TOPIC	Description	URL	TIME estimation (hours)
Programming			
Python Programming	Discover important data structures like dictionaries and DataFrames, visualize real word data with matplotlib, and learn the art of writing your own Python functions.	https://www.dataca	15
Data manipulation & visualisation			
Importing and cleaning data in Python	Learn to import data from various sources, such as Excel, SQL, SAS, and right from the web. From there, learn to efficiently prepare and clean your data so it is ready to by analyzed.	https://www.dataca	13
Data Manipulation with Python	Harness the power of tools such as pandas and SQLAlchemy so you can extract, filter, and transform your data quickly and efficiently.	https://www.dataca	16
Introduction-to-data-visualization-with-python	This course extends Intermediate Python for Data Science to provide a stronger foundation in data visualization in Python. The course provides a broader coverage of the Matplotlib library and an overview of Seaborn (a package for statistical graphics). Topics covered include customizing graphics, plotting two-dimensional arrays (e.g., pseudocolor plots, contour plots, images, etc.), statistical graphics (e.g., visualizing distributions & regressions), and working with time series and image data.	https://www.dataca	4
Interactive Data Visualization with Bokeh	Bokeh is an interactive data visualization library for Python (and other languages!) that targets modern web browsers for presentation. It can create versatile, data-driven graphics, and connect the full power of the entire Python data-science stack to rich, interactive visualizations.	https://www.dataca	4
Statistics			
Statistical-thinking-in-python-part-1	After all of the hard work of acquiring data and getting them into a form you can work with, you ultimately want to make clear, succinct conclusions from them. This crucial last step of a data analysis pipeline hinges on the principles of statistical inference. In this course, you will start building the foundation you need to think statistically, to speak the language of your data, to understand what they are telling you. The foundations of statistical thinking took decades upon decades to build, but they can be grasped much faster today with the help of computers. With the power of Python-based tools, you will rapidly get up to speed and begin thinking statistically by the end of this course.	https://www.dataca	3
Statistical-thinking-in-python-part-2	After completing Statistical Thinking in Python (Part 1), you have the probabilistic mindset and foundational hacker stats skills to dive into data sets and extract useful information from them. In this course, you will do just that, expanding and honing your hacker stats toolbox to perform the two key tasks in statistical inference, parameter estimation and hypothesis testing. You will work with real data sets as you learn, culminating with analysis of measurements of the beaks of the Darwin's famous finches. You will emerge from this course with new knowledge and lots of practice under your belt, ready to attack your own inference problems out in the world.	https://www.dataca	4
Maths			
Linear Algebra	A quick review of the linear algebra concepts relevant to machine learning.	http://www.deeplea	
Calculus	introductory calculus course	https://www.khanac	
Machine learning			
Andrew Ng Machine Learning	This course provides a broad introduction to machine learning, datamining, and statistical pattern recognition. Topics include: (i) Supervised learning (parametric/non-parametric algorithms, support vector machines, kernels, neural networks). (ii) Unsupervised learning (clustering, dimensionality reduction, recommender systems, deep learning). (iii) Best practices in machine learning (bias/variance theory; innovation process in machine learning and AI). The course will also draw from numerous case studies and applications, so that you'll also learn how to apply learning algorithms to building smart robots (perception, control), text understanding (web search, anti-spam), computer vision, medical informatics, audio, database mining, and other areas.	https://www.course	77
Machine-learning-with-python	In this track, you'll learn the fundamental concepts in Machine Learning.	https://www.dataca	16
Deep learning			
Deep Learning Specialization	In five courses, you will learn the foundations of Deep Learning, understand how to build neural networks, and learn how to lead successful machine learning projects. You will learn about Convolutional networks, RNNs, LSTM, Adam, Dropout, BatchNorm, Xavier/He initialization, and more. You will work on case studies from healthcare, autonomous driving, sign language reading, music generation, and natural language processing. You will master not only the theory, but also see how it is applied in industry. You will practice all these ideas in Python and in TensorFlow, which we will teach.	https://www.course	46-70

TOPIC	Description	URL	TIME (hours)	Price
Programming				
Programming Foundations with Python	In this introductory programming class, you'll learn Object-Oriented Programming, a must-have technique for software engineers that will allow you to reuse and share code easily. You'll learn by doing, and will build byte-sized (ha!) mini projects in each lesson to learn and practice programming concepts.	https://www.udacity.com/c	36	free
Introduction to Computer Science	This is CS50x, Harvard University's introduction to the intellectual enterprises of computer science and the art of programming for majors and non-majors alike, with or without prior programming experience. An entry-level course taught by David J. Malan, CS50x teaches students how to think algorithmically and solve problems efficiently. Topics include abstraction, algorithms, data structures, encapsulation, resource management, security, software engineering, and web development. Languages include C, Python, SQL, and JavaScript plus CSS and HTML. Problem sets inspired by real-world domains of biology, cryptography, finance, forensics, and gaming. As of Fall 2016, the on-campus version of CS50x, CS50, was Harvard's largest course. Students who earn a satisfactory score on 9 problem sets (i.e., programming assignments) and a final project are eligible for a certificate. This is a self-paced course–you may take CS50x on your own schedule.	https://www.edx.org/cours	180	free
Python for Data Science and Machine Learning Bootcamp	This comprehensive course will be your guide to learning how to use the power of Python to analyze data, create beautiful visualizations, and use powerful machine learning algorithms!	https://www.udemy.com/p	21,5	10,99 €
Introduction to Computer Science and Programming Using Python	This course is the first of a two-course sequence: Introduction to Computer Science and Programming Using Python, and Introduction to Computational Thinking and Data Science. Together, they are designed to help people with no prior exposure to computer science or programming learn to think computationally and write programs to tackle useful problems. Some of the people taking the two courses will use them as a stepping stone to more advanced computer science courses, but for many it will be their first and last computer science courses.	https://courses.edx.org/cou	9 weeks	free
Learn Python	By the end of this track, you'll have what it takes to begin your career in companies that use Python, or even to start your own company!	https://teamtreehouse.con	22	$25/mo
Google's Python Class	this is a free class for people with a little bit of programming experience who want to learn Python. The class includes written materials, lecture videos, and lots of code exercises to practice Python coding. These materials are used within Google to introduce Python to people who have just a little programming experience. The first exercises work on basic Python concepts like strings and lists, building up to the later exercises which are full programs dealing with text files, processes, and http connections. The class is geared for people who have a little bit of programming experience in some language, enough to know what a "variable" or "if statement" is. Beyond that, you do not need to be an expert programmer to use this material.	https://developers.google.c		free
Programming for Everybody (Getting Started with Python)	This course aims to teach everyone the basics of programming computers using Python. We cover the basics of how one constructs a program from a series of simple instructions in Python. The course has no pre-requisites and avoids all but the simplest mathematics. Anyone with moderate computer experience should be able to master the materials in this course. This course will cover Chapters 1-5 of the textbook "Python for Everybody". Once a student completes this course, they will be ready to take more advanced programming courses. This course covers Python 3.	https://www.coursera.org/	28	41 € /mo
Data manipulation & visualisation				
Intro to Data Science (part of Machine Learning Engineer Nanodegree)		https://www.udacity.com/c		
Introduction to Databases	This course covers database design and the use of database management systems for applications. It includes extensive coverage of the relational model, relational algebra, and SQL. It also covers XML data including DTDs and XML Schema for validation, and the query and transformation languages XPath, XQuery, and XSLT. The course includes database design in UML, and relational design principles based on dependencies and normal forms. Many additional key database topics from the design and application-building perspective are also covered: indexes, views, transactions, authorization, integrity constraints, triggers, on-line analytical processing (OLAP), JSON, and emerging NoSQL systems	https://lagunita.stanford.ed	22	
Data Science A-Z™: Real-Life Data Science Exercises Included	Learn Data Science step by step through real Analytics examples. Data Mining, Modeling, Tableau Visualization and more!	https://www.udemy.com/d	21	
Statistics & Probability				
Introduction to statistics	Introduction to statistics. Will eventually cover all of the major topics in a first-year statistics course (not there yet!)	https://www.udemy.com/d	25	
Statistics and Probability		https://www.khanacademy		
Maths				
Linear algebra		https://www.khanacademy		
Introduction to Matrices		https://www.khanacademy		
Machine learning				
Introductory computer science algorithms		https://www.khanacademy		
Machine Learning A-Z™: Hands-On Python & R In Data Science		https://www.udemy.com/m		
Machine Learning Engineer Nanodegree		https://www.udacity.com/c		
Machine Learning Foundations: A Case Study Approach		https://www.coursera.org/		
Deep learning				
NANODEGREE FOUNDATION PROGRAM Deep Learning		https://www.udacity.com/c		
Deep Learning Part 1: Practical Deep Learning for Coders Deep Learning Part 2: Cutting Edge Deep Learning for Coders		http://www.fast.ai/		
Deep Learning Specialization		https://www.coursera.org/		
Coursera: Neural Networks for Machine Learning	Learn about artificial neural networks and how they're being used for machine learning, as applied to speech and object recognition, image segmentation, modeling language and human motion, etc. We'll emphasize both the basic algorithms and the practical tricks needed to get them to work well.	https://www.coursera.org/	144	
Deep Learning A-Z™: Hands-On Artificial Neural Networks	Learn to create Deep Learning Algorithms in Python from two Machine Learning & Data Science experts. Templates included.	https://www.udemy.com/d	23	
AI				
NANODEGREE PROGRAM Artificial Intelligence Engineer		https://www.udacity.com/a		
Other platforms				
		https://www.dataquest.io/		
Siraj Raval's YouTube Channel		https://www.youtube.com/		
		https://www.freecodecamp		
Practical exercises				
		https://www.kaggle.com/		
Books				
Learn Python 3 the Hard Way: A Very Simple Introduction to the Terrifyingly Beautiful World of Computers and Code (Zed Shaw's Hard Way Series)		https://www.amazon.com/		

Naked Statistics: Stripping the Dread from the Data		https://www.amazon.com/		
Artificial Intelligence: A Modern Approach (3rd Edition)		https://www.amazon.com/		
Neural networks and deep learning		http://neuralnetworksandd		
Building Machine Learning Systems with Python		https://www.amazon.com/		
All of Statistics: A Concise Course in Statistical Inference		http://www.ic.unicamp.br/		
Other learning plans/ general articles				
		https://hackernoon.com/m		
		https://medium.freecodeca		
		https://www.springboard.c		
		https://medium.freecodeca		
		https://github.com/KlausGl		
		https://medium.com/mach		
		https://elitedatascience.co		
		http://karlrosaen.com/ml/		
		https://towardsdatascience		
Community				
Datacamp Slack				