L2D

L2D Learn To Discover

UCL

COURSE TIMETABLE

Part I: Basic Python & Data Handling

For students with limited programming experience, we have set up a Basic Python course, that provides a paced, thorough introduction to programming principles and syntax. These lessons place particular emphasis on the features and syntax that are required for data handling.

The second term deals with Pandas dataframes and NumPy arrays, facilitating the import, visualisation and handling of data, incorporating both univariate and multivariate techniques. Graphical display of datasets is also covered, introducing Matplotlib, while exploring how to analyse its output.

Basic Python

Lesson Release	Lecture & Drop-In Session*	Module	Description
12/05/25	15/05/25	Basic Python 1	Getting started, Input-Output, Operations
23/05/25**	29/05/25	Basic Python 2	Arrays, Lists, Tuples, Strings
09/06/25	26/06/25	Basic Python 3	Iterations: For and While Loops
23/06/25	26/06/25	Basic Python 4	Dictionaries and Functions
07/07/25	08/07/25	Basic Python Recap Week: Catch-Up & Contextualisation	

Data Handling

Lesson Release	Lecture & Drop-In Session*	Module	Description
14/07/25	17/07/25	Dataframes 1	Import, Basic Stats, Visualisation
28/07/25	31/07/25	Dataframes 2	Scatter Plots, Correlations, Multivariate Analysis
11/08/25	14/08/25	Image Handling	Image Handling and Processing
22/08/25**	28/08/25	Time Series	Plots, Filtering, Fourier Transform
08/09/25	09/09/25	Data Handling Recap Week: Catch up & Contextualisation	

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Part II: Machine Learning

Part II is aimed at students who wish to enter or resume the course at a more advanced level. These lessons introduce NumPy arrays, advanced data handling and machine learning; with emphasis on supervised and unsupervised learning.

Students will implement a variety of classification algorithms from the scikit-learn library, and as the course progresses, test and improve model performance and robustness. We will also discover what makes each particular model successful and what insights these give about our test data.

The final modules cover unsupervised learning, where clustering and dimensionality reduction are thoroughly explored.

Supervised Machine Learning

Lesson Release	Lecture & Drop-In Session*	Module	Description
15/09/25	18/09/25	Machine Learning 1	Classification I: Introduction
29/09/25	01/10/25	Machine Learning 2	Classification II: Improvement
13/10/25	16/10/25	Machine Learning 3	Classification III: Refinement

Unsupervised Machine Learning

Lesson Release	Lecture & Drop-In Session*	Module	Description
27/10/25	30/10/25	Machine Learning 4	Clustering I: Gaussian Mixed Models
10/11/25	13/11/25	Machine Learning 5	Clustering II: Image Clustering
24/11/25	27/11/25	Machine Learning 6	Dimensionality Reduction: PCA
08/12/25	09/12/25	Machine Learning Recap Week: Catch-Up & Contextualisation	
15/12/25	18/12/25	Final Project	Deadline for Final Project: 31/01/26

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Further Information

Assignment Deadlines: Assignments should be submitted by no later than the release date of the next lesson topic. This is typically 14 days after the lesson materials for the lesson topic in question are released. Assignments submitted out of this window will be marked as late, and their assessment will not be prioritised.

*Lectures are held at 14:00 UK time (BST/GMT), and are followed immediately after at 15:00 by an optional Drop-In Session; both sessions are live, and held on Zoom.

** Bank Holiday on the usual release day (Monday) and therefore the release of the lesson material will be the Friday prior.