

Syllabus for CIS 311: Interactive Web Development

California State Polytechnic University, Pomona
Spring 2019

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This syllabus governs all policy for the course. It is subject to change under certain conditions.

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Class Meetings and Office Hours, Holidays

Class Meetings and Office Hours, Holidays

Term Dates

Classes run each week from January 22st through May 9th, Tuesday and Thursdays.

Final Exam Time

TBA, currently on the university website. Final exam day is May 14 or 16. Students will be informed of the final exam time via email, and an announcement via Blackboard.

Class Meeting Times and Locations

7:00 PM–8:15 PM TuTh, Building 9, room 241 (Engineering Building)

Holidays

Spring Break takes place April 30 through May 5th. Two normal class sessions will be missed during this week, yet assignments may be due, to be announced.

Course Description

From our catalog:

The Design and development of web applications for business. Principles and applications of modern website design. Use of client-side scripting for website dynamics and interactivity. Development of server-side scripts for three-tier web applications. 4 units lectures/problem solving.

Instruction will focus upon core protocols supporting browser markup and web-based applications: HTML 5, CSS, javascript, React.js, JQuery and client-facing user experiences. The course entails a hands-on basis for learning, with deliverables in the form of projects and

programming exercises. Students should use the course as a means to discover a potential major (application development) while gathering deep understanding about the security and infrastructure demands of employee and public-facing web applications. Additional discussion explores the corporate strategic impact of web development, and organizational/cultural change.

Learning Objectives

Students successfully completing this course should have acquired the ability to:

- Understand different types of web applications and how they work.
- Analyze and translate user needs and requirements into a software architectural model.
- Create wireframes and prototypes of user-centered and SEO-friendly web sites
- Create structure and content for web sites using standards-compliant HTML and HTML 5.
- Create styles for web sites using Cascading Style Sheets (CSS).
- Interact with users using client-side Javascript.
- Collect, validate and process information entered by users via web forms.

Prerequisites

A minimum grade of C (2.0) in CIS 304, 305

Textbook and Software

No required textbooks.

Required Web Development Software for assignments, one of the following:

- Eclipse with the JSDT installed
- Net Beans or other full featured editor used in CIS 234, capable of making HTML pages
- atom IDE, atom.io

For the final project please acquire via DreamSpark:

- Microsoft Visual Studio 2017 (free and available on CIS dept website -> MSDNAA Download) with built-in MS SQL server.

Exams, Projects and Assignments

A detailed list of all graded assignments is provided in the

Tutoring

For free tutoring on campus, contact the CIS department in the CBA Administration Building.

Grading

Grade	Percentage
A	93.00-100.00
A-	90.00-92.99
B+	87.00-89.99
B	83.00-86.99
B-	80.00-82.99
C+	77.00-79.99
C	73.00-76.99
C-	70.00-72.99
D+	67.00-69.99
D	63.00-66.99
D-	60.00-62.99
F	0-59.99

For a detailed breakdown of assignments, weight and their details, please see section 11, 'Tentative Course Schedule and Graded Items.'

Class Communication and Getting Help

E-mail

All emails must be sent to the instructor with a Cal Poly email account, must be signed with the student's first and last name, and must have "CIS 3110" in the subject line, or it may not be read. Please consult the syllabus before sending emails, especially in the area of microprojects.

Messages sent through Blackboard will not be read.

Coding Questions

In cases where you have a technical question, please post this to our Github at

- <https://github.com/stefanbund/311/issues>

You may also send the professor an email at `slbund at cpp dot edu`.

How to Write Emails

Expect that your email is read on a mobile device, to return a reply to you very quickly and build value in your experience. Thus, compose your email carefully:

1. include screenshots of errors in the Javascript console, in your Browser
2. run Inspect Element on the running page, screen shot the code you are running
3. error codes given by your IDE, browser are really helpful!
4. include only a short number of sentences, and try to limit the email to one or two precise questions. This guarantees a quick reply.
5. The closer you ask questions to a deadline, the harder it is to get a fast reply. Schedule your work so you get help efficiently.

General Course Expectations on Help and Technical Assistance

- Your process should include reading the syllabus, reading the assignment, reviewing our learning materials, trying code, collecting results, **then** asking about running code. This will dramatically speed-up your experience. I would prefer not to answer your email with `please read syllabus page 9 under heading....`
- Please understand that very general questions are harder to answer, so emails with the subject line `PLEASE HELP` (multiple emoji), or `I AM CLUELESS` (emoji 1 and 2) are harder to manage, and are likely to be delayed.

- Emails with precise subject lines like `DynamoDB Error in AWS, or Authentication Failure on Facebook` will be **potentially** answered quickly throughout the day, Monday through Friday.

Course materials

Lecture presentations, assignments, projects documents, classroom exercises and solutions, will be posted on Github. All graded assignments and projects will be visible in Blackboard Gradebook. Our github repository is:

- <https://github.com/stefanbund/311>

Subject to Change: This syllabus and class schedule are subject to change. If the student is absent from class, it is the student's responsibility to check on announcements made and make up the work while absent.

Course Policies

Classroom environment: The classroom is a special environment in which students and faculty come together to promote learning and growth. It is essential to this learning environment that respect for the rights of others seeking to learn, respect for the professionalism of the instructor, and the general goals of academic freedom are maintained. Student conduct which disrupts the learning process shall not be tolerated and may lead to disciplinary action and/or removal from class.

Using laptops, cellphones and other electronic devices:

- Using laptops during the class for anything other than this class, personal conversations, talking or texting on cell phones or other distracting behavior are prohibited.
- As a courtesy to all, please turn off all cell phones and pagers during class. If the student needs to be reached for family medical or significant work-related issues, the student must present evidence to the instructor before the class starts.

Attendance

Arrive on time.

- Always whisper when the instructor is lecturing.
- If the student needs to leave early, the student must let the instructor know before the class starts, and choose a seat that minimizes disruption to the class when leaving.
- If the student has to miss the class, the student must send an email to let instructor know before class and explain the reason.
- If the student is sick and contagious, the student should not come to the class and risk getting others sick. Email the instructor before class to inform him of your decision.

Student responsibilities:

Each student is responsible for the successful completion and submission of all assignments and projects.

The instructor will not review your assignments or projects before grading for the entire class to ensure fairness. The instructor will, however, help you understand the expectations and clarify the requirements. Spot assessments will help you to outline questions and receive pre-due date feedback. **Whenever you have questions related to your studies**, please send an email to the faculty member, or attend his office hours, posted on page one, above.

The instructor will not debug assignments or projects for an individual student. The instructor will, however, help you gain knowledge and skills in analysis and design, problem solving, coding, testing and debugging, and answer specific questions about course topics. **It is always appropriate to discuss bugs and other complications with the instructor, however, the process of fixing problems rests with each student, exclusively.** Make sure you have spent significant time and effort in researching and working on your own before asking help. **To help you in this effort, many code examples are posted on our course GitHub, and to support your learning, each lecture is posted on our youtube channel. Be sure to watch each youtube instructional item at least once!**

University Policies

Students with Disabilities: Upon identifying themselves to the instructor and the university, students with disabilities will receive reasonable accommodation for learning and evaluation. For more information, contact Services to Students with Disabilities at <http://dsa.csupomona.edu/drc/>.

Academic Integrity: Students should understand or seek clarification about expectations for academic integrity in this course (including no cheating, plagiarism, or inappropriate collaboration); neither give nor receive unauthorized aid on examinations or other course work that is used by the instructor as the basis of grading; take responsibility to monitor academic dishonesty in any form and to report it to the instructor or other appropriate official for action.

Cheating and Plagiarism: Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one's grade or obtaining course credit; such acts also include assisting another student to do so. Typically, such acts occur in relation to examinations. However, it is the intent of this definition that the term 'cheating' not be limited to examination situations only, but that it include any and all actions by a student that are intended to gain an unearned academic advantage by fraudulent or deceptive means. Plagiarism is a specific form of cheating which consists of the misuse of the published and/or

unpublished works of others by misrepresenting the material (i.e., their intellectual property) so used as one's own work. Penalties for cheating and plagiarism range from a 0 or F on a particular assignment, through an F for the course, to expulsion from the university.

In assignments where code is required, students who allow their work to be copied will receive a zero on the first episode of cheating. Forewith, meetings with the university will follow, to escalate, potentially, to expulsion. All code you submit must be coded by you without copying from another source.

Computing Resources: At Cal Poly Pomona, computers and communications links to remote resources are recognized as being integral to the education and research experience. Every student is required to have his/her own laptop/computer or have other access to a computer with all the recommended software for this course. Find out more about how to access to the university's information resources from Information Technology Services.

Copyright Policy: Copyright laws and fair use policies protect the rights of those who have produced the material. The copy in this course has been provided for private study, scholarship, or research. Other uses may require permission from the copyright holder. The user of this work is responsible for adhering to copyright law of the U.S. (Title 17, U.S. Code). A full description of Cal Poly Pomona's copyright policy is included in the University's Intellectual Property policy. The course web site contains material protected by copyrights held by the instructor, other individuals or institutions. Such material is used for educational purposes in accord with copyright law and/or with permission given by the owners of the original material. Students may download one copy of the materials on any single computer for non-commercial, personal, or educational purposes only, provided that (1) do not modify it, (2) use it only for the duration of this course, and (3) include both this notice and any copyright notice originally included with the material. Beyond this use, no material from the course web site may be copied, reproduced, re-published, uploaded, posted, transmitted, or distributed in any way without the permission of the original copyright holder. The instructor assumes no responsibility for individuals who improperly use copyrighted material placed on the web site.

Tentative Course Schedule and Graded Items

Course Projects

The course grade is calculated using the items, below.

Phased Project #	Weight (%)
1	10
2	10
3	10
4	10

5	10
6	10
7	10
final exam presentation	15
Total points	85

Spring 2019 Paradigm

Work in 3110 is predicated on these questions:

1. How can students demonstrate a commitment to an industry while in college?
2. How can their work cement a relationship between industry actors, and build opportunity, before graduation?
3. How can students perform learning tasks that directly position them for valuable opportunities, in an industry, well before they must seek work? Given that students are laser-focused on academic tasks, how can this pay off in terms of industry positioning?
4. How can students investigate the economy beyond coursework, to effectively segue between study and career?
5. How do students effectively register/master the difference between study, and work, career and industry?
6. How much about the broader micro/macro/global economy do they understand? What exercises build confidence and comprehension of the world outside the Cal Poly parking lot?
7. How do employed students broaden/deepen their grasp of the economy? How can they determine whether they must maintain careers in their immediate industries, or reach out to new ones?

Given these lines of inquiry, the course will demand students to investigate an industry, discover issues within it, and recommend a software mediation, based on the modern internet. This inquiry will motivate skill acquisition during the course.

General Requirements

The class is graded, based on assignments, entirely. Assignments are staged in phases. One phase creates the basis for the next phase, so on going work is required. Due to differences in team composition, and individual learning speeds, deadlines are not in forest, however students are recommended to follow time based guidelines. No phases may be submitted between the last week of class and the final exam. Each assignment must be shown to the Instructor for credit. Email submissions are not accepted for any graded piece.

Each phase is worth 10 points in the gradebook. The final exam is worth 15 points. The final exam is presented to the instructor during exam week. It is a compilation of each phase, with refinements, suitable for an industry reviewer.

Early Going, or Phase Zero

Your team should be comprised of students with similar industry interests. Each of you should demonstrate professional intentions in a related or same industry. This project will ultimately develop a web- based solution to a common industry problem. Thus, you should ensure that your group contains several students with similar industry curiosity.

Phase 1

Instructional component

The following list contains video tutorials for all skills for this phase.

1. set up amazon hosting via S3,
<https://www.useloom.com/share/7d8f2f2638b046c6aba7c57b2b2e123b>
2. core html, js, css,
<https://www.useloom.com/share/4ae64d7648344ab485dd82833f218962>
3. javascript generating DOM nodes via create element,
<https://www.useloom.com/share/49b0c06e8a9b4d6ea176b76c7007ed0f>
4. assignment one notes on drop down menus,
<https://www.useloom.com/share/45160ba03085448ea70d8b5d2120bc23>
5. Source code, <https://github.com/stefanbund/311/tree/master/phase%201>

Deliverable

For each team member, please prepare one web page with the following features.

Each team member's page should have

1. a **dropdown navigational** menu which links to all team members' pages.
2. a set of **inputs**, with text next to them. One input should ask for a numeric value, the other, just textual values.
3. a **button**, which when pressed, captures the information and prints it in the console.
4. a **div** which shows the output, below, in a different color text than the rest of the page.
5. a **paragraph** inside the div which prints a link. The link should go to one of the team member's pages, based on a number typed into one of the inputs.
 - 5.1. For example, if the input is equal/greater than/less than a value, link to one page, if not, then go to another. Show the ability to create a link in a div, based on some logic (based on input).
6. Be sure the **link** you create has several css values for hovers, clicks and other features, and has a distinct color, to make it stand out.
7. frame each div with a border
8. be sure to place a heading on top of each page, with the name of the team member in the heading.

9. your team should use one unified css file, used by every page (will require some team work)

Please post the page to your S3 website, then show the product when you are finished.

Phase 2

Instructional component

The following list contains video tutorials for all skills for this phase.

1. understand url parameters, and make them happen,
<https://www.useloom.com/share/6ef704b26d5a4b178e935fc3c06649a0>
2. integrating url parameters, for-loop iteration into a responsive image gallery
<https://www.useloom.com/share/9b273f6cd03a45d686393f6de726ee67>
3. Sources, <https://github.com/stefanbund/311/tree/master/phase2>

Deliverable

For Phase 2, each team member must deliver two pages with the following features:

1. An image gallery, with captions for each image, and a description. For each image, create three arrays. Array 1 will include the image's url in S3. Array 2 will include a title, or caption for the image. Array 3 will include a three sentence description of each image.
2. Initially, the gallery will display each image. A for loop iterates Array 1, loading the url of each image from S3. Each image must exist on the internet, on S3.
3. The image gallery must contain the caption for each image, inside a div devoted to each image.
4. Each image should be clicked, and lead to a detail page, where the image will reappear, with the title/caption. The description will appear inside the detail page for the first time.
5. Each facet of the image (url, caption, description) will come from arrays in the initial page. They will transfer to the detail page via URL parameters. Be able to read the search property of the URL in the detail page, after it has been redirected from the image gallery, then load the parameters and distribute those properties across your layout.
6. Make your layout responsive, so that it loads equally well on any device.

Phase 3

Instructional component

The following list contains video tutorials for all skills for this phase.

1. Extensive tutorial on JQuery programming, cookies, CSS3 grids and DIY responsive design,
<https://www.useloom.com/share/abed46908fd5467ab7857a7866762619>
2. Sources, <https://github.com/stefanbund/311/tree/master/phase%203>

Deliverable

In this assignment, each team member will produce one assignment with the following parameters.

1. Take phase 2 assignment, and apply a CSS3 grid, so that several columns and rows of images now appear. Apply a color to the background and font to each grid box.
2. In each box, add two buttons via JQuery or createElement(). One button will read 'make favorite' and the other will read 'unfavorite.'
3. If the 'make favorite' button in any box is clicked, in the grid page, save the image's url or filename to a cookie. Next time the page loads, the 'make favorite' button will disappear for that grid box. A small picture icon will appear in its place, signifying that the image is the favorite. This may require creating divs for each button, and adding/removing the button if the favorite was selected.
 - a. Sets of icons are available for free with sites like this:
<https://maxbuttons.com/free-icon-set/>
4. When the box with a 'favorite' is clicked, navigate to a detail page. On that page, an icon or small picture will be present, letting the user know that the image is a 'favorite.'
5. When 'unfavorite' button is clicked, the cookie favorite is deleted, or set to "".
6. Create a navigation bar at the top of every page, linking to each team mate's production.
7. Host publicly on Amazon S3. Apply a responsive CSS to each image, per phase 2, when they appear inside of each grid box.

Production notes

1. for your buttons created during the for-loop, use addEventListener, in this example, to add the button to each box, with a prescribed function. In the parameters of the function, you should send in the id of the button (i, in the loop), specifying the name of the image (also [i].jpg). Here is that example:
https://www.w3schools.com/jsref/met_element_addeventlistener.asp
2. code the function to receive the name of the image, then save it as a cookie.

Phase 4**Instructional component**

The following list contains a video tutorial for all skills for this phase.

- Creating complete responsive websites using Bootstrap,
<https://www.useloom.com/share/81970de247124320a5585eda4d455533>

Deliverable

For phase 4, teams must choose three bootstrap components per team member to implement on your site. Viewers of the site should see three features, from Bootstrap, present on the deployed site. Investigate all the Bootstrap features on their site,

<http://getbootstrap.com/docs/4.1/getting-started/introduction/>, paying attention to the Components section on the left.

Phase 5

Instructional component

The following list contains tutorials for all skills for this phase.

1. Creating a github organization, repository, and adding members to a team, <https://github.com/collab-uniba/socialcde4eclipse/wiki/How-to-setup-a-GitHub-organization.-project-and-team>
2. basic collaboration steps, <https://www.youtube.com/watch?v=61WbzS9XMwk>

Given your team mates' three new Bootstrap components, create one master template html photo gallery and detail page. This master file should combine all bootstrap features from each team mate. The master example should load, and demonstrate each feature we have also taught from phases 1-3, in terms of topics such as url parameters, cookies, array iteration, and jquery. Your new master file should be useful, in phase 6, as a template for the team members to use to create one, uniform site.

Phase 6

Instructional component

The following list contains tutorials for all skills for this phase.

1. React.js walkthrough, on establishing projects
2. React components
3. React interaction and data passing
4. React sources, <https://github.com/stefanbund/311/tree/master/react>

Deliverable

given your team's new development template (phase 5), prepare to generate 3 to 4 pages per team member, in support of a business objective.

Your project should follow these steps.

1. define the industry it will address. This can be any sector of the economy that your group deems interesting.
2. address issues that impact the industry. Perhaps there is the need for a kind of website that fills an unmet need, for example, engaging students in the industry, out of college.
3. allocate work items to each team mate. Any given page must contain a login, account maintenance, profile, terms of use, privacy policy, a 'contact us' page, as well as the

actual product, itself. This might be a social network, a gallery of interactive media (such as you have built heretofore), or other web-based interactive product.

4. Leverage the accumulated template of bootstrap, url parameters, cookies, for loops, data iteration, and other interactivity toward producing the objective.

Your work for phase 6 should be a skeletal outline, where each page is rendered by each team mate in an unfinished way. Errors may be present, but each relevant section of code (bootstrap, javascript, for loops, html) should be present.

Phase 6 should integrate React.js components. It is best to compose one component for each major UI piece.

Phase 7: Pre Final Feedback

Phase 7 will demand that work is near completion, and can receive feedback before the final exam.

The final will be evaluated based on the presence of these items:

1. Array iteration and integration of arrays into formation of a UI, with interactive elements
2. Array-based UI pages must break into detail pages, using URL parameters
3. Complex UIs must be present, as demonstrated in class. Data-driven pages must contain sub-UI pieces which resemble amazon.com, for interactivity
4. Cookies or local storage
5. Buttons, images, inputs, links and other standard UI elements, as demonstrated and discussed in class

Prohibitions

1. The team's work must demonstrate attendance over the complete course. No outside development techniques (php, ruby, python, java, other javascript frameworks not discussed) will not be considered for the final project.
2. Demonstrate that the techniques you have learned in the course. Assume that you will do many contributions to the project throughout the four month term.
3. Delegate duties to each team mate with strict equality, and document each member's delegation. Document what was assigned before the work begins, with signatures on the delegation document.
4. Your concept is not explicitly under review, but a coherent, valuable concept is required. Work with the Instructor on what your team should do, to keep your tasks reasonable, yet valuable.

General Course Calendar

This schedule reflects the schedule of teaching. This may shift to accommodate student progress. Recently, a longer period is needed to complete phase 3.

3110 schedule				
week #	month	t	th	phase
1	jan	22	24	1
2		29	31	
3	feb	5	7	2
4		12	14	
5		19	21	

6		26	28	3
7	mar	5	7	
8		12	14	4
9		19	21	
10		26	28	5
11	apr	2	4	holiday
12		9	11	6
13		16	18	
14		23	25	7
15	may	30	2	
16		7	9	
		14	16	finals days
		21		grades submitted