ITMD 541 Web Application Foundations

Fall 2023 – v23F.0 **Anita F. Debarlaben, Adjunct Industry Professor**

Professor: **Anita F. Debarlaben**
Address: John T. Rettaliata Engg Center, Room 258, 10 W 32nd Street, Chicago, IL 60616
Telephone:
Email: adebarla@iit.edu
Office:

Office Hours: Main Campus: By Appointment & One hour before Class on Tuesday and Thursday
Online: Via Google Meet, Zoom, or Blackboard Collaborate

Course Catalog Description: In this course students examine core web technologies that are integral in the creation of web-based applications typically delivered in a browser. The course will cover fundamental web protocols, web application architectures, markup, and scripting languages. A focus will be placed on writing modern, standards-compliant JavaScript and how it is used to interact with HTML and CSS to enable rich user interfaces and communication with other services. Current frameworks, libraries, and tools will also be explored. **Prerequisites:** [] **Credit:** (3-0-3)

Lecture Day, Time & Place: Tuesday and Thursday 1:50 – 3:05 pm John T. Rettaliata Engg Center, Room 258, 10 W 32nd Street, Chicago, IL 60616 on Illinois Tech's Mies Campus, or online via blackboard.iit.edu and Blackboard Collaborate for students attending online.

Course Outcomes: Students completing this course learn about the core technologies used to develop contemporary web applications. This includes the primary protocols, tools, software, markup, and scripting languages used in modern web development and how they have progressed over time. Each student successfully completing this course will demonstrate a strong foundational knowledge in the design and development of web-based internet applications. Students will use standards compliant HTML and CSS to create responsive user interfaces targeting modern browsers. Additionally, students learn about the JavaScript language, debugging techniques, and JavaScript APIs and how to effectively utilize them.

Course Student Outcomes: Students completing this course will be able to:

- Recognize HTML, CSS, and JavaScript markup and code in a web page/application
- Describe the differences between server and client-side technology as it relates to applications delivered through internet browsers
- Explain the history, role, and use of enabling technologies in modern web-based applications, including JavaScript, Cascading Style Sheets (CSS), and HTML including their impact
- Outline strategies for turning interface mockups into working code prototypes
- Explain the role of the HTTP and HTTPS protocol and the request/response cycle
- Master valid standards compliant HTML, CSS, and JavaScript to build web pages and applications
- Use modern browser developer tools to inspect and debug web applications
- Demonstrate basic responsive design principles and techniques and explain the advantages of responsive design
- Discuss differences in ES5 and ES6+ JavaScript language and syntax
- Understand native ES6+ JavaScript for use in the browser
- Describe terminology and functionality afforded by advanced JavaScript programming paradigms including Prototype, Object Oriented Programming (OOP), JavaScript Object Notation (JSON), Namespacing, Modules
- Demonstrate AJAX techniques for asynchronously loading content
- Master Document Object Model (DOM) manipulation in native JavaScript
- Explain and utilize HTML5 APIs
- Discuss the potential security threats posed to internet applications and their users and strategies for mitigating these risks

- Understand the use of tools to manage project dependencies and source code management tools for version control in a project

Required Textbooks:
There is no physical textbook for this course. Reading material will be assigned from online resources. Optional books may be suggested during the course as additional material.

Technology Requirements: All of the work for this class can be done on virtually any computer operating system, Windows, Mac or Linux. You need to have access to a computer for this class, you will need to install software. There is no paid software you will need in this class. There are commercial products you may use but free or open-source alternatives will be discussed and suggested.

You should be familiar with how to use your computer, install software, edit and save files into different folder structures, and use the command line. You will need to understand the folder/path structure your files are saved in and be able to transfer files using an SFTP program. We will discuss other applications you may use for this class.

This course is a programming course. I expect that everyone in this course has been exposed to programming at some level, ideally an object-oriented language. I also expect that everyone in this course has at least been exposed to basic database concepts. We will be discussing object-oriented language concepts, but this is not a full course in it. If this is not a familiar topic you will probably need to do a lot of extra research and reading to be successful. You should also understand basic HTML5 and CSS since it is a prerequisite for this course.

Readings/Videos: Readings for the class will be assigned from the textbook as well as in the form of online reading. The reading assignments will be posted on Blackboard and discussed in class. Online resources and videos will be linked from or embedded in a Blackboard page. It is essential that you do all readings and/or view the videos before coming to class on the assigned date. These materials are a necessary and integral part of the class and will form the basis for any class discussions on the topic. Specific readings are assigned by topic.

Course Notes: Copies of the course lecture notes in the form of a PDF of the PowerPoint presentation accompanying each lecture may be provided for each student on Blackboard. This should be useful if you must miss a class. You should be aware that note taking is encouraged and should help your understanding of the material. Some topics discussed in class may not be in the lecture presentation file so please take notes during class as downloading the professor's PowerPoint presentations are not full substitutes for a lecture's content.

Attendance: Students registered for the live section are expected to come to class. If you are in a live section of the class and will not be able to attend class, please watch the class video. This **does not mean your absence will be excused and you will not be able to makeup missed in class quizzes**. Live section students who miss a class should always watch the lecture online. You are responsible for the information in a class lecture whether you attend or not. **Attendance will be taken in class and be factored into your final grade.** During class, please remain quiet and do not distract the class. Anyone being overly distractive will not get credit for the class attendance and may be asked to leave the session. Students who come in late or leave early may not get full attendance credit.

Course Web Site: http://blackboard.iit.edu/

Blackboard: The course will make intensive use of Blackboard (http://blackboard.iit.edu/) for online lecture delivery, lecture recordings, communications, assignment submissions, group assignment coordination, providing online resources, and administering examinations. All remote students will view the course lectures online via Blackboard, and online readings will be found on Blackboard. Blackboard Collaborate will be used for synchronous hybrid session delivery and recordings.

Guest Lectures: Guest lecturers may be featured as part of course topics. When a guest speaker is expected you should make an extra effort to be seated and ready prior to class time. A question & answer/discussion period will be held at the end of each lecturer's presentation.

Assignments: The only way to learn the concepts presented in this class are to work with them. There will be two main types of assignments for this class. The first are smaller assignments or labs that are typically due in about a week and larger project-based assignments that will span multiple weeks. The number of assignments/projects/labs will very based on course progress.

Examinations: The mid-term and final examination will consist of an examination measuring course outcomes and topics as discussed in class and in the reading assignments. The mid-term exam will be given

around the middle of the semester and the final exam will be given during the university's final exam week. Details for the particular exam will be posted in blackboard and discussed in class.

Quizzes: I may give quizzes at my discretion and may use them for verification that you have completed assigned course readings, attended class, or have read and participated in the discussion boards. Quizzes will potentially be given randomly during in-person class lectures. Any discussions or cheating during a quiz would result in a zero for the grade. Quizzes will be a timed online test via Blackboard for students enrolled in internet sections. These are used as a measure of class attendance and participation and will not be offered online for students in live course sections or allowed to be made up in case of a missed class without a documented reason. As they are discretionary, the number and type of quizzes may vary and the weight of quizzes in grading is also left to my discretion and will be included in your class participation grade. I may choose to have an online quiz for both live and online students in addition to the quizzes described above at my discretion.

Discussion Board: At my discretion throughout the semester, I may post questions or topics in the discussion board area in blackboard. Students are expected to post comments in these discussion boards. I will notify class anytime a topic is opened in the discussion board, but you should check weekly anyway. Discussion board entries may be links to online articles addressing topics applicable to the course or may be personal reflections or opinions on topics applicable to the course. If you link to an outside resource, please also explain the link. All students are expected to read all of the discussion board entries in a particular topic. Completion of appropriate discussion board entries and reading of the discussion board may be included in your class participation grade.

Other Class Resources: Online readings, presentation slides, and other class resources may be found at on Blackboard.

Extra Credit: In general, **I do not provide additional extra credit assignments**. Occasionally there may be extra credit components of assignments/labs/projects but that is at my discretion and is not guaranteed.

Grading: Grading criteria for ITMD-541 students in the graduate curriculum will be as follows:
Points will be deducted for various reasons including but not limited to non-functioning code, poor mark-up, obsolete elements, invalid markup/code or non-validating markup/code, improper use of JavaScript, obvious copy and paste of old website code, quality of work, and not following methods discussed in class.

Assignments will be graded according to the following guidelines. They will be graded on completeness of the requirements and quality of work. In order to receive an "A" you would need to fulfill all the requirements and show a high quality of work that reflects substantial effort. No student should expect an "A" for just satisfying the basic requirements of the assignments.

In courses where undergraduate and graduate sections are cross-listed, graduate students are expected to demonstrate a substantively higher level of accomplishment than is expected of undergraduates. In cases where the same assignment is given for both undergraduate and graduate students, graduate students will be graded to a higher standard.

A *Outstanding work reflecting substantial effort* 90-100%
B *Adequate work fully meeting that expected of a graduate student* 80-89.99%
C *Weak but marginally satisfactory work not fully meeting expectations* 65-79.99%
E *Unsatisfactory work*..... 0-64.99%

The final grade for the class will be calculated as follows:
Assignments/Projects/Labs/Papers: **55%**
Mid-term Exam: **15%**
Final Exam **15%**
Quizzes/Class Participation including Attendance, Participation, Discussions, and Misc **15%**

Late Submission: Assignments will be given with plenty of time to complete the work requested. Generally, assignments will be due the same day of the week as our class and discussed the following class. Assignments will not be accepted late after we discuss them in class. ***A penalty of up to 10% of the assignment's total value may be assessed at the instructor discretion for every 24 hours that your submission is late, starting immediately after the deadline.*** Assignments will not be accepted later than 1 week after the deadline or after they are discussed in class. Extensions are given only in very rare circumstances due to serious illness or family emergencies and will only be considered if notified **48 hours before** the deadline and with documented proof of hardship. There will be **NO EXCEPTIONS** to this policy. Please plan ahead and complete your work on time, or early.

Academic Honesty: All work you submit in this course **must be your own.**

Plagiarism: You must fully attribute **all** material directly quoted in papers and you must document all sources used in the preparation of the paper using complete, APA-style bibliographic entries. Including directly quoted material in an assignment without attribution or a bibliography entry for the source of the material is always plagiarism and will always be treated as such by me. No more than thirty-three percent of material included in any paper may be direct quotes. Students have submitted plagiarized material in seven of the last eight times I have taught this course and **I will not tolerate it**. If you submit plagiarized material you **WILL** receive a grade of **ZERO** for the assignment or exam question, an Academic Honesty Violation Report will be filed, and it may result in your expulsion from the course with a failing grade as per the IIT and ITM academic honesty policies. **There is no excuse for not understanding this policy** and if you do not understand it please let me know and I will be happy to discuss it with you until you do.

Collaboration: Students may only collaborate on assignments or projects that are explicitly designated as group assignments or projects. Students submitting work that is identical or in some cases even substantively the same will be asked to discuss the assignment with me. If one student admits to having copied the work, or if there is clear evidence who is guilty, the guilty student will be assigned a grade of zero. If no one admits to the offense or a reasonable determination of guilt cannot be made, each student involved will be assigned a grade of zero. In either case, an Academic Honesty Violation Report will be filed, and it may result in your expulsion from the course with a failing grade as per the IIT and ITM academic honesty policies.

Our Contract: This syllabus is my contract with you as to what I will deliver and what I expect from you. If I change the syllabus, I will issue a revised version of the syllabus; the latest version will always be available on Blackboard. Revisions to readings and assignments will be communicated via Blackboard.

Disabilities: Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must obtain a letter of accommodation from the Center for Disability Resources and make an appointment to speak with me as soon as possible. My office hours are listed on the first page of the syllabus. The Center for Disability Resources (CDR) is located in 3424 S. State St., room 1C3-2 (on the first floor), telephone 312 567.5744 or disabilities@iit.edu.

Illinois Tech's Sexual Harassment and Discrimination Information: Illinois Tech prohibits all sexual harassment, sexual misconduct, and gender discrimination by any member of our community. This includes harassment among students, staff, or faculty. Sexual harassment of a student by a faculty member or sexual harassment of an employee by a supervisor is particularly serious. Such conduct may easily create an intimidating, hostile, or offensive environment.

Illinois Tech encourages anyone experiencing sexual harassment or sexual misconduct to speak with the Office of Title IX Compliance for information on support options and the resolution process.

You can report sexual harassment electronically at iit.edu/incidentreport, which may be completed anonymously. You may additionally report by contacting the Title IX Coordinator, Virginia Foster at foster@iit.edu or the Deputy Title IX Coordinator at eespeland@iit.edu.

For confidential support, you may reach Illinois Tech's Confidential Advisor at (773) 907-1062. You can also contact a licensed practitioner in Illinois Tech's Student Health and Wellness Center at student.health@iit.edu or (312)567-7550.

For a comprehensive list of resources regarding counseling services, medical assistance, legal assistance and visa and immigration services, you can visit the Office of Title IX Compliance website at https://www.iit.edu/title-ix/resources.

Syllabus Version: v23F.0