Introduction to Applied Machine Learning (INFRXXXXX)

Undergraduate—Propose to change to Postgraduate

Organiser

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Summary

Since the early days of AI, researchers have been interested in making computers learn, rather than simply programming them to do tasks. This is the field of machine learning. The main area that will be discussed is supervised learning, which is concerned with learning to predict an output, given inputs. A second area of study is unsupervised learning, where we wish to discover the structure in a set of patterns; there is no output ‘teacher signal’.

The primary aim of the course is to provide the student with a set of practical tools that can be applied to solve real-world problems in machine learning, coupled with an appropriate, principled approach to formulating a solution.

This 20 credit course replaces INFR10063 Introductory Applied Machine Learning (10 credits).

Course Description


[We will also use a modern machine learning programming environment]

Course Outline

College & School: College of Science and Engineering School of Informatics

Course Availability: Available to all students

SCQF Credit Level: SCQF Level 10 (Yr3 UG) SCQF Level 11 (Postgraduate)

Subject Area(s): Informatics

SCQF Credit Volume: 20

ECTS Credit Volume: 10

Enrolment Requirements

Pre-Requisites

Co-Requisites

Prohibited Combinations

Students MUST NOT also be taking Introductory Applied Machine Learning (INFR10063) Distance Learning version INFR11152, and other campus version INFR10069

Other Requirements

This course is open to all Informatics students including those on joint degrees. For external students where this course is not listed in your DPT, please seek special permission from the course organiser (lecturer).
Maths requirements:


3 - Calculus: Functions of several variables. Partial differentiation. Multivariate maxima and minima.

4 - Special functions: Log, exp

5 - Geometry: Basics of lines, planes and hyperplanes. Coordinate geometry of circle, sphere, ellipse, ellipsoid and n-dimensional generalizations.

6 - Entropy: is useful, but will be covered in the lectures.

Programming requirements: Students should be able to program in a modern object-oriented language such as Python.

Visiting Student Information

Pre-Requisites

Visiting External students are required to have comparable background to that assumed by the course prerequisites listed in the Degree Regulations & Programmes of Study. If in doubt, consult the course organiser (lecturer).

High Demand Course? Yes

Displayed in Prospectus? No

Deliver Information

Academic year 2017/18, Available to all students (SV1)

Overview

Learn enabled Yes Quota None

Course Start Semester 1 Course Start Date 18/09/2017

Learning and Teaching Activities

Lectures 20

Seminar/Tutorial Hours 4

Supervised Practical/Workshop/Studio Hours 4

Summative Assessment Hours 2

Programme Level Learning and Teaching Hours 4

Directed and Independent Learning 166

Total 200 Hours

Additional Information (Learning and Teaching)
Assessment

Written Exam  50%
Coursework  50%
Practical Exam  0%

Additional Information (Assessment)

Coursework - 50%
Exam - 50%.

If delivered in semester 1, this course will have an option for semester 1 only visiting undergraduate students, providing assessment prior to the end of the calendar year.

Feedback

Not entered

Exam Information

Exam Diet Details

Main Exam Diet S1 (December)
Resit Exam Diet (August)

Teaching Load

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Learning & Teaching Staff

Staff member Role Added Updated In use

None found

Learning Outcomes

On completion of this course, the student will be able to:

1. Explain the scope, goals and limits of machine learning, and the main sub-areas of the field.
2. Describe the various techniques covered in the syllabus and where they fit within the structure of the discipline.
3. Students should be able to critically compare, contrast and evaluate the different ML techniques in terms of their applicability to different Machine Learning problems.
4. Given a data set and problem students should be able to use appropriate software to apply these techniques to the data set to solve the problem.
5. Given appropriate data students should be able to use a systematic approach to conducting experimental investigations and assessing scientific hypotheses.

Reading List

### Additional Information

#### Course Website
http://www.inf.ed.ac.uk/teaching/courses/iaml

#### Graduate Attributes, Personal and Professional Skills
Not entered

#### Keywords
Not entered

The information below is **not displayed** on DRPS.

### Organisation and Teaching Load

#### Convenor of Board of Examiners
Not entered

#### Contact Hours
20

#### Marking Scheme
APT UG Honours Marking Scheme

#### Default Course Mode of Study
Classes & Assessment incl. centrally arranged exam

#### Fee Code
*Not applicable*

#### Acronym
INFR10069

#### Comments (Internal Use Only)
None