Introduction to Machine Learning (COMP0088)

**Description**

Aims:
To have a full understanding of the learning outcomes.

Learning outcomes:
On successful completion of the module, a student will be able to:
1. understand machine learning at both the theoretical and practical level;
2. solve real-world machine learning problems using the right tools;

Content:
Introduction to Supervised Learning:
- Linear models for regression and classification: least squares, logistic regression;
- Concepts of overfitting and regularization, L1 and L2 regularisation;
- Boosting, Decision Trees, Random Forests;
- Support Vector Machines;
- Deep Learning: Neural Networks for regression and classification, Recurrent Neural Networks;
- Introduction to Unsupervised Learning;
- K-means, Principal Components Analysis, Sparse Coding;
- Expectation-Maximization, Mixture of Gaussians, Factor Analysis;
- Deep Autoencoders, Generative Adversarial Networks;

**Requisites:**
In order to be eligible to select this module, a student must be registered on a programme for which it is a formally-approved option or elective choice AND must have (i) an understanding of Calculus, Linear Algebra and Probability Theory; and (ii) proficiency in coding (preferrably in Python).

**Key information**

**Year** 2019/20
**Credit value** 15 (150 study hours)
**Delivery** PGT L7, Campus-based
**Reading List** View on UCL website
**Tutor** Dr Jason Kokkinos
**Term** Term 1
**Timetable** View on UCL website

**Assessment**

- Written examination (main exam period): 70%
- Coursework: 12%
- Coursework: 18%

**Find out more**

For more information about the department, programmes, relevant open days and to browse other modules, visit [ucl.ac.uk](http://ucl.ac.uk).

**Disclaimer:** All information correct as of August 2019. Please note that aspects of the module may be subject to change. UCL will make best efforts to inform applicants of major changes.