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 (preferably in Python).

**Key information**

<table>
<thead>
<tr>
<th>Year</th>
<th>2019/20</th>
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<tbody>
<tr>
<td>Credit value</td>
<td>15 (150 study hours)</td>
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<tr>
<td>Delivery</td>
<td>PGT L7, Campus-based</td>
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<tr>
<td>Reading List</td>
<td>View on UCL website</td>
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<tr>
<td>Tutor</td>
<td>Dr Iason Kokkinos</td>
</tr>
<tr>
<td>Term</td>
<td>Term 1</td>
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<tr>
<td>Timetable</td>
<td>View on UCL website</td>
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**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 June 2019. Please note that aspects of the module may be subject to change. UCL will make best efforts to inform applicants of major changes.