



## **CS602: Server Side Web Development**

The course is divided into various modules covering in depth the following topics: PHP, MySQL, Object oriented PHP, PHP MVC, Secure Web applications, Node.js and MongoDB. Along with the fundamentals underlying these technologies, several applications will be showcased as case studies. At the end of this course, students would have mastered the web application development on the server-side. Prerequisite: MET CS 601 or with instructor consent.

### **Instructor**

Andrew Sheehan, [asheehan@bu.edu](mailto:asheehan@bu.edu)

### **Office Hours**

Send an email with the details of where and when you would like to schedule time.

### **Classroom Location**

Photonics Building (PHO), 6/8 St. Mary's Street, Boston, MA 02215, Room 202

### **Course Policies**

- Homework will not be accepted after the due date.
- Exams and quizzes cannot be made up or rescheduled.

### **Grading**

- Homework and Quizzes: 25%
- Midterm Examination: 25%
- Term Project: 25%
- Comprehensive Final Examination: 25%

# Readings

It is recommended you purchase these books.

- **Internet Links Provided by your Professor**

**Tag: ProfessorLink**

*Links included within your weekly resources folder in [onlinecampus.bu.edu](https://onlinecampus.bu.edu)*

- **NodeJS**

**Tag: Node** *"Node.js Web Development: Server-side web development made easy with Node 14 using practical examples, 5<sup>th</sup> Edition"*

[https://www.amazon.com/Node-js-Web-Development-Server-side-development-ebook/dp/B08BWRBPXT/ref=sr\\_1\\_4](https://www.amazon.com/Node-js-Web-Development-Server-side-development-ebook/dp/B08BWRBPXT/ref=sr_1_4)

- **MongoDB**

**Tag: Mongo** *"MongoDB Fundamentals: A hands-on guide to using MongoDB and Atlas in the real world."*

[https://www.amazon.com/MongoDB-Workshop-Interactive-Approach-Learning-ebook-dp-B084T31VDR/dp/B084T31VDR/ref=mt\\_other](https://www.amazon.com/MongoDB-Workshop-Interactive-Approach-Learning-ebook-dp-B084T31VDR/dp/B084T31VDR/ref=mt_other)

- **PHP and MySQL**

**Tag: PHP** *"PHP & MySQL: Novice to Ninja, 7<sup>th</sup> Edition"*

[https://www.amazon.com/PHP-MySQL-Novice-Tom-Butler-ebook/dp/B09QT7H52S/ref=sr\\_1\\_4](https://www.amazon.com/PHP-MySQL-Novice-Tom-Butler-ebook/dp/B09QT7H52S/ref=sr_1_4)

- **PHP and MongoDB**

**Tag: PHPMongo** **Optional Reading**

<https://www.mongodb.com/docs/drivers/php>

<https://www.mongodb.com/docs/php-library/current/tutorial/>

- **Microservices**

**Tag: Micro** *"Building Microservices, 2<sup>nd</sup> Edition"*

[https://www.amazon.com/Building-Microservices-Sam-Newman-ebook/dp/B09B5L4NVT/ref=sr\\_1\\_1](https://www.amazon.com/Building-Microservices-Sam-Newman-ebook/dp/B09B5L4NVT/ref=sr_1_1)

- **Microservices: PHP**

**Tag: MicroPHP**

*"[https://www.amazon.com/PHP-Microservices-architectures-fault-tolerant-microservices-ebook/dp/B01MQGB212/ref=sr\\_1\\_1](https://www.amazon.com/PHP-Microservices-architectures-fault-tolerant-microservices-ebook/dp/B01MQGB212/ref=sr_1_1)"*

- **Security : Node**

**Tag: NodeSecure**

<https://www.passportjs.org>

- **Security : PHP**

Tag: PhpSecure

- **PHP File Handling**

PHPFileLink

<https://codescracker.com/php/php-file-io.htm>

- **Node File System Module**

NodeFSLink

<https://nodejs.org/api/fs.html>

- **PHP : Testing**

Tag: PHPTesting

<https://www.sitepoint.com/re-introducing-phpunit-getting-started-tdd-php/>

# Schedule

Tuesday's	Topics	Readings
September 6	<ul style="list-style-type: none"><li>• Course/Instructor Introduction</li><li>• Asynchronous and Event Driven: Node</li><li>• Core API/Modules (IE: Files, Streams and Process)</li><li>• PHP: Fundamentals: Syntax and Structure</li></ul>	Node: 1-4, PHP: 1,2
September 13 <b>Scheduled Quiz</b>	<ul style="list-style-type: none"><li>• Scaffolding PHP</li><li>• Alternative Control Structure Syntax</li><li>• Introduction to Express</li><li>• Express Router</li></ul>	Node: 5, PHP: 6,8
September 20	<ul style="list-style-type: none"><li>• Object Oriented Design and Patterns with modules, classes in Node</li><li>• Classes, Interfaces and Object-oriented PHP</li></ul>	Node: XXX, PHP: 8
September 27 <b>Scheduled Quiz</b>	<ul style="list-style-type: none"><li>• Building Microservices using Node and PHP</li></ul>	Micro: 1-4, MicroPHP: 2,3
October 4	<ul style="list-style-type: none"><li>• Node Sockets</li></ul>	Node: 9
October 11	No Class: Indigenous People's Day Holiday (Monday class substitution)	

Tuesday's	Topics	Readings
October 18	<ul style="list-style-type: none"> <li>Implementing Security with PHP and Node</li> </ul>	Node: 8, 14, ProfessorLink: See 18-Oct-2022 Folder, NodeSecure: /docs > Username/Password; Google Auth
October 25	Midterm Examination	
November 1	<ul style="list-style-type: none"> <li>Managing files : Node</li> <li>File handling : PHP</li> </ul>	NodeFSLink, PHPFileLink
November 8	<ul style="list-style-type: none"> <li>Introduction to Document-Centric DB: MongoDB</li> <li>Introduction to Relational DB: MySQL</li> <li>PDO w/ MySQL</li> </ul>	Mongo: 1-3, PHP: 3,5 PHPMongo
November 15	<ul style="list-style-type: none"> <li>Introduction to Mongoose</li> <li>Querying with MongoDB</li> </ul>	Node: 4,5, ProfessorLink: See 10-Nov-2022 Folder
November 22	<ul style="list-style-type: none"> <li>Functional / Unit Testing Frameworks (PHP/Node)</li> <li>Course Review</li> </ul>	Node: 13
November 29	Project Presentations	
December 6	Comprehensive Final Examination	