **Node Fundamentals – Part 2**
  - Asynchronous Code, libuv, The Event Loop
  - Streams and Pipes
  - Accessing File Server
- **QUIZ**
- **LAB:**

#### 13. Week

- **Authentication & Authorization**
- **Testing and Debugging**
  - Intro to testing framework Mocha
- **QUIZ**
- **LAB:**

#### 14. Week, *personal project due (December 7th)*

- **Course Review**
- Alternative Frameworks and Technologies

#### 15. Week, *FINAL EXAM*

<b>Assessment Tool:</b>	<b>Description:</b>	<b>Outcome(s) assessed:</b>	<b>EES assessed:</b>	<b>Date / Week:</b>	<b>% of Final Grade:</b>
Quiz 7 + 3	The best 7 out of 10 quizzes will count.			Refer to topic outline	10
Lab exercises	The best 8 out of 10			TBA	10
Project	Individual Assignments			8,14	30
Mid Term Exam	Comprehensive multiple choice test			7	20
Final Exam	Comprehensive multiple choice test			15	30
				<b>TOTAL</b>	<b>100%</b>