

# The Hebrew University of Jerusalem Syllabus

Data Science Practicum - 55724

Last update 18-04-2024

HU Credits: 3

<u>Degree/Cycle:</u> 2nd degree (Master)

Responsible Department: Business Administration

Academic year: 0

Semester: 2nd Semester

<u>Teaching Languages:</u> Hebrew

Campus: Mt. Scopus

Course/Module Coordinator: Dr. Ariel Goldstein

Coordinator Email: ariel.goldstien@mail.huji.ac.il

Coordinator Office Hours:

Teaching Staff:

### Dr. Ariel Goldstien

## Course/Module description:

The course will focus on data science practices. it will involve heavy programming and the development of real world projects.

### Course/Module aims:

To teach the students actual data science practices, software engineering methods with strong focus on machine learning frameworks.

<u>Learning outcomes - On successful completion of this module, students should be able to:</u>

- 1. Learn more advanced data science techniques
- 2. Learn from a few large scale data science projects
- 3. Design and implement a meaningful data science product/project

# Attendance requirements(%):

70%

Teaching arrangement and method of instruction: frontal lectures and guided project development

### Course/Module Content:

- 1. Multiprocessing (1 class)
- 2. Advanced pandas (3 classes)
- 3. Advanced Classification (1 class)
- 4. Advanced Time Series Analysis (2 classes)
- 5. Unsupervised learning (2 classes)
- a. Advanced Cluttering
- b. Unsupervised Feature Extraction from Text
- 6. TensorFlow, the most popular open-source Deep Learning library. (2 classes)
- 7. Keras (2 classes with 8 & 9)
- 8. Convolutional Nets for machine vision;
- 9. Long Short-Term Memory Recurrent Nets for natural language processing and time series analysis;

### Required Reading:

Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython 2nd Edition

Python Data Science Handbook: Essential Tools for Working with Data Hands-On Machine Learning with Scikit-Learn and Tensor Flow: Concepts, Tools, and Techniques to Build Intelligent Systems Machine Learning, Tom Mitchell

Additional Reading Material:

**Grading Scheme:** 

Essay / Project / Final Assignment / Home Exam / Referat 100 %

Additional information: