



## Certificate Programs in Python for Algorithmic Trading & Computational Finance

### *Example Study Plan (September 2019 Cohort)*

#### Remarks:

- the table is just an **example** of how the different topics can be combined into a 12-week structured study program plus practice modules
- week 1 refers to the **starting week of the programs**, i.e. to **calendar week 36 from Monday, 02. September 2019**
- it assumes an effort of about **10-18 hours per week** for live sessions, watching videos, reading documentation and self-study; some invest a bit more, some less per week and shorten or stretch the program duration that way
- the column **Algorithmic Trading** contains the main elements/videos of the Python for Algorithmic Trading class
- the column **Computational Finance** contains the main elements/videos of the Computational Finance class, including DX Analytics
- the column **Python for Financial Data Science** refers to the materials for respective class
- in these three columns, **bold text** represents **videos** and **regular text** refers to the **written materials & codes** as found in the *Finance with Python*, *Python for Algorithmic Trading* and *Python for Finance Courses* as well as in the book *Derivatives Analytics with Python*
- the column **Tools & Skills** refers to topics related to basic tools and skills needed in software and Python development for finance and algorithmic trading; these topics are important for setting up a proper development environment and efficient development processes
- the column **AI in Finance** refers to the materials for the class that covers machine & deep learning for Finance and Algorithmic Trading in detail; although the topics are mainly targeted towards market prediction, the basic approaches are also of interest in Computational Finance
- the column **Optional** lists videos, e.g. from the classes **Python for Excel**, **Python for Databases** or **Natural Language Processing**, that can be watched to go deeper into certain topics that are not at the very core of the program but that might be important in practice
- on the Quant Platform you also find a training class called **Webinars, Talks & Special Topics** – here you find a collection of recordings from recent talks, webinars and workshops that are related to Python for Finance & Algorithmic Trading
- if you have **technical or content questions**, please use the **User Forum** on the Quant Platform
- if you have **organizational questions**, you can send us an email to [training@tpq.io](mailto:training@tpq.io)

W	Algorithmic Trading	Computational Finance	Live Sessions	Financial Data Science	Tools & Skills	AI in Finance	Optional
01	<b>Finance with Python 01 &amp; 02</b> Finance with Python Chs 1-3		Intro & Overview   02. September	<b>Data Types &amp; Structures 01</b> Python for Finance Chs 1-2	Tools & Skills 01 (Python Environments)	AI in Finance 01	PyExcel 01
02	<b>Finance with Python 03 &amp; 04</b> Finance with Python Chs 4-6		Tutorial 01   12. September	<b>Data Types &amp; Structures 02</b> Python for Finance Ch 3	Tools & Skills 02 (Docker Usage, Jupyter)	AI in Finance 02	PyExcel 02
03	<b>Financial Data Science</b>		[PyCon Taiwan]	<b>Num. Computing with NumPy</b> Python for Finance Ch 4	Tools & Skills 03 (Cloud Usage, Jupyter)	AI in Finance 03	PyExcel 03 OOP 01
04	<b>Vectorized Backtesting</b> PyAlgo Chs 1-4	<b>Market Based Valuation DX Quick Start</b> DAWP Chs 1-3	Tutorial 02   25. September Tutorial 03   27. September	<b>Data Analysis with pandas</b> Python for Finance Ch 5	-	AI in Finance 04	PyExcel 04 OOP 02
05	<b>Prediction-based Trading</b> PyAlgo Ch 5	<b>Complete Market Models DX Frame and Simulation</b> DAWP Ch 5	Tutorial 04   04. October	<b>Object Oriented Programming</b> Python for Finance Ch 6	Tools & Skills 04 (Vim Code Editor)	AI in Finance 05	PYDB 01 OOP 03
06	<b>Event-based Backtesting</b> PyAlgo Ch 6	<b>Risk-Neutral Valuation DX European Valuation</b> DAWP Ch 4	Tutorial 05   11. October	<b>Visualization &amp; Financial Time Series</b> Python for Finance Chs 7-8	Tools & Skills 05 (Screen + Vim + q)	AI in Finance 06	PYDB 02
07	<b>Real-Time Data Handling &amp; Viz</b> PyAlgo Ch 7	<b>Fourier Pricing DX Fourier Pricing</b> DAWP Ch 6	Tutorial 06   Test Project [by 23. October 2019]	<b>Input-Output Operations</b> Python for Finance Ch 9	Tools & Skills 06 (Doctest & unittest)	AI in Finance 07	PYDB 03
08	<b>Oanda Trading Platform</b> PyAlgo Ch 8	<b>American Options DX American Valuation</b> DAWP Chs 7-8	<b>Tutorial 07   Q&amp;A</b> <b>25. October 2019</b>	<b>Performance Python</b> Python for Finance Ch 10	Tools & Skills 07 (Git Version Control)	AI in Finance 08	PYDB 04
09	<b>FXCM Trading Platform</b> PyAlgo Ch 9	<b>General Market Model &amp; MCS DX Multi-Risk Derivatives</b> DAWP Ch 9	tba	<b>Math Tools &amp; Stochastics</b> Python for Finance Chs 11-12	Tools & Skills 08 (Python Packaging)	AI in Finance 09	PYDB 05
10	<b>Interactive Brokers</b> PyAlgo Ch 10	<b>Monte Carlo Simulation</b> DAWP Ch 10	tba	<b>Statistics   Dates &amp; Times</b> Python for Finance Ch 13 & App	Tools & Skills 09 (Documentation)	AI in Finance 10	PYDB 06
11	<b>Gemini Trading Platform</b> PyAlgo Ch 11	<b>Calibration DX Implied Vol &amp; Calibration</b> DAWP Ch 11	tba	<b>Machine Learning Basics</b> Python for Finance Ch 13	Tools & Skills 10 (Code Hosting/Case)	AI in Finance 11	NLP 01
12	<b>Review &amp; Automation</b> PyAlgo Ch 12	<b>Valuation &amp; Hedging DX Complex Portfolios</b> DAWP Chs 12-13	tba	-	-	AI in Finance 12	NLP 02