



About This Course

This is a hands-on course. There will be 20 hours of instruction, exercises, and breaks. In the end, you will not only have learned new concepts, but practiced them.

This course counts toward the Tool Maker Track and Manager Track certifications in Enthought Academy.

Certificate Awarded Upon Completion Of Course



Course Overview

Software Engineering for Scientists & Engineers is a short course on the art of writing maintainable software.

Unfortunately, software that is not written with maintenance in mind can be a source of pain for years or decades.

This course will teach you best practices, recommend good habits, and get you thinking about how to make quality software that can be used, referenced, and kept in working order long after the original author(s) have moved on.

Packages: black, click, flake8, logging, pdb, profile, sphinx, unittest

Lectures

Why Software Engineering?

Introduction, General Applicability

Readable Code

PEP-8, Linting, Naming, Comments

Documenting Code

Docstrings, Publishing Documentation

Refactoring

Functions, `__main__()`, Classes, API

Profiling & Debugging

When to Optimize, cProfile, pdb

Monitoring Execution

Command Line, Logging, Auditing

Unit Testing

unittest, Test Suites, Edge Cases

Source Control

git, GitHub, Issues, Pull Requests

Effective Code Reviews

Mentoring New Coders, Leveraging Experience

Pandas II

Visualization, Missing Data, Computations

Prerequisites

This course requires basic proficiency with Python and the scientific Python stack. Some practical experience with standard Python, NumPy (ndarrays), and Pandas (DataFrames) are essential to working with the code and concepts presented in this course.

If you have taken Enthought's **Python Foundations for Scientists & Engineers**, you have the requisite background knowledge for this course.

About Our Instructors

Enthought instructors have advanced degrees in scientific fields such as physics engineering, computer science, and mathematics, and all have extensive experience through research and consulting in applying Python to solve complex problems across a range of industries allowing them to bring their real world experience to the classroom every day.