

SD540 – Server-Side Programming

Creating server-side web applications using the latest backend technologies (Node, Express, MongoDB)

Course Overview

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	Errors	Node Single-Thread Event Loop, IO threads	Node Core Modules (fs, path, http, url, dns, os, util)	Node Third-Party Modules (deps, dev, global) (npm, npx, rxjs)	Workshop - Modules (axios, nodemailer)
	Lab	Lab	Lab	Lab	
Week 2	Midterm Exam	Mongoose, CRUD	Workshop - CRUD	Manipulation of Arrays	Workshop - Arrays
		Lab		Lab	
Week 3	Express Application, Request Handler, Middleware (morgan)	Rest, Express Router, params, query params, json body	Workshop – Rest API (helmet, dotenv, cors)	Workshop - Auth (bcrypt, jsonwebtoken)	Project
	Lab	Lab			
Week 4	Project	Technical Evaluation	Technical Evaluation	Final Exam	

SD540 Server-Side Programming

Asaad Saad, M.S.

Course Goal

This course provides a systematic introduction to backend programming for individuals to master building server-side Restful web applications.

Course Objectives

In this course, you will learn the necessary skills to build server-side web applications. Technologies include Node, Express, TypeScript, and NoSQL databases (MongoDB).

The course will cover:

- How the V8 engine and asynchronous code work in Node and the Node event loop.
- How to structure your code for reuse and build Restful API using modules and Express.
- How NoSQL databases work: CRUD queries, Mongoose ORM.

Evaluation Criteria

Midterm Exam	35%
Final Exam	35%
Final Project	25%
Homework	5%
Attendance and Etiquette	0%, -3%

Grading Scale

A	92 - 100
A-	88 - 91
B+	84 - 87
B	79 - 83
B-	75 - 78
C+	71 - 74
C	66 - 70
C-	62 - 65

Contact Info

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Course Policies

Attendance at all classes is required because all elements of class — lectures, questions, answers, discussions, and laboratory work — contribute to the learning process. If faculty allows online attendance, the camera must remain open at all times, including meditation time, when the camera turns off the student will be reported absent. Absences are usually excused only if you are sick in bed or have a family emergency and are accompanied by an official record (from MIU nurse or JCH).

If you must miss a class, please let your instructor know ahead of time. Call, send an email, or send a note to a friend. There is no such thing as a “personal day”. If you have personal business to take care of, please schedule it for after class or during the days between blocks. At the same time, it may occasionally be necessary for you to miss a class (or part of a class) for some reason other than illness or family emergency. Please speak with the faculty beforehand, who will be open to considering your needs.

All students must take and attend the exams, in person, there will be no makeup exams for any excuse, and no online exams. Not attending the exam will result in receiving NC for the exam.

The first lesson of each course is the most important. Students are expected to be present from the first lesson onward. Any student not present on the first morning (except for such compelling reasons as illness or family emergency) may be asked to withdraw from the course. Unexcused absences may result in the student receiving a grade of NC (No Credit) for the whole course.

Remember to respect the code honor submission policy. All written code must be original. Presenting any code as one’s own work when it came from another source is plagiarism and is forbidden and will result in receiving NC for the course. Plagiarism is a very serious thing in all American academic institutions and is guarded against vigilantly by every professor. Matching patterns and code snippets will result in receiving NC for the course.

Class Attendance

Attendance at all classes is required, because all elements of class — lectures, questions and answers, discussions, laboratory work — contribute to the learning process. Absences are usually excused only if you are sick in bed or have a family emergency.

If you must miss a class, please let your instructor know ahead of time. Call, send an email, or send a note with a friend. There is no such thing as a “personal day.” If you have personal business to take care of, please schedule it for after class or during the days between blocks. At the same time, it may occasionally be necessary for you to miss a class (or part of a class) for some reason other than illness or family emergency. Please speak with the instructor beforehand, who will be open to considering your needs.

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Punctuality

Punctuality is expected and required in the professional world. People commonly lose their jobs for being late — especially new college graduates unfamiliar with professional expectations. Colleges and universities have come under criticism for not properly preparing students for these values.

Therefore, we place a similarly high value on arriving on time for every class session. If students are late, they disrupt the learning environment and may miss the wholeness of the lesson. Coming late is unprofessional and shows a lack of courtesy to the instructor and fellow students. Thus the faculty requests that students arrive a couple minutes early, so everyone is seated and settled when the class begins.

Punctuality also extends to returning from the class break in a timely fashion (as announced by the professor at the beginning of the break). The instructor should not need to go out and round up students.

If you need to be late to class for some reason beyond your control (a dentist appointment, for example), please arrange that with me ahead of time. Failing to comply with the policy will affect your Attendance and Etiquette grade.

Class Participation

American companies (and universities) expect employees (and students) to actively participate in discussions about projects and plans. This contrasts with many other cultures in Asia and Africa that many of our students are from. Our classrooms are a great environment to get used to being a more active participant. Being an active participant means volunteering information and asking questions from your side—i.e., raising your hand to make a comment or ask a question without being prompted by the professor. This should always be done politely, but it is not sufficient to sit silently and passively unless called upon.