Intro to Python for Computer Science and Data Science: Teaching Students to Program with AI, Big Data and the Cloud

In this 45-minute webinar, Paul Deitel overviews his exciting, highly innovative new textbook:

> *Intro to Python for Computer Science and Data Science:*
> *Learning to Program with AI, Big Data and the Cloud*

The book's hands-on, library-focused, applied approach includes a thorough treatment of Python using the interactive IPython interpreter and code in Jupyter Notebooks. Students will learn today's most compelling, leading-edge computing technologies, including **AI, big data and cloud case studies** on natural language processing, sentiment analysis, data mining Twitter, IBM Watson cognitive computing, machine learning, deep learning, computer vision, Hadoop, Spark, NoSQL and the Internet of Things. 1500+ topical examples, exercises and projects provide students with a fun and engaging introduction to Python programming. Instructors can use the book's modular approach to easily tune the mix of computer science and data science for introductory courses in those and related disciplines.

For more information about the book:

- Table of Contents:
  http://deitel.com/bookresources/IntroToPython/IntroToPythonFullTOC.pdf
- Preface:
  http://deitel.com/bookresources/IntroToPython/IntroToPythonPreface.pdf
- Book Cover with Reviewer Testimonials:
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Intro to Python® for Computer Science and Data Science

Learning to Program with AI, Big Data and the Cloud

by Paul Deitel & Harvey Deitel

PART 1
CS: Python Fundamentals Quickstart

CS 1. Introduction to Computers and Python
DS Intro: A Brief Tour of Data Science and Artificial Intelligence

CS 2. Introduction to Python Programming
DS Intro: Basic Descriptive Stats

CS 3. Control Statements; Program Development
DS Intro: Measures of Central Tendency—Mean, Median, Mode

CS 4. Functions
DS Intro: Basic Statistics—Measures of Dispersion

CS 5. Lists and Tuples
DS Intro: Simulation and Static Visualization

PART 2
CS: Python Data Structures, Strings and Files

CS 6. Dictionaries and Sets
DS Intro: Simulation and Dynamic Visualization

CS 7. Array-Oriented Programming: High-Performance NumPy Arrays
DS Intro: Pandas Series and DataFrames

CS 8. Strings: A Deeper Look; Regular Expressions
DS Intro: Pandas, Regular Expressions and Data Wrangling

CS 9. Files and Exceptions
DS Intro: Loading Datasets from CSV Files into Pandas DataFrames

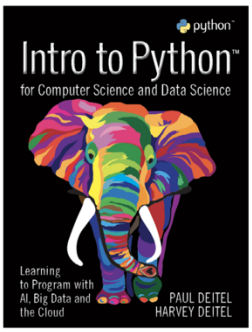
PART 3
CS: Python High-End Topics

CS 10. Object-Oriented Programming
DS Intro: Time Series and Simple Linear Regression

CS 11. `tkinter` GUI and Async/Await Concurrency

CS 12. Computer Science Thinking: Recursion, Searching, Sorting and Big O

CS Other Topics Blog



PART 4
AI, Cloud and Big Data Case Studies

DS 13. Natural Language Processing (NLP), Web Scraping (in exercises)

DS 14. Data Mining Twitter®: Sentiment Analysis, JSON and Web Services

DS 15. IBM® Watson™ and Cognitive Computing

DS 16. Machine Learning: Classification, Regression and Clustering

DS 17. Deep Learning and Reinforcement Learning

DS 18. Big Data: Hadoop®, Spark™, NoSQL and IoT

1. Chapters 1–12 marked "CS" are traditional **Python** programming and **computer-science** topics.
2. Light-tinted bottom boxes in Chapters 1–10 marked "**DS Intro**" are **brief, friendly introductions to data-science topics**.
3. Chapters 13–18 marked "DS" are **Python-based, data-science** chapters, each containing **several full-implementation studies**.
4. **Functional-style programming** is integrated throughout the Python & data science chapters.
5. Preface Includes a **chapter dependency chart** with CS and DS paths through the chapters.
6. **Visualization** throughout.
7. **CS courses** may cover more of the Python chapters and less of the DS content. Vice versa for **Data Science courses**.
8. We put Chapter 5 with Part 1. It's also a natural fit with Part 2.

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