# UC Berkeley Extension Fundamentals of Web Development COMPSCI X443

2 Semester Units in Computer Science

## Course Description

This course teaches the fundamentals of front-end programming. Students will learn to build websites using HTML and CSS technologies. The course will help the students to learn how to style websites using CSS including learning to build responsive design websites. The students will also be introduced to newer Web application development tools such as the MERN stack including Node.js, NoSQL, and React.

## Prerequisites

There are no formal prerequisites for this course. It is recommended that students be familiar with and have a working knowledge of computing in general.

## Learning Outcomes

After successfully completing this course, you will be able to:

* Demonstrate an understanding of the history of the Internet.
* Plan, design and develop a HTML based website using current W3C standards.
* Incorporate CSS into the design and development of HTML based website.
* Incorporate text, graphics, media elements into the HTML/CSS website.
* Demonstrate ability to apply JavaScript to websites.
* Demonstrate basic understanding of MERN stack to build simple JSX applications.
* Demonstrate basic understanding of React components.

## Course Materials and Technical Requirements

### Required Textbooks

***Web Design with HTML & CSS3: Comprehensive (Shelly Cashman Series) 8th Edition***

***by Jessica Minnick (Author), Lisa Friedrichsen (Author)***

* Publisher: Course Technology; 8 edition (February 25, 2016)
* Language: English
* ISBN-10: 1305578163
* ISBN-13: 978-1305578166

***Pro MERN Stack: Full Stack Web App Development with Mongo, Express, React, and Node 1st ed. Edition*** by Vasan Subramanian (Author)

* Publisher: Apress; 1st ed. edition (March 5, 2017)
* Language: English
* ISBN-10: 9781484226520
* ISBN-13: 978-1484226520
* ASIN: 1484226526

*Note, you can rent these from -* [*https://www.vitalsource.com/*](https://www.vitalsource.com/)

### Software Requirements

* A​ ​code​ ​editor​ ​(e.g.​ ​Atom,​ ​Sublime,​ ​Brackets)
* An​ ​updated​ ​modern​ ​browser​ ​(e.g.​ ​Chrome)
* Student files

### Additional Resources

* <https://www.mongodb.com/nosql-explained?jmp=footer>
* <https://docs.mongodb.com/manual/introduction/>
* <https://www.w3schools.com/nodejs/default.asp>

### Technical Requirements

This course is built on a learning management system (LMS) called Canvas and you will need to [meet these computer specifications to participate within this online platform.](https://community.canvaslms.com/docs/DOC-2059" \o "Confirm your computer meets Canvas specifications)

#### Optional

Canvas allows you to record audio or video files of yourself and upload them in the course. Although doing so is not required for any of the activities, using these features will enhance your engagement in the course. If you would like to use these features, you will need to have a webcam and a microphone installed on your computer.

## Learning Activities

This course consists of 8 modules of study outlined at the end of this syllabus.  Each module includes:

### Lectures

Each module consists of audio lectures focused on the learning theme for the module. Listen to all the audio for each module before beginning the reading and/or written assignments.

### Lab Assignments (60% of your grade)

The eight lab assignments in this course will constitute the bulk of your final grade. These are hands-on web development projects where you will code, upload and publish content.

You must submit assignments for one module at a time and wait until you have received a grade/feedback before completing and submitting assignments for the next module. The instructor has up to 7 days to grade each assignment and provide feedback that will help you complete subsequent assignments.

### Discussions (20% of your grade)

Your participation and interaction with other students in the class is important and is part of your grade.

* The graded discussions are listed in your module assignments. Your participation in these discussions contributes to your course grade.
* In Module 1 you'll introduce yourself to your instructor and course mates. You may also click on your name at the top of the course and upload a photo so that your course mates and instructor can get a better sense of you.

### Quizzes (20% of your grade)

Each module has a graded quiz which you must take before moving on to the next module. You will have thirty minutes to complete each quiz. Quizzes are considered open-book.

## Communication and Office Hours

While you should use the **Questions and Answers Forum** for questions/answers that can benefit all students, of course you can always get in touch with the instructor during the course. You can access course email by clicking on the Inbox link in the left navigation (see also [Canvas Overview Video](https://community.canvaslms.com/videos/1124)). You can expect your instructor to respond to email within 2 business days of receiving messages unless he or she has notified the class otherwise (e.g., because of vacation or other reasons).

Please note: all course communication between students/instructor must occur within the course.

## Grading and Course Policies

Final grades will be assigned according to the following percentages:

* Discussion Assignments: 20%
* Lab Assignments: 60%
* Quizzes: 20%

You must score at least 70% on your lab assignments to pass the course.

### Grading Information

Final grades follow the UC Berkeley grading system:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Letter Grade** | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | D- | F |
| **Percentage** | 100-94 | 93-90 | 89-86 | 85-83 | 82-80 | 79-76 | 75-73 | 72-70 | 69-66 | 65-63 | 62-60 | < 60 |

Table 1: UC Berkeley Grading Systems

To [view your final grade](http://extension.berkeley.edu/), go to the UC Berkeley Extension page and login via the "My Enrollment History" link.

Written assignments are graded based on their content, organization, and mechanics. Please keep the following criteria in mind:

| **Quality of Written Assignments** | **Poor** | **Needs Improvement** | **Meets Expectations** | **Exceptional** |
| --- | --- | --- | --- | --- |
| **Content** | Poor writing style with little or no specific details, no evidence of having studied the material, and/or off topic. | Adequately written; some points elaborated but with minimal use of concepts from the material. | Well written, most points elaborated with clear and detailed information that supports thoughts and ideas and uses concepts from the material. | Well written, fully elaborates points. Clear and detailed information supports thoughts and ideas and shows full acquisition of concepts from the material. |
| **Organization and Mechanics** | Little or no structure present. Grammatical errors interfere with comprehension. | Organization present but awkward. Some grammatical errors present. | Good organization with few statements out of place. Minor grammatical errors. | Clearly organized and remains focused. Few or no grammatical errors. |

Table 2: Criteria for Written Assignments

Your participation in Discussion Assignments will be evaluated as follows:

| **Quality of online discussion** | **Poor** | **Needs Improvement** | **Meets Expectations** | **Exceptional** |
| --- | --- | --- | --- | --- |
| **Characteristics of posted messages** | Messages are either missing or reflect almost no evidence of having attempted to address the discussion prompt. | Messages attempt to address the prompt, but reveal clear shortcomings: e.g., partially incomplete, limited to repetition of course materials, display only superficial understanding and thought, etc. | Messages fully address all aspects of the discussion prompt. | In addition to fully addressing the prompt, messages exceed expectations: e.g., uniquely insightful contributions, critical reflection, strong connections to other posts and course content, integration of outside materials and experiences, etc. |

Table 3: Evidence of Participation in Discussion Assignments

### DSP Accommodations

If you are a student with special needs and haven't already contacted [Disabled Student Services](http://extension.berkeley.edu/static/studentservices/career) (DSS), please contact the office right away. Be sure to review our detailed DSP accommodations instructions.

## Academic Integrity, Research, and Proper Citation

As an online student, you are encouraged to reach out to your fellow students in the online classroom to discuss materials and ask each other questions, but there are limits to this collaboration. Reviewing lecture and reading materials and studying for exams can be enjoyable and enriching things to do with fellow students. This is recommended. However, unless otherwise instructed, homework assignments are to be completed independently, and materials submitted as homework should be the result of your own independent work.

As a UC Berkeley student you are bound by the [Academic Integrity, Research and Proper Citation policies](http://extension.berkeley.edu/upload/academic_integrity.pdf) outlined in the [UC Berkeley Extension Code of Student Conduct Policy Statement](http://extension.berkeley.edu/upload/studentconduct.pdf) dated July 11, 2011 that clearly defines what constitutes cheating, as well as plagiarism and other forms of academic misconduct.

You must review all sections of the Academic Integrity Pledge and Course Policies Module within your Canvas course and complete the following item prior to gaining access to course content: Take the Pledge to Academic Integrity.

## Managing Your Time in the Course

While taking an online course gives you much flexibility, it also requires much self-discipline, especially an open-enrollment course such as this one, where you have no set deadlines other than the end of your 180 day time in the course.

You may think that 6 months is a long time. Think again! To complete this course successfully and have a positive learning experience, follow these recommendations:

### Tips for Success

1. Start right away.
2. You have 180 days (including holidays, vacations, and the unplanned events that life may throw at you) to complete all course assignments.
3. Factor in the time it may take the instructor to grade your assignments -- up to 7 days. Remember, you can submit only one module's assignments at a time and must wait for your feedback/grade before you can submit those for the next module.
4. Reach out for support. If you feel you're falling behind, contact your instructor. UC Berkeley Extension wants you to be successful in this course, and support is available. Your course mates can also be a source of support, just as they would be in a classroom. You could form your own virtual study group, or even an in-person one if one or more of your course mates live in your area.

## Course Evaluation and Course End Date

### Course Evaluation

You are an important part of our community and we value your opinion! Before your course End Date, please take a few minutes to fill out a survey about your experience in this course so that we can continue to improve the online learning environment. Your instructor also values your constructive feedback. Course Evaluations are a valuable way for instructors to gain insight on their online teaching practices.

You can find a link to the Course Evaluation in the final module of your Course. Please note that your identity remains confidential during the evaluation process, and evaluation results aren't shared with instructors until after final grades are due. For questions or technical problems with the evaluation process, please email UC Berkeley Extension’s Center for Instructional Excellence at [teach-extension@berkeley.edu](mailto:teach-extension@berkeley.edu).

Thank you in advance for sharing your thoughts with us!

### Course End Date

Your access to the online classroom will expire on the course End Date, which is indicated in the initial e-mail you received when you enrolled.

You have 180 days to complete this course from your course enrollment date. University policy requires that you have spent a minimum of **60 days** in the course -- and have fulfilled all requirements.

As you work through the course, please keep the End Date in mind, and if you want to save any commentary or assignments for future reference, please make sure to print or copy/paste those materials before your access ends.

## Canvas Tech Support and UC Berkeley Extension Student Services

### Canvas Tech Support

The learning management system (LMS) used in this course is Canvas, which has convenient mobile apps for phones and tablets. Part of the orientation materials in your course will help you make sure that your computer is at par with Canvas specifications. Any time you are in Canvas you can report problems, get support, and search Canvas user guides from the Help link on the top menu bar. Other options:

* Canvas Support 24/7 Hotline:  855-308-2758
* Email: [support@instructure.com](mailto:support@instructure.com)

### UC Berkeley Extension FAQs and Student Services

Start at the [Student Services webpage](http://extension.berkeley.edu/static/studentservices/) to find help with issues such as the following:

* Course registration
* Refunds, withdrawals, and transfers
* Grade options
* Requests for transcripts or official receipts

If you need further help, [UC Berkeley Extension's Online Learning page](http://extension.berkeley.edu/static/online) includes a contact section that lists the academic department’s email address.

## Course Outline

You'll find complete instructions for your assignments within the course modules.

### Module 1: Introduction to the Internet and Web Design

#### Topics

##### History of the Internet

* Protocols
* Types of Websites
* Programming Languages and Web Authoring Tools
* Navigation
* Accessibility
* HTML Elements and Attributes

### Module 2: Enhancing Your Website

#### Topics

* Images
* Div Element
* Adding List
* Validating a Webpage
* Cascading Style Sheets
* Selectors
* Creating a Style Rule
* CSS Box Model
* Adding Comments to CSS
* Links

### Module 3: Responsive Design

#### Topics

* Viewport
* Types of Responsive Design
* Mobile-first Strategy
* Meta Tags
* Pseudo-classes
* Gradients

### Module 4: Layouts, Tables, and Forms/Publish and Promote a Website

#### Topics

##### 4.1: Layouts, Tables, and Forms

* HTML5 Semantic Elements
* Tables
* Webpage Forms

##### 4.2: Publish and Promote a Website

* Search Engines
* Domain Names
* Website Hosting
* Publishing a Website

### Module 5: Media and Interactivity

#### Topics

##### 5.1: Integrating Audio and Video

* Media players and Plug-ins
* HTML5 and Multimedia
* Audio file Formats
* HTML5 Audio Elements
* Video file Formats
* HTML5 Video Elements

##### 5.2: Interactivity with Social Media and JavaScript

* Adding Social Media Icons and Links
* Interactivity with JavaScript
* JavaScript Terminology
* Writing JavaScript Code

### Module 6: Introduction to the MERN Stack

#### Topics

* Single Page Application
* MEAN Stack
* MERN Stack
* React
* Node.js
* Express
* NoSQL vs. Relational Database
* MongoDB

### Module 7: Server Set-up and Build a Basic Example Using MERN

#### Topics

* NVM + Node.js + NPM
* Installing Node Version Manager
* Server Setup
* NPM
* Babel
* ES2015

### Module 8: React Components

#### Topics

* What is React?
* Class Components
* Functions Components
* CRUD Application
* Issue Tracker Application
* React Classes
* Composing Components
* Passing Data