Certificate Programs in Python for Algorithmic Trading & Computational Finance

Example Study Plan (January 2022 Cohort)

Remarks:

- the table is just an **example** of how the different topics can be combined into a 12-week structured study program plus 4 weeks of practice
- **week 1 refers to the starting week of the programs, i.e. to the week starting on Monday, 10. January 2022**
- it assumes an effort of about **14-18 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
- *as a general preparation, you should study the modules in the* Mathematics Basics *class (not shown in the study plan)*
- 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 **Asset Management** is the class that covers asset management and machine learning for asset management in detail
- the column **Financial Data Science** refers to the materials for respective class about important approaches for working with financial data
- in these four 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 Book** 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

W	Algorithmic Trading	Comp Finance	Asset Management	Live Sessions	Financial Data Science	Tools & Skills	AI in Finance Book	Optional
1	**Finance with Python 01 & 02** Finance with Python Chs 01, 02 & 03			Intro & Overview (10.01.22) Math Basics 40 (11.01.) Crypto Basics 07 (13.01.)	**Data Types & Data Structures 01** Python for Finance Chs 01-02	Tools & Skills 01 (Python Environments)	AI in Finance 01 (see *AI in Finance Book* class) plus Ch 01	AI in Finance 01 (see *AI in Finance* class) PyExcel 01
2	**Finance with Python 03 & 04** Finance with Python Ch 04 **Python Infrastructure**			Math Basics 41 (17.01.) Crypto Basics 08 (18.01.) Q&A on Discord (19.01.)	**Data Types & Data Structures 02** Python for Finance Ch 03	Tools & Skills 02 (Docker Usage, Jupyter)	AI in Finance 02 plus Ch 02	AI in Finance 02 PyExcel 02
3	**Finance with Python 05 & 06** Finance with Python Chs 05 & 06 **Financial Data Science**			Math Basics 42 (24.01.) Crypto Basics 09 (25.01.) Q&A on Discord (25.01.)	**Numerical Computing with NumPy** Python for Finance Ch 04	Tools & Skills 03 (Cloud Usage, Jupyter)	AI in Finance 03 plus Ch 03	AI in Finance 03 PyExcel 03 OOP 01
4	**Vectorized Backtesting** PyAlgo Chs 01-04	**Market Based Valuation DX Quick Start** DAWP Chs 01-03	**Python for AM 01 Python for AM 02**	Review & Study Week [NO LIVE SESSIONS]	**Data Analysis with pandas** Python for Finance Ch 05	Tools & Skills Special 01 (IPython) Tools & Skills Special 02 (xonsh)	AI in Finance 04 plus Ch 04	AI in Finance 04 RL for Finance 01 PyExcel 04 OOP 02
5	**Predicting Market Movements** PyAlgo Ch 05	**Complete Market Models DX Frame & Simulation** DAWP Ch 05	**Python for AM 03 Python for AM 04**	Math Basics 43 (08.02.) Q&A on Discord (08.02.) Crypto Basics 10 (10.02.)	**Object Oriented Programming** Python for Finance Ch 06	Tools & Skills 04 (Vim Code Editor)	AI in Finance 05 plus Ch 05	AI in Finance 05 RL for Finance 02 PYDB 01 OOP 03
6	**Event-based Backtesting** PyAlgo Ch 06	**Risk-Neutral Valuation DX European Valuation** DAWP Ch 04 *LVVD 01*	**Python for AM 05 Python for AM 06**	Use the Discord Server! [NO LIVE SESSIONS]	**Visualization & Financial Time Series** Python for Finance Chs 07-08	Tools & Skills 05 (Screen + Vim + q)	AI in Finance 06 plus Ch 06	AI in Finance 06 RL for Finance 03 PYDB 02

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7	**Real-Time Data Handling & Viz** PyAlgo Ch 07	**Fourier Pricing DX Fourier Pricing** DAWP Ch 06 *LVVD 02*	**Python for AM 07 Python for AM 08**	Q&A Session on Discord (21.02)	**Input-Output Operations** Python for Finance Ch 09	Tools & Skills 06 (Doctest & Unittest)	AI in Finance 07 plus Ch 07	AI in Finance 07 RL for Finance 04 PYDB 03
8	**Oanda Trading Platform** PyAlgo Ch 08	**American Options DX American Valuation** DAWP Chs 07-08 *LVVD 03*	**Python for AM 09 Python for AM 10**	Crypto Basics 11 (01.03.) RL Finance 05 (03.03.)	**Performance Python** Python for Finance Ch 10	Tools & Skills 07 (Git Version Control)	AI in Finance 08 plus Ch 08	AI in Finance 08 RL for Finance 05 PYDB 04
9	**FXCM Trading Platform** PyAlgo Ch 09 **OANDA MC 01**	**General Market Model & MCS DX Multi-Risk Derivatives** DAWP Ch 09 **LVVD 04**	**Python for AM 11 Python for AM 12**	Use the Discord Server! [NO LIVE SESSIONS]	**Math Tools & Stochastics** Python for Finance Chs 11-12	Tools & Skills 08 (Python Packaging)	AI in Finance 09 plus Ch 09	AI in Finance 09 RL for Finance 06 PYDB 05
10	**IBKR Trading Platform** PyAlgo Ch 10 **OANDA MC 02**	**Monte Carlo Simulation** DAWP Ch 10 *LVVD 05*	**Python for AM 13 Python for AM 14**	Q&A on Discord (14.03.)	**Statistics	Dates & Times** Python for Finance Ch 13 & App	Tools & Skills 09 (Documentation)	AI in Finance 10 plus Ch 10	AI in Finance 10 RL for Finance 07 PYDB 06
11	**Gemini Trading Platform** PyAlgo Ch 11 **OANDA MC 03**	**Calibration DX Implied Vol & Calibration** DAWP Ch 11 *LVVD 06*	**Python for AM 15**	Q&A on Discord (21.03.) RL in Finance 06 (23.03.)	**Machine Learning Basics** Python for Finance Ch 13	Tools & Skills 10 (Code Hosting/ Case)	AI in Finance 11 plus Ch 11	AI in Finance 11 RL for Finance 08 NLP 01
12	**Review & Automation** PyAlgo Ch 12 **OANDA MC 04 OANDA MC 05**	**Valuation & Hedging DX Complex Portfolios** DAWP Chs 12-13	**Python for AM 16 Python for AM 17**	-	–	Tools & Skills Special 03 (Sublime Text)	AI in Finance 12 plus Chs 12-14	AI in Finance 12 NLP 02

PLUS 4 WEEKS PRACTICE & FINAL PROJECT PHASE