CIS 3344: Client Side Scripting for the Web Syllabus (IST Required Course)

Fall 2020: Instructor Sally Kyvernitis (key-ver-NEE-tees)

Course Description

Web applications used to rely almost entirely on server side processing, where each button click resulted in a whole new web page being sent from the web server to the browser. Today’s web applications focus more on JavaScript (client side code) to asynchronously invoke (server side) Web APIs and just update part of the user interface. This technique, called AJAX, creates a better and more interactive user experience. Although we will write some Web APIs (using Java/JSP code) to provide database access, this course focuses on the browser (JavaScript) code that initiates an AJAX call, then processes the Web API data.

Since web development is constantly changing, this course focuses on web development fundamentals and encourages students to use the internet to keep themselves updated. Each student will learn about then write a tutorial on some aspect of client side web development.

There are always Web development frameworks designed to help you write less code. The problem is that these frameworks come and go. Rather than spend a lot of time on any one framework, we will (at the end of the course) get some exposure to React, a popular JavaScript library that helps you develop Single Page Applications (a one page application that uses JavaScript and AJAX extensively, to update the content area).

Course Topics

Since this course assumes no web development (or design) experience, we cover all of the following topics:

- HTML (web page content and structure)
- CSS (look and feel of web page content)
- JavaScript (code that runs in the browser, can access elements on the page, and can invoke Ajax calls to server side Web APIs). We will apply various Software Design Principles to JavaScript programming.
- Ajax, a technique whereby javascript makes asynchronous calls to Web APIs
  - XML and JSON, two formats for sending data over the internet.
- Setting up a Database: using a data modeling tool to create and populate a (mySql) database and generate basic SQL SELECT statements
- Creation of Server-Side Web APIs to respond to client side requests to get data
- Exposure to a React, a Single Page Application framework.

Although each student’s web application will employ HTML/CSS to provide some aesthetic appeal, web design is not the major thrust of this course. Instead, this course focuses on designing and implementing client side and server side code to create a reliable, secure, extensible and maintainable web application. We will focus on the enduring basics of client side coding (HTML, CSS, AJAX/JSON, JavaScript), but we will also learn a bit about ReAct which is (now) a popular JavaScript Single Page Application Framework. Students must recognize that frameworks come and go but the basics endure.
Prerequisites

- Grade of C- or better in CIS 2109 Database Management Systems
- Grade of C- or better in CIS 2168 Data Structures

The only assumption is that students have knowledge and skills obtained in the pre-requisite courses listed just above. All other topics will be introduced as new material, even though some students may already have had some exposure. *Students with more experience can add extra functionality to their weekly assignments (if they wish), as long as they meet all homework requirements and submit on time.*

Office Hours Via Zoom: [https://temple.zoom.us/s/5168459269](https://temple.zoom.us/s/5168459269)

- Wednesdays 11:30 am – 1pm
- Fridays 10 am – 11:30 am
- And by appointment (email me at sallyk@temple.edu to set up a time).
- Zoom screen sharing is a very effective way to assist students with programming/technical problems.

Textbook and Course Materials/Delivery

- There is no text book. Web references will be posted online from the course web site.
- A Canvas course will contain various assignments (with due dates). You’ll upload your work and receive your grades through Canvas. You’ll also publish your web application code to a Temple Web Server.

FALL 2020 – This course is being offered online.

- You’ll need a computer (to install your IDE), a reasonable internet connection, and a web cam and (for taking tests). I’d suggest a PC/MAC laptop with at least 8 gigs of RAM (16 would be better if buying a new laptop). I suggest SSD instead of a mechanical hard drive (256 gigs or 512 would be better). SSD makes your laptop run faster and consume less battery.
- Synchronous Zoom classes may be recorded. If you do not wish your image to be shown to other students, you do not have to enable your Zoom video. If you do not wish your words to be heard by other students, you can send your course input to the instructor via email.

Any recordings permitted in this class can only be used for the student’s personal educational use. Students are not permitted to copy, publish, or redistribute audio or video recordings of any portion of the class session to individuals who are not students in the course or academic program without the express permission of the faculty member and of any students who are recorded. Distribution without permission may be a violation of educational privacy law, known as FERPA as well as certain copyright laws. Any recordings made by the instructor or university of this course are the property of Temple University.
• Zoom, Proctorio or a similar proctoring tool may be used to proctor exams and quizzes in this course. These tools verify your identity and record online actions and surroundings. It is your responsibility to have the necessary government or school issued ID, a laptop or desktop computer with a reliable internet connection, Chrome software with Proctorio extension installed, a webcam or built-in camera and microphone, and system requirements for using Proctorio, Zoom, or a similar proctoring tool.

• Limited resources are available for students who do not have the technology they need for class. Students with educational technology needs, including no computer or camera or insufficient Wifi-access, should submit a request outlining their needs using the Student Emergency Aid Fund form. The University will try to meet needs, such as with a long-term loan of a laptop or Mifi device, a refurbished computer, or subsidized internet access.

• Be available during the times that the course is scheduled - for synchronous activities like tests and group learning. However, I may substitute asynchronous activities for scheduled class time.

• If you have a DRS accommodation for extended time to take tests, make sure you have the extra time that you need – either before or after your scheduled lecture time.

TEMPLE AND COVID-19 Temple University’s motto is Perseverance Conquers, and we will meet the challenges of the COVID pandemic with flexibility and resilience. The university has made plans for multiple eventualities. Working together as a community to deliver a meaningful learning experience is a responsibility we all share: we’re in this together so we can be together.

Course Format

• **Synchronous Zoom Lectures.** We’ll use the “flipped classroom” approach. Students will watch pre-recorded videos and possibly answer discussion questions prior to the synchronous Zoom meetings (which occur during the normal class lecture period). In the Zoom meetings, we’ll do things like go over discussion responses, answer questions, take polls, and have breakout sessions.

• **Homeworks.** Almost every week, there will be a programming assignment that is highly related to (reinforcing) lecture topics. To get a grade for your homework you have to
  
  o Complete the homework assignment and test it locally. Then, publish it and test what you published.
  
  o Perform a self assessment by checking through the deductions at the end of the HW.
  
  o Upload a zip file of your WHOLE web application (NetBeans project) into Canvas. In case of a question about a Homework grade, we go by the code that you have uploaded into Canvas.
  
  o Homeworks are cumulative, not separate. Your project’s functionality will grow with each HW.
  
  o If you have not completed your homework by the due date, you can still complete it by the following week (with a -20% penalty). After that, homeworks are not accepted, but you still have to complete the work to avoid further deductions on your project grade.
• **Project.** Your project is the culmination of all your labs (all combined into a SINGLE, regression tested, web application). Your project grade is based on functional testing plus a code review of all the source code. So, each week, be sure to keep your code well designed/organized, bug free, using self documenting names and adequate comments.

• **Lab Activities.** Almost every week, there will be a graded Lab Activity which is a short, scripted exercise, usually involving sample code. Lab Activities are typically designed to give you the skills you need to get started on your homework – often you’ll complete a subset of the homework assignment.
  o Before the Lab Activity becomes unavailable, you must:
    ▪ Publish your work to your “Lab Activity” web folder (on cis-linux2). You have two folders so that your Lab Activity (a more temporary and more focused project) does not “clobber” your homework/project code that’s published in your “regular” web folder.
    ▪ Upload a zip file of your whole project folder into Canvas – if there’s every a question about the grade for a Lab Activity, we will resolve it based on the code submitted into Canvas.
  o There is no late submission policy for lab activities. If you don’t meet the deadline, you don’t get a grade for the lab activity. (However, if a student has a long term documented illness, let the instructor know – perhaps an accommodation can be reached.)
  o To account for unexpected problems, your lowest Lab Activity grade will be dropped.

• **Formative Quizzes.** “Formative quizzes” are designed to help you absorb and retain new concepts. Formative quizzes will not be timed or proctored, you’ll have many days to do them, and you’ll probably get two attempts to take them. I’ll provide formative quizzes when you are learning something new, e.g. for topics like HTML, CSS, JavaScript, AJAX/JSON, Databases, Web APIs (Server Side code).

• **Tests.** The tests in this course are designed to see if you really understand the programming techniques that you have been studying (in sample code) and submitting (for homework). Tests will be given at a specific time and proctored (by Protorio software that uses AI to ensure that you are doing your own work without help from other people, other software, or the internet). **The only way to do well on the Tests is to experiment a lot with sample code and homework code** (and don’t accept too much help doing your homework). There will be **NO final exam** during the final exam period.

• **Tutorial.** Each student will write a reusable JS component and publish a tutorial about how they did that. Students will present their tutorials to the class towards the end of the semester.
Weekly Routine

- In Canvas, if you click on the Syllabus link, you’ll see a list of all class assignments, organized by due date. The weekly routine will typically be as follows. I started the weekly routine with the Thursday lecture because your Lab Activity is on Friday and you have a week to complete your homework.

  - **Tuesday - Thursday (complete before Thursday 12:30):** Open up the “Before Lecture / Discussion” entry and see what you are being asked to do (reading material, videos, answer discussion thread).

  - **Thursday 12:30:** Connect to the Zoom meeting during class time where you’ll do learning activities with your classmates, geared towards introducing new concepts and making sure you know what you’ll be doing in your Lab Activity (which gets you started on your homework). Your attendance and participation will be noted.

  - **Friday:** Although your lab time is 1-2:50, you can start the Lab Activity up to one day early. Complete (publish, self assess, and submit) your Lab Activity by 5pm. Lab Activities cannot be submitted late. Lab Activities are easy and scripted (e.g., download sample code, make minor changes) – they were designed to be completed in about 2 hours and to give you the skills you need to begin this week’s homework. You do not have to a synchronous Zoom meeting during your lab period, but your Lab Assistant will hold office hours then (you can ask any question, not just about Lab Activities).

  - **Friday – Monday:** complete any formative quizzes there may for the module.

  - **Sunday - Tuesday (complete before Tuesday 12:30):** In Canvas, click on “Syllabus” and open up the “Before Lecture / Discussion” entry and see what you are being asked to do (reading material, videos, answer discussion thread).

  - **Tuesday (12:30):** Connect to the Zoom meeting during class time where you’ll be engaging in learning activities with your classmates. This class will typically be geared towards making sure you understand how to complete your homework for the week. Your attendance and participation will be noted. You have until Friday at 12:15 to submit your HW.
**Tentative (and approximate) Grade Weights**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Activities, must be completed in lab</td>
<td>10%</td>
</tr>
<tr>
<td>Class Participation</td>
<td></td>
</tr>
<tr>
<td>Includes Discussion responses, Synchronous Class Attendance and Activities</td>
<td>5%</td>
</tr>
<tr>
<td>Weekly Programming Homeworks</td>
<td>15%</td>
</tr>
<tr>
<td>Project (culmination of all Homeworks with code review)</td>
<td>15%</td>
</tr>
<tr>
<td>Tutorial (including presentation to class)</td>
<td>10%</td>
</tr>
<tr>
<td>Formative Quizzes (not timed, not proctored, usually you get two tries)</td>
<td>10%</td>
</tr>
<tr>
<td>2 Tests (timed, proctored using Proctorio software)</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**GRADE EXCEPTION:** if the average test grade is less than a C-, then your course grade will also be less than C- (which means you will have to repeat the course).

- **Why?** Homework assignments are an opportunity for learning. If a student gets too much help with their homework, they can get a good grade on the homework without learning anything. If you want to do well in this course, play with the homework sample code, break it, then fix it – this is the only way to learn how web development works and the only way to prepare yourself for doing well on the tests.

**Grade Scale**

- 93-100: A
- 83-86: B
- 73-76: C
- 63-66: D
- 90-92: A-
- 80-82: B-
- 70-72: C-
- 60-62: D-
- 87-89: B+
- 77-79: C+
- 67-69: D+
- 0-60: F
Tentative Schedule

For detailed requirements of class assignments and activities, click on Syllabus from the left nav bar in Canvas. Your homework and Lab activities are available from the class website (google “sallyk temple” Click on Teaching - 3344).

Tentative Course Schedule (List of Homeworks)

- Homework 1: Home Page
- Homework 2: JavaScript User Interface (Drop Down Menus and Routing)
- Homework 3: JS Intro (Create your own JS object with visual representation)
- Homework 4: JS Advanced (slide show)
- Homework 5: JS Framework (click sortable HTML table)
- Homework 6: Tutorial Proposal
- Homework 7: Database Setup (easy, work on Tutorial)
- Homework 8: Web API (first time writing server side code)
- Tutorial Presentations
- Homework 9: React Intro

Miscellaneous

- **Set up your development environment on your PC/MAC ASAP** so you can work from home. The class web page has instructions to help you with this (google “SallyK Temple”, click on Teaching – CIS 3344).

- **Communication**: Please contact me as soon as possible if you think you are running into difficulties. Ask me, or your lab instructor, or another student for help AS SOON AS POSSIBLE.

- **Attendance**: All “lectures” will be recorded and available for students to watch at their convenience but students need to be available during scheduled class times for synchronous activities like tests. *If you have a DRS accommodation, make sure you have enough time either before or after your scheduled lecture time.*

- **Disability Disclosure**: Any student who has a need for accommodation based on the impact of a disability should contact me privately to discuss the specific situation as soon as possible. Student must provide me with a note from the office of Disability Resources and Services (100 Ritter Annex, 215-204-1280). *Please bear in mind that COVID-19 may result in a need for new or additional accommodations.*

- **Academic Honesty and Ethics**: You are expected to observe the highest ethical standards. When working in the lab or on your project, you may consult others, but the work you submit must be your own. Never share your answers with others. Never accept answers from others. All violations of academic honesty will be handled according to university policy.
• **Attendance Protocol and Your Health.** Since this course will be offered online in the fall, some of this does not really apply, but I was asked to include it in the syllabus.

• If you feel unwell, you should not come to campus, and you will not be penalized for your absence. Instructors are required to ensure that attendance is recorded for each in-person or synchronous class session. The primary reason for documentation of attendance is to facilitate contact tracing, so that if a student or instructor with whom you have had close contact tests positive for COVID-19, the university can contact you. Recording of attendance will also provide an opportunity for outreach from student services and/or academic support units to support students should they become ill. Faculty and students agree to act in good faith and work with mutual flexibility. The expectation is that students will be honest in representing class attendance.

• If you should fall ill, please email me as soon as you can so that we can work out an arrangement for you to complete course requirements.

• **Student Support Services** (Note: additional information about how students can access support services will be available later in the summer. There will be a color-coded system on Tuportal indicating which services are virtual or in-person.) The following academic support services are available to support you:
  - Student Success Center
  - University Libraries
  - Undergraduate Research Support
  - Career Center
  - Tuttleman Counseling Services
  - Disability Resources and Services

If you are experiencing food insecurity or financial struggles, Temple provides resources and support. Notably, the Temple University Cherry Pantry and the Temple University Emergency Student Aid Program are in operation as well as a variety of resources from the Office of Student Affairs.

**Fall 2020 IMPORTANT DATES:**

• Monday 8/24: Start of semester
• Tuesday 9/8: Last Day to Drop (you don’t pay for the course and it will not appear on your transcript).
• Monday 3/12: Mid Term Ratings end.
• Tuesday 10/20: Last Day to Withdraw (you pay for the course, W stays on your transcript, no effect to GPA).
• Monday 11/23 – Friday 11/27: Fall Break (includes Thanksgiving)
• Monday 12/7: Last day of classes