

BAF521: Digital Finance Programming

KAIST Business School, Spring 2022

Professor: 변 석 준 (Byun, Suk-Joon)
Phone: 958-3352
E-mail: sjbyun@kaist.ac.kr

Class times: Thursday 7:00 – 10:00 p.m.

Teaching Assistants:

Description: This course provides an introduction to a programming language, python. This course covers a number of topics including variables, data types, string, list, dictionary, for loops, while loops, if statements, functions, classes, methods, attributes, numpy array, pandas series, and pandas dataframe.

Textbook: Python Crash Course, 2nd Edition: A Hands-On, Project-Based Introduction to Programming
By Eric Matthes, 2019

Homeworks: There will be several homeworks in this course. Identical work receives zero marks for everyone involved. Unless otherwise stated in class, homeworks will be due in one week. The due date for assignments is strict. If your homework solution is submitted after the due date you will lose 20% of your score for each late business day.

Grading:

- Participation 10 %
- Homeworks 30 %
- Mid-term Exam 30%
- Final Exam 30 %

Topics:

- Getting started (ch 1)
- Variables and simple data types (ch 2)
- Introducing lists (ch 3)
- Working with lists (ch 4)
- If statements (ch 5)
- Dictionaries (ch 6)
- User input and while loops (ch 7)
- Functions (ch 8)
- Classes (ch 9)
- Files and exceptions (ch 10)
- Numpy, scipy, pandas, keras, tensorflow packages
- (ex1) Date
- (ex2) Real asset
- (ex3) Linear interpolation
- (ex4) Average temperature by year
- (ex5) Value-at-Risk, Expected shortfall, historical simulation

- (ex6) Minimum variance portfolio, Optimal portfolio,
- (ex7) Bootstrap method
- (ex8) Logistic regression
- (ex9) Neural network
- (ex10) Deep Q-learning