



Applied Machine Learning (COMP0081)

Description

Aims:

To give a detailed understanding of topics related to efficient implementation of large-scale machine learning with a focus on optimisation in both linear and non-linear machine learning models. Students will also gain experience in tackling real world problems through solving online machine learning challenges. A key aim is that students understand the challenges of optimisation and associated time and space complexities of various approaches.

Learning outcomes:

On successful completion of the module, a student will:

1. have a good understanding of practical issues arising in implementing machine learning in practice, including engineering challenges as well as the data ethics considerations;
2. become familiar with techniques used in practice to solve real world machine learning problems and will be able to apply these techniques;

Content:

- Methods for solving Large Scale Linear Systems, including Conjugate Gradients;
- Classical methods for Regression and Classification including linear and logistic regression;
- Clustering Methods for Unsupervised Learning;
- Fast Nearest Neighbours
- Matrix and Tensor Factorisation;
- Visualisation methods including tSNE;
- Ensembling, Gradient Boosting Machines;
- Data Ethics; Fairness in Machine Learning

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) understanding and abilities with Linear Algebra, Multivariate Calculus and Probability at mathematics FHEQ

Key information

Year	2019/20
Credit value	15 (150 study hours)
Delivery	PGT L7, Campus-based
Reading List	View on UCL website
Tutor	Dr Dmitry Adamskiy
Term	Term 2
Timetable	View on UCL website

Assessment



■	Written examination (main exam period): 70%
■	Coursework: 10%
■	Coursework: 10%
■	Coursework: 10%

Find out more

For more information about the department, programmes, relevant open days and to browse other modules, visit ucl.ac.uk

Level 4; (ii) familiarity with coding a high-level language in order to complete assessments (strongly recommend that students are skilled in Python); and (iii) have taken COMP0088 or COMP0078 in Term 1.

Note that it is also recommended to have taken COMP0080 or COMP0086 in Term 1. This module is not an introduction to machine learning





Applied Machine Learning (COMP0081)

Description

Aims:

To give a detailed understanding of topics related to efficient implementation of large-scale machine learning with a focus on optimisation in both linear and non-linear machine learning models. Students will also gain experience in tackling real world problems through solving online machine learning challenges. A key aim is that students understand the challenges of optimisation and associated time and space complexities of various approaches.

Learning outcomes:

On successful completion of the module, a student will:

1. have a good understanding of practical issues arising in implementing machine learning in practice, including engineering challenges as well as the data ethics considerations;
2. become familiar with techniques used in practice to solve real world machine learning problems and will be able to apply these techniques;

Content:

- Methods for solving Large Scale Linear Systems, including Conjugate Gradients;
- Classical methods for Regression and Classification including linear and logistic regression;
- Clustering Methods for Unsupervised Learning;
- Fast Nearest Neighbours
- Matrix and Tensor Factorisation;
- Visualisation methods including tSNE;
- Ensembling, Gradient Boosting Machines;
- Data Ethics; Fairness in Machine Learning

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) understanding and abilities with Linear Algebra, Multivariate Calculus and Probability at mathematics FHEQ

Key information

Year	2019/20
Credit value	15 (150 study hours)
Delivery	UGM L7, Campus-based
Reading List	View on UCL website
Tutor	Dr Dmitry Adamskiy
Term	Term 2
Timetable	View on UCL website

Assessment



- Written examination (main exam period): 70%
- Coursework: 10%
- Coursework: 10%
- Coursework: 10%

Find out more

For more information about the department, programmes, relevant open days and to browse other modules, visit ucl.ac.uk

Level 4; (ii) familiarity with coding a high-level language in order to complete assessments (strongly recommend that students are skilled in Python); and (iii) have taken COMP0088 or COMP0078 in Term 1.

Note that it is also recommended to have taken COMP0080 or COMP0086 in Term 1. This module is not an introduction to machine learning

