

01-Intro/README.md

Chapter 1: Introduction and Installation

Welcome to Node.js!

Your journey into backend JavaScript development starts here!

Chapter Overview

This chapter introduces you to **Node.js**, explains how it works, and guides you through setting up your development environment. By the end, you'll have created your first Node.js application!

Chapter Contents

[01 - Course Introduction](#)

-  Meet your lecturers
-  Ground rules & grading
-  Git recap
-  Communication channels

02 - What is Node.js

-  Understanding Node.js
-  What it's used for
-  Companies using Node.js
-  Key benefits

03 - Node.js Architecture

-  History & evolution
-  How Node.js works
-  Async vs Sync
-  When to use Node.js
-  When not to use it

04 - Installation & Setup

-  Installing Node.js
-  IDE setup (VS Code)
-  Essential extensions
-  Keyboard shortcuts

05 - First Application

-  Creating your first app
-  Writing & running code
-  Understanding the difference
-  Lab exercises

🎯 Learning Objectives

By completing this chapter, you will:

- ✓ **Understand** what Node.js is and why it's important
- ✓ **Explain** how Node.js works (architecture & async model)
- ✓ **Identify** when to use (and when not to use) Node.js
- ✓ **Install** Node.js and set up your development environment
- ✓ **Create** and run your first Node.js application
- ✓ **Use** basic Node.js features like console.log and modules

⌚ Estimated Time

Activity	Time
📖 Reading	45 minutes
💻 Setup & Installation	30 minutes
✍️ Lab Exercises	45 minutes
Total	~2 hours

🔧 Prerequisites

Before Starting This Chapter

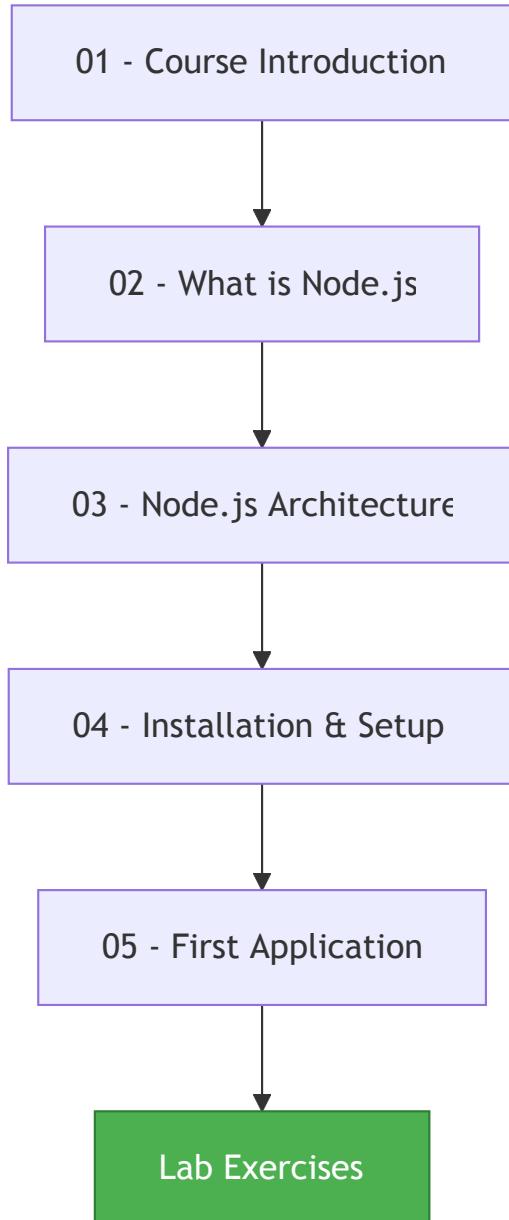
- ✓ Basic understanding of **JavaScript**
- ✓ Familiarity with the **command line/terminal**
- ✓ Basic knowledge of **Git** (init, add, commit, push)

✓ Text editor installed (VS Code recommended)

New to JavaScript? Review your web development course materials first!

📖 Reading Order

Follow the materials in this order for the best learning experience:



🧪 Lab Exercises

Hands-On Practice

The chapter includes practical exercises:

1. **Basic Application** - Create and run app.js
2. **Group Assignment** - Calculate student groups from birth dates
3. **User Input** - Make the program interactive
4. **Switch Statements** - Add quotes based on group number

 **Get Started:** Download from GitHub Classroom (link on Toledo)

Key Concepts

Concept	Description
Node.js	A JavaScript runtime built on Chrome's V8 engine
Asynchronous	Non-blocking I/O that allows handling multiple operations simultaneously
Event Loop	Single thread that manages all asynchronous operations
V8 Engine	Google's JavaScript engine that compiles JS to machine code
npm	Node Package Manager - installs and manages packages

Assessment

Self-Check Questions

After completing this chapter, you should be able to answer:

1. What is Node.js and what makes it different from browser JavaScript?
 2. Explain the difference between synchronous and asynchronous programming
 3. What types of applications is Node.js good for?
 4. What types of applications should you avoid building with Node.js?
 5. How do you run a JavaScript file with Node.js?
 6. What is the difference between `window` and `global` objects?
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Additional Resources

Want to Learn More?

-  [Official Node.js Documentation](#)
-  [Node.js Tutorial for Beginners - YouTube](#)
-  [MDN Web Docs - JavaScript](#)
-  [Node.js Community on Discord](#)
-  [Node.js Blog](#)

Tools & Extensions

-  [VS Code Node.js Extension Pack](#)
 -  [Prettier - Code Formatter](#)
 -  [ESLint - JavaScript Linter](#)
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? Getting Help

Stuck? Need Help?

1.  **Review the materials** - Read the relevant section again
2.  **Search the forum** - Someone might have had the same question
3.  **Ask on Toledo Forum** - Post your question with details
4.  **Study group** - Discuss with classmates
5.  **Email lecturers** - For private matters only

When asking for help, include:

- What you're trying to do
- What you expected to happen
- What actually happened
- Error messages (if any)
- Code you've tried

Completion Checklist

Before moving to Chapter 2, make sure you've:

- Read all 5 sections of this chapter
- Successfully installed Node.js
- Set up VS Code (or your chosen IDE)
- Created and ran your first Node.js application
- Completed the basic lab exercise
- (Optional) Completed Extra 1 and Extra 2
- Pushed your lab code to GitHub
- Understand the core concepts listed above

What's Next?

Chapter 2: Node Module System

Learn how to:

- Understand global objects vs modules
- Work with built-in Node.js modules
- Create your own modules
- Use EventEmitter for event-driven code
- Build HTTP servers

Ready? Let's keep going! 



Notes

Use this space for your own notes and observations:

Your notes here...

Node.js Course | Chapter 1
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Dirk Hostens & Milan Dima

 [Course Home](#) | [Next: Chapter 2](#) 