

Introductory IAML: Proposal to change coursework/exam weighting
For both campus and distance courses
Revisions for March 2017 BoS meeting are in italics

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IAML introduces students to the theoretical basis for a range of widely-used machine learning methods, and modern practical tools for using these methods in an applied setting. It is currently assessed with a weighting of 75% to exam, 25% to coursework. I propose to change increase the coursework weighting to 50%.

IAML is the UG3 introduction to practical machine learning and as such is essential for many UG4 projects in practical data science. It is also taken by many MSc students who are looking to use machine learning methods in an applied MSc project, including the increasing number of MSc in Data Science students. In 2016/17 the course enrolled 87 UG3 and 144 MSc of whom 27 were taking the MSc in Data Science.

In 2016/17 the coursework was recreated using Jupyter notebooks in Python, and standard data science Python libraries (Numpy, Pandas, Scikit-learn and Seaborn). It is delivered in four assignments, with deadlines in weeks 4, 6, 8 and 10. Labs that introduce them to the necessary libraries are run in weeks 3, 5, 7 and 9. Feedback from the students indicated they once again spent much more time on the coursework than its 25% weighting warrants, and they said that more challenging coursework would be welcome if they had more time.

Given the practical nature and aims of the course, it is sensible to increase the coursework weighting to 50%. I plan to keep the current 4-assignment structure, and to increase the content by adding in a more challenging, open-ended problem based on a real dataset, to each assignment. This will give the students significantly more practice in using the concepts they have studied and the libraries they have been introduced to.

The additional time given to coursework will be compensated for by reduced emphasis on mathematical background in the conceptual content examined, and a slight reduction in mathematical content in the didactic material presented. This combination will allow students who are better-prepared mathematically to gain an understanding of the mathematical basis of the methods, while not requiring so much time to be devoted to mastering and revising this content for the down-weighted examination. Any mathematical material that continues to be examinable will be flagged up to students.

These adjustments to didactic and examinable material and coursework will be coordinated with the other ML courses – most prominently MLPR but also DME and MLP to ensure course complementarity and differentiation. It is likely that at least some of the coursework will be revised to be done in pairs, to increase peer-learning.

This change is also proposed for the distance IAML course that will be first offered in September 2017, to keep the two versions in line with each other.