



Dynamic Web Applications (INST377)

Term: Spring 2024

Professor: Mr. Anmol Dash

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Course Times: A-Sync

Discussions: Varies

Course Description

This course will be an exploration of the methods, tools, and processes for developing dynamic, database-driven user interfaces and websites, which will cover an end-to-end process to build a web application. This includes acquiring, installing, and running web servers, database servers, and web applications.

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This course will introduce methods and tools for developing application layers that include both front- end and back-end of a web-based system. This course will cover acquiring, installing, and running database servers, web servers, modules, and web applications. This course will also cover methods, skills, and processes for developing and maintaining application layers that allow end-users to interact with underlying databases through dynamic web interfaces.

Learning Outcomes

Upon completion of the course, students will be able to:

1. Articulate the basic approaches and key development elements for building databases and dynamic user interfaces.
2. Acquire, install, and maintain a web server as a stand-alone component or as part of a bundled software distribution.
3. Acquire, install, and maintain applications that facilitate interactions between different layers of the application or site architecture.
4. Build basic web interfaces that allow a wide range of users to interact with underlying databases.
5. Program basic interface components that will add dynamic functionality to websites.
6. Articulate the relationships between JavaScript, PHP, databases, CSS, and HTML.
7. Identify security issues in dynamic web applications and develop approaches to address them.
8. Maintain code versions and update servers using Git.

Resources

- Course Website: elms.umd.edu
- Textbook (Optional): Nixon, R. (2012). Learning PHP, MySQL, JavaScript, and CSS: A step-by-step guide to creating dynamic websites. O'Reilly Media, Inc
- Free Software (EX: GitHub, VSCode etc...)

Course/Grading Structure

This course is an A-Sync Course with an In-Class Discussion Session. The course is a more Hands-on Course so a good chunk of your grade consists of Assignments. The class consists of the following:

- Lab Assignments (25%)
- Homework Assignments (25%)
- Group Project (30%)

- Midterm + Final Exam (20%)

Discussion Sections are not mandatory but your TA/GA's are there to walk you through Labs, practices, and questions you have about the Homework.

Tips for Success in an Online Course

1. **Participate.** I invite you to engage deeply, ask questions, and talk about the course content with your classmates. You can learn a great deal from discussing ideas and perspectives with your peers and professor. Participation can also help you articulate your thoughts and develop critical thinking skills.
2. **Manage your time.** Students are often very busy, and I understand that you have obligations outside of this class. However, students do best when they plan adequate time that is devoted to course work. Block your schedule and set aside plenty of time to complete assignments including extra time to handle any technology related problems.
3. **Login regularly.** I recommend that you log in to ELMS-Canvas several times a week to view announcements, discussion posts and replies to your posts. You may need to log in multiple times a day when group submissions are due.
4. **Do not fall behind.** This class moves at a quick pace and each week builds on the previous content. If you feel you are starting to fall behind, check in with the instructor as soon as possible so we can troubleshoot together. It will be hard to keep up with the course content if you fall behind in the pre-work or post-work.
5. **Use ELMS-Canvas notification settings.** Pro tip! Canvas ELMS-Canvas can ensure you receive timely notifications in your email or via text. Be sure to enable announcements to be sent instantly or daily.
6. **Ask for help if needed.** If you need help with ELMS-Canvas or other technology, IT Support. If you are struggling with a course concept, reach out to me and your classmates for support.

Policies and Resources for Undergraduate Courses

It is our shared responsibility to know and abide by the University of Maryland's policies that relate to all courses, which include topics like:

- Academic integrity
- Student and instructor conduct
- Accessibility and accommodations
- Attendance and excused absences
- Grades and appeals
- Copyright and intellectual property

Please visit www.ugst.umd.edu/courserelatedpolicies.html for the Office of Undergraduate Studies' full list of campus-wide policies and follow up with me if you have questions.

Major Assignments

Lab Assignments

There will be Lab Assignments many weeks during the Semester. These Lab Assignments are used as a reinforcement mechanism, and usually cover the basic topics that we covered in that week's lecture.

Homework Assignments

There will be 3 assignments over the semester.

1. Points
 - a. Each assignment is worth 100 points
2. Types of Assignments
 - a. Most assignments are coding or server configuration tasks. You will have 1 to 2 weeks to work on and complete each assignment.
 - b. The assignments are individual work. This means that although you may consult with your classmates and the instructor to develop general approaches to solving the coding challenges, you are expected to work individually while you build, type, test and debug the code.
3. Notifications
 - a. Assignment questions will be made available on Canvas.
4. Submissions
 - a. Completed assignments will be submitted via canvas or git.
5. Late Submission Policy
 - a. Timely submission of the completed assignments is essential. Each one- day late submission subtracts 20 points from the original points, so submitting an assignment five days late will result in a zero, regardless of the quality.
 - b. If an assignment due date is a religious holiday for you or you have any serious issues that prevent you from meeting the due date, please let the instructor know as soon as the assignment is announced, so an alternate due date can be set. This notification should be made within 24 hours after the assignment is announced. Otherwise, there will be no adjustment in the due date.

Group Project

Students will work in 4-to 6-student teams and build a non-trivial web-enabled application over the semester. The final project will involve identifying an end-user need for interacting with a database, determining the requirements for the application that will facilitate the interaction, developing a deadline-oriented plan for building the application, and coding and documenting the application.

Groups will be asked to find and articulate their own project topics, but they may seek the instructor's input whilst identifying possible topics and choosing the topic to be used. Students can show preferences for group mates, but the instructor may finalize project groups based on diversity in skill sets and career goals. The instructor will provide more details on the project in the class. The following are brief descriptions of the different parts of the group project.

1. Final Presentation: Each group is expected to:
 - a. Introduce and justify the project.
 - b. Demo the final website that runs on a production server
 - c. Explain technologies and architectures used.
 - d. Describe development processes and strategies.
 - e. Discuss limitations and future work.
2. Deliverables: Along with the final presentations, each group needs to submit:
 - a. The URL of the final system

- b. Scripts and database dump files through Github
- c. Technical documentation and user manuals
- d. A final report for the project.

Academic Integrity

For this course, some of your assignments will be collected via Turnitin on our course ELMS page. I have chosen to use this tool because it can help you improve your scholarly writing and help me verify the integrity of student work. For information about Turnitin, how it works, and the feedback reports you may have access to, visit [Turnitin Originality Checker for Students](#)

The University's Code of Academic Integrity is designed to ensure that the principles of academic honesty and integrity are upheld. In accordance with this code, the University of Maryland does not tolerate academic dishonesty. Please ensure that you fully understand this code and its implications because all acts of academic dishonesty will be dealt with in accordance with the provisions of this code. All students are expected to adhere to this Code. It is your responsibility to read it and know what it says, so you can start your professional life on the right path. **As future professionals, your commitment to high ethical standards and honesty begins with your time at the University of Maryland.**

It is important to note that course assistance websites, such as CourseHero, or AI generated content are not permitted sources, unless the instructor explicitly gives permission. Material taken or copied from these sites can be deemed unauthorized material and a violation of academic integrity. These sites offer information that might be inaccurate or biased and most importantly, relying on restricted sources will hamper your learning process, particularly the critical thinking steps necessary for college-level assignments.

Additionally, students may naturally choose to use online forums for course-wide discussions (e.g., Group lists or chats) to discuss concepts in the course. However, collaboration on graded assignments is strictly prohibited unless otherwise stated. Examples of prohibited collaboration include: asking classmates for answers on quizzes or exams, asking for access codes to clicker polls, etc. Please visit the [Office of Undergraduate Studies' full list of campus-wide policies](#) and reach out if you have questions.

Grades

All assessment scores will be posted on the course ELMS page. If you would like to review any of your grades (including the exams), or have questions about how something was scored, please email me to schedule a time for us to meet and discuss.

Late work will not be accepted for course credit so please plan to have it submitted well before the scheduled deadline. I am happy to discuss any of your grades with you, and if I have made a mistake I will immediately correct it. Any formal grade disputes must be submitted in writing and within one week of receiving the grade.

Final letter grades are assigned based on the percentage of total assessment points earned. To be fair to everyone I have to establish clear standards and apply them consistently, so please understand that being close to a cutoff is not the same as making the cut ($89.99 \neq 90.00$). It would be unethical to make exceptions for some and not others.

Final Grade Cutoffs

+	97.00%	+	87.00%	+	77.00%	+	67.00%	+	
A	94.00%	B	84.00%	C	74.00%	D	64.00%	F	<60.0%
-	90.00%	-	80.00%	-	70.00%	-	60.00%	-	

Course Outline

Lecture Week	Topic	Project Deadlines	Assignment Due (Sundays @11:59 PM)
1/28/24	Introduction to Web Architecture, Web Protocols, and HTML		Lab 1 - Due
2/4/24	Git Intro + Practice HTML + CSS Cont		Lab 2 - Due
2/11/24	HTML Layout w/CSS JavaScript Linking to HTML		Lab 3 - Due
2/18/24	Javascript 1	Group Project - Team Proposal	Lab 4 - Due
2/25/24	Javascript 2		
3/3/24	Node.js, HTTP Methods		Assignment 1
3/10/24	Midterm - Due at End of Week		
3/17/24	SPRING BREAK! NO CLASSES!!!		
3/24/24	Json + AJAX		Lab 5 - Due
3/31/24	Front End Libraries		Lab 6 - Due
4/7/24	Fetch API + Hosting WebApp		Lab 7 - Due
4/14/24	Incorporating Remote Data		
4/21/24	Database + Deployments		
4/28/24	React JS		Assignment 2
5/5/24	Accessibility + Inclusive Web Design		Lab 8 - Due
5/12/24	Final Exam - Due at end of Week	Group Project - Final Submission	

Note: This is a tentative schedule, and subject to change as necessary – monitor the up to date calendar on the ELMS page. In the unlikely event of a prolonged university closing, or an extended absence from the university, adjustments to the course schedule, deadlines, and assignments will be made based on the duration of the closing and the specific dates missed.

Resources & Accommodations

Accessibility and Disability Services

The University of Maryland is committed to creating and maintaining a welcoming and inclusive educational, working, and living environment for people of all abilities. The University of Maryland is also committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of the University, or be subjected to discrimination. The [Accessibility & Disability Service \(ADS\)](#) provides reasonable accommodations to qualified individuals to provide equal access to services, programs and activities. ADS cannot assist retroactively, so it is generally best to request accommodations several weeks before the semester begins or as soon as a disability becomes known. Any student who needs accommodations should contact me as soon as possible so that I have sufficient time to make arrangements.

For assistance in obtaining an accommodation, contact Accessibility and Disability Service at 301-314-7682, or email them at adsfrontdesk@umd.edu. Information about [sharing your accommodations with instructors, note taking assistance](#) and more is available from the [Counseling Center](#).

Student Resources and Services

Taking personal responsibility for your own learning means acknowledging when your performance does not match your goals and doing something about it. I hope you will come talk to me so that I can help you find the right approach to success in this course, and I encourage you to visit [UMD's Student Academic Support Services website](#) to learn more about the wide range of campus resources available to you.

In particular, everyone can use some help sharpening their communication skills (and improving their grade) by visiting [UMD's Writing Center](#) and schedule an appointment with the campus Writing Center.

You should also know there are a wide range of resources to support you with whatever you might need ([UMD's Student Resources and Services website](#) may help). If you feel it would be helpful to have someone to talk to, visit [UMD's Counseling Center](#) or [one of the many other mental health resources on campus](#).

Notice of Mandatory Reporting

Notice of mandatory reporting of sexual assault, sexual harassment, interpersonal violence, and stalking: As a faculty member, I am designated as a "Responsible University Employee," and I must report all disclosures of sexual assault, sexual harassment, interpersonal violence, and stalking to UMD's Title IX Coordinator per University Policy on Sexual Harassment and Other Sexual Misconduct.

If you wish to speak with someone confidentially, please contact one of UMD's confidential resources, such as [CARE to Stop Violence](#) (located on the Ground Floor of the Health Center) at 301-741-3442 or the [Counseling Center](#) (located at the Shoemaker Building) at 301-314-7651.

You may also seek assistance or supportive measures from UMD's Title IX Coordinator, Angela Nastase, by calling 301-405-1142, or emailing titleIXcoordinator@umd.edu.

To view further information on the above, please visit the [Office of Civil Rights and Sexual Misconduct's](#) website at ocrsm.umd.edu.

Basic Needs Security

If you have difficulty affording groceries or accessing sufficient food to eat every day, or lack a safe and stable place to live, please visit [UMD's Division of Student Affairs website](#) for information about resources the campus offers you and let me know if I can help in any way.

Veteran Resources

UMD provides some additional supports to our student veterans. You can access those resources at the office of [Veteran Student life](#) and the [Counseling Center](#). Veterans and active duty military personnel with special circumstances (e.g., upcoming deployments, drill requirements, disabilities) are welcome and encouraged to communicate these, in advance if possible, to the instructor.

Netiquette Policy [Optional]

Netiquette is the social code of online classes. Students share a responsibility for the course's learning environment. Creating a cohesive online learning community requires learners to support and assist each other. To craft an open and interactive online learning environment, communication has to be conducted in a professional and courteous manner at all times, guided by common sense, collegiality and basic rules of etiquette.

Participation

- Given the interactive style of this class, attendance will be crucial to note-taking and thus your performance in this class. Attendance is particularly important also because class discussion will be a critical component for your learning.
- Each student is expected to make substantive contributions to the learning experience, and attendance is expected for every session.
- Students with a legitimate reason to miss a live session should communicate in advance with the instructor, except in the case of an emergency.
- Students who miss a live session are responsible for learning what they miss from that session.
- Additionally, students must complete all readings and assignments in a timely manner in order to fully participate in class.

Course Evaluation

Please submit a course evaluation through Student Feedback on Course Experiences in order to help faculty and administrators improve teaching and learning at Maryland. All information submitted to Course Experiences is confidential. Campus will notify you when Student Feedback on Course Experiences is open for you to complete your evaluations at the end of the semester. Please go directly to the [Student Feedback on Course Experiences](#) to complete your evaluations. By completing all of your evaluations each semester, you will have the privilege of accessing through Testudo the evaluation reports for the thousands of courses for which 70% or more students submitted their evaluations.

Copyright Notice

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