Interested in Expanding your Technical Skills?

The ideal learning path to expand your technical knowledge differs based on your experience, goals, and how much time you have available to devote to practicing every week. No matter how you start, all paths lead to learning, and you can move on to more advanced courses if you'd like when you're ready.

The following pages explainvarious learning path options (all are free courses). We have offered suggestions on where to start based on your interests and experience level.

Whichever path you choose, all roads lead to a greater breadth and depth of knowledge and experience that will make you more marketable when searching for a job in technology.

Happy learning!

Absolute Beginners: The Basics

Don’t spend too long on these, but a fun way to learn the basics.

Scratch

Level: Easy Time Demand: Easy

Website: http://scratch.mit.edu/

Scratch is a great place to start if you're a total beginner. Scratch was designed for kids to learn programming, but that doesn't mean it's just a toy. It uses all the same programming concepts as any text-based language - it is real programming. If you want a course with assignments and specific goals, there is a free course on EdX.org starting in February 2015. Or you can learn on your own through the Scratch website.

Quick Guided Tour - Code with Anna and Elsa

Level: Very Easy Time Demand: 1 Day

Website: http://code.org/learn

The *Hour of Code* http://hourofcode.com/us program was created to encourage kids and adults to spend an hour (or a bit more) exploring programming. This is similar to Scratch (see next page) but with more guidance and direction, and more tutorials. If you've never programmed before, this is a fun place to start.

Starting Easy: Get Coding

Codecademy

Level: Easy Time Demand: Casual

Website: http://www.codecademy.com/

Codecademy is a good place to get started learning actual programming languages in an interactive setting. They have multiple tutorials that walk you through the basics of many languages including HTML & CSS, Python, Ruby, Javascript, and PHP.

Khan Academy

Level: Easy Time Demand: Casual

Website: https://www.khanacademy.org/

Khan Academy is an online learning website that offers classes and training in many subjects, including computer programming. They have one track that uses the graphics side of Javascript (a programming language) to introduce you to programming, through video training and lots of hands-on practice. This course is a good choice if you are interested in graphics and animation, or if you want a visual approach to programming with carefully guided practice problems.

Level 1 - Intro to JS: Drawing & Animation

https://www.khanacademy.org/computing/computer-programming/programming

Level 2 - Advanced JS: Games & Visualizations

https://www.khanacademy.org/computing/computer-programming/programming-games-visualizations

Rails for Zombies

Level: Easy Time Demand: Casual

Website: http://railsforzombies.org/

Interactive way to learn Ruby on Rails, a popular web development framework. You will watch five videos, each followed by exercises that have you programming right in your browser. They provide links to subsequent courses at Code School (although they aren't free).

Getting In-Depth: Medium Difficulty

Beginner Professional Java

Level: Easy Time Demand: Medium

Website: https://www.udemy.com/beginner-pro-java/ password: jennyteachesjava

This Java course focuses on clear explanations for absolute beginners, lots of hands-on practice, vocabulary and talking about code, group collaboration, and the software planning process. It teaches technical study skills alongside the material, so you are more prepared when you shift to other programming studies. Self-evaluation checklists and quizzes help you check your progress. Since there are no grades, collaboration is encouraged and valuable. This is a great course to take before diving into CS50x.

Java Tutorial for Complete Beginners

Level: Easy/Medium Time Demand: Medium

Website: https://www.udemy.com/java-tutorial/?dtcode=3Q68jQu2f95X

This is a highly rated introduction to the Java programming language. Where the "Beginner Professional Java" is best for a transition into CS50x, this class is meant as a deeper dive into the Java language. This course introduces themes that are broken down into lots of smaller video lectures.

Interactive Python

Level: Easy/Medium Time Demand: Medium/Heavy

Python is a professional language in use in the career world. This online python tutorial is an interactive online textbook with some video lectures, and practice problems right in your browser. The interactive textbook relies on you having strong reading comprehension and study skills. This is a thorough way of learning a programming language, and there are plenty of hands-on practice assignments.

Level 1 - Python - How To Think Like a Computer Scientist

http://interactivepython.org/courselib/static/thinkcspy/toc.html

Level 2 - Python - Problem Solving with Algorithms and Data Structures

http://interactivepython.org/runestone/static/pythonds/index.html

Diving In: Difficult Courses

Harvard CS50x

Level: Hard Time Demand: Heavy

Website: https://www.edx.org/course/introduction-computer-science-harvardx-cs50x

Harvard's CS50x class focuses on using programming for problem solving. The assignments are the real meat of the course. This course assumes you have very strong study skills, will put together your own notes and vocabulary review, and have mentors to lean on when you get stuck. It also assumes you have strong google search skills although it doesn't give you all the names you need to search for things. This is for technically experienced independent learners with a strong community to learn within.

Introduction to Computer Science and Programming Using Python

Level: Hard Time Demand: Heavy

Website: https://www.edx.org/course/introduction-computer-science-mitx-6-00-1x-0

This is the first of a two-course sequence from MIT that aims to expose people to computer science to think computationally and tackle problems. This course uses the programming language Python as its basis for learning, which some people may find easier than the C language used in CS50x.

After CS50 - Now What?

"I completed CS50 last year. But I feel like I need to learn more before I go into a job. What should I do?"

First off, congratulations! CS50 is pretty demanding.

Talk with the various mentors. We're considering setting up some project teams to give intermediate developers more experience. This is adhoc, so we need to know who's available and interested and what their time availability is, to sort out plans.

If you can't participate in team projects, but you want to focus towards career possibilities, then you need to find a way to start learning the basics of these topics. The most important part is to work on concepts and vocabulary on everything, and getting hands-on with SQL.

- Relational databases and SQL
- Software requirements planning
- Software development life cycle
- Test cases, quality assurance techniques, and unit testing
- Concepts of test-driven development
- Agile and scrum software project management methodologies
- Refactoring and design patterns

You should also focus on putting together some portfolio projects to show off what you can do and continue building your skills. Mentors may be able to help you with code reviews, as well.

If you're interested, check out LaunchCodeTV for some awesome mini-lectures made by some former mentors: http://tv.launchcode.us/

You can also check out a Java CS50x class, run by Mike Menne (former LaunchCode mentor), to introduce CS50x graduates to Java:

https://github.com/MoMenne/launchcode-java-class

If you can help out as a mentor, you will also find that deepens your understanding of programming and is a fun way to stay involved.