

American University
Web Programming, CSC 435, Spring 2016

Basic Info:

Instructor: [Prof. Bei Xiao](#), American University.

Lecture Time: Mon/Thurs 5:15-6:30pm

Contact: bxiao@american.edu,

Location: SCAN (Sports Center Annex) 157

Office: SCAN 110.

Office hours: Wednesday, 4-6pm or by appointment (48 hours advance).

Prerequisite: Introduction to Computer Science 1 (CSC 280).

CSC 435 is a rigorous upper-division course that assumes familiarity with both basic computer science concepts as well as programming abilities in a command-line environment. **If you haven't taken CSC 280 or if you are not familiar with one (Python, C or Java) programming language, you must make it up at your spare time or consider take this class in another semester.**

Course description:

The Web is intertwined with our lives. No matter if you decide to be a politician, a musician, a small business owner, a scientist, an artist, a doctor, a journalist, or purely an interesting person, web design is an extremely useful skill. Web development is useful in advertising (personal homepage), entrepreneurship, (web API), journalism (news media and blog), multi-media (Flickr), social networks (Facebook), e-commerce (Amazon), user experiences and crowd-sourcing (Amazon Mechanical Turk), and online games (Phantasy star online).

This course presents the fundamental technologies behind the Web applications, as well as techniques for designing, developing, and evaluating Web-based applications. Topics will include HTML, CSS, Dynamic HTML and JavaScript, PHP, database SQL, and dynamic web programming using Ajax. We will also have guest lectures from other scientists and designers (if possible).

You will learn about the following topics:

- HyperText Markup Language (HTML) for authoring web pages
- Cascading Style Sheets (CSS) for supplying stylistic information to web pages
- JavaScript for creating interactive web pages
- PHP Hypertext Processor for generating dynamic pages on a web server
- Python CGI for server-side scripting (if time allows).
- Asynchronous JavaScript and XML (Ajax) for enhanced web interaction and applications
- Structured Query Language (MySQL) for interacting with databases

Course website:**Learning outcomes:**

The course is not simply teaching you how to build a web side. You can learn this from free online tutorials. However, the expected learning outcome of the course is to have a deep understand the fundamental technology and principles behind web applications so that you can adapt to any new programming languages and APIs you might encounter in your career. You will also be expected to learn how to debug your own code, which is an important skill of software engineering. Of course, you will be acquiring skills about building a dynamic user-friendly website that interacts with database.

Textbooks (not required):

The course has no required official textbooks but I will assign weekly readings (free online) through Blackboard.

However, I find the following textbooks useful as references.

1. JavaScript, The good part. Douglas Crockford. O'Reilly Media, 2008.
2. Stepp/Miller/Kirst. Web Programming Step by Step, Second Edition. ISBN 978-1-105-57878-6.

Free online tutorial:

1. <https://www.bento.io/tracks>
2. <https://www.codecademy.com/learn/web>

Online discussion:

We highly recommend you join online discussions using Piazza. Sign up for Piazza here to join online discussions about lectures and homework:

<https://piazza.com/american/spring2016/csc435/home>

Grading:

50% Assignments (five projects), 15% Mid-term exam, 15% Final Project, 10% Class attendance (in-class performances and attendance) and 10% in-class quiz.

Honors students must finish another 20% extra work. This includes extra features on the projects, extra problems in the exam, extra readings, and extra features in the final project. Each project will have specified extra credit problems for honors students. Non-Honors students are also encouraged to try these outs.

There won't be in-class final exam for this course. But there will be a final presentation of your final project, which will meet on the final exam day. Please arrange your travel accordingly.

We will have weekly in-class quizzes (randomly timed without advance notice). Quizzes are usually drawn from lectures and assigned readings. It is very important that you finish the assigned readings.

Grading Scale listed below:

94-100%	A Excellent
91-93%	A-
88-90%	B+
84-87%	B Good
80-83%	B-
77-79%	C+
74-76%	C Acceptable
70-73%	C- (cut off to receive credits for CS major)
60-69%	D Poor
0-59%	F Fail

I generally do not allow arguing for grades unless you find a calculation error. If your percentage is 85.6, for example, it will be round up to 86%, but if it is 85.4%, it will be round up to 85%. I will try my best to estimate your grade percentage as the semester goes along.

Again, honor students who wish to complete honor supplements needs to acquire additional 20% of the grades. Please talk to me in office hours if you wish to pursue this.

Attendance policy: It is an interactive class with lots of live demos and discussions. Missing a class must be accompanied by written medical proof in advance (at least 3 days) and athletes must submit written evidence before they miss classes for sports events. Without any advanced written notice, missing 2 classes will result in zero attendance score. Missing one class without written request will result in 2% reduction in attendance score.

In-class quiz, which will be randomly assigned, cannot be made up.

Late Policy: All assignments will be submitted electronically on Blackboard, and will be due at **11:59 pm on the due date**. No assignments are accepted via email.

Assignments must be submitted by the **due date to receive credits**. Projects and homework that are late will receive zero credits and will not be graded.

Email Policy:

You can email me if you have questions regarding home-works. But you must write to me at least 48 hours to expect an answer. No homework is accepted via Email.

Computers and Software:

The recommended software for the course is the Chrome web browser or Firefox web browser with Firebug add-on. The recommended text editor is Sublime text. The course website will have places to download these softwares.

We will also demonstrate how to install Git via command line. Git is extremely important for developer to do version control.

Later in the semester, you should download Amps in order to test your server-side script on your local machine.

<http://www.ampps.com/downloads>

You do not need to upload your HTML or JavaScript file to see your webpage. But at some point, we will talk about testing your webpage on the Internet by uploading your files on to free web server.

Policy of collaborative work:

Programming assignments must be completed individually unless teamwork is specified. You may discuss an assignment in general terms with other students, including a general discussion of how to approach the problem, but all code you submit must be your own. Any help you receive from classmates should be limited and should never involve details of how to code a solution.

You must abide by the following:

- You may not work as a partner with another student on an assignment.
- You may not show another student your solution to an assignment, nor look at his/her solution.
- You may not have another person "walk you through" an assignment, describe in detail how to solve it, or sit with you as you write it.
- You also may not provide such help to another student. This includes current or former students, tutors, friends, TAs, web site forums, or anyone else.
- You can discuss general ideas and ask specific questions either in office hour or post on Pizza.

We enforce our policies by running detection software during the quarter over all programs, including ones from past quarters. Please contact me if you are unsure whether a particular behavior falls within the policy.

Academic Integrity

Plagiarism and academic misconduct are defined in the University Academic Integrity Code. You should be familiar with what constitutes academic dishonesty. For example, it is extremely forbidden to share code and answers during an exam.

In particular, you should observe the following rules: only high-level discussions are allowed (i.e., not relating to a single line of code), and you have to declare whom you discussed with.

CSC 435 Course Schedule (Tentative, depends on class progress and students' background):

Please refer to course website for updated information.

Weeks	Lecture contents	Projects
1. Jan 11-15	Internet, Web, Server, Client, HTML	
2. Jan 18-22	More on HTML	Project 1 out
3. Jan 25-29	CSS, Git and web development environment	
4. Feb 2-5	Start with JavaScript	Project 1 (Recipe) due
5. Feb 8-12	More on JavaScript, JQuery	Project 2 (Movie review) Out
6. Feb 15-19	Wrap up JavaScript, Preface to back-end.	
7. Feb 22-26	Sever side scripting, Software download	Project 2 Due
8. Feb 29-March 4	PHP, HTTP and Forms	Project 3 (Shopping site) Out
9. March 7-11	Spring Break	
10. March 14-18	Review, Mid-term Exam	Project 3 Due
11. March 21-26	More on PHP	Project 4 (Online dating app) Out
12. March 28- April 1	Relational Database SQL	
13. April 4-8	User account, Log-in sessions; cookies	Project 4 Due
14. April 11-15	More on cookies and session management	Project 5 Out
15. April 18-22	Ajax Client server interactions.	Project 5 Due
16. April 26-May 1	jQuery Ajax, Local Storage, Amazon Mechanical Turk.	
17. May 2	Final Project due and presentations	