

**CSE 142 done,
what's next?**





After taking CSE 142, what have I learned?

- produce functional, well-written Java programs of small to medium length and complexity
- utilize a variety of programming constructs (including, but not limited to, methods, loops, conditionals, arrays, and classes) to solve problems
- explain the importance of code that is not just functional, but well-written, readable, and maintainable
- identify and fix bugs and errors that occur during the development process
- identify and utilize resources to help overcome difficulties or resolve errors in developing programs



CSE 142 focused on control issues, CSE 143 focuses on data issues

How do I solve **more complex** and **larger tasks** efficiently?

Topics covered: ADTs (abstract data types), stacks, queues, linked lists, binary trees, recursion, interfaces, inheritance and encapsulation



CSE 160: Data Programming

You will learn computational problem-solving. After the class, if you are given a data source and a problem description, you will be able to write a complete, useful program to solve the problem.

You will learn Python, a popular and easy-to-use general-purpose programming language that includes excellent libraries for data manipulation, scientific computing, and visualization.

Assignments will use real datasets from fields such as astronomy, biology, linguistics, oceanography, open government, social networks, and more. You will see that it is easy to write programs that process data, and that doing so yields insight.

You will learn the joy and power of being able to extract understanding and insight from a mass of data.



CSE 163: Intermediate Data Programming

In this course, students will learn:

1. More advanced programming concepts than in CSE142 or CSE160 including how to write bigger programs with multiple classes and modules.
2. How to work with different types of data: tabular, text, images, geo-spatial.
3. Ecosystem of data science tools including Jupyter Notebook and various data science libraries including scikit image, scikit learn, and Pandas data frames.
4. Basic concepts related to code complexity, efficiency of different types of data structures, and memory management.



CSE 154: Web Programming

An introduction to programming for the World Wide Web. You will learn about the relationship between clients and servers, briefly how the internet works, and how web pages are constructed using several technologies:

- HyperText Markup Language (HTML) for authoring web pages
- Cascading Style Sheets (CSS) for applying stylistic information to web pages
- JavaScript (JS) for creating interactive web pages
- Asynchronous JavaScript (AJAX) with fetch and JSON for enhanced web interaction and applications
- Web services for handling and responding to client-side requests
- Structured Query Language (SQL) for interacting with databases



What about the Math side of CS, what are courses I could take for that?

Math 308 (**Matrix Algebra with Applications**) is a great class to take especially if you are interested in Machine Learning.

After you take CSE 143:

Within the major, CSE 311 (**Foundations of Computing I**) and CSE 312 (**Foundations of Computing II**) would be the courses that focus on the Math + Theoretical side of Computer Science

Math 300 (**Intro to Mathematical Reasoning**), STAT 391 (**Statistics for Data Science**) would be classes that would be similar that are outside of CSE.



What if I'm graduating and cannot take these courses, but still interested in learning more CS?

If you want to learn how to be productive with programming check out this:

<https://automatetheboringstuff.com/>

I want to learn how to deploy a website: <https://www.railstutorial.org/book/beginning>

There are a lot of different topics I want to learn in CS: <https://www.codecademy.com/>

More general topics: <https://brilliant.org/>

Develop a personal project