MLPR welcome and advice

Welcome to MLPR! We’re your lecturers, Arno Onken, Iain Murray, and Antonio Vergari. You can email us directly: i.murray@ed.ac.uk, aonken@inf.ed.ac.uk, avergari@ed.ac.uk. (There are multiple Iain Murray’s at the University; please use the email addresses given here.) However, if at all possible post your question to the hypothesis class forum instead.

Machine Learning is growing in importance as a tool for other fields and in industry, and there’s a lot of fun stuff in this course. We hope you’ll enjoy it. However, this isn’t the right course for everyone. This course isn’t necessary to apply machine learning, it’s building up technical expertise towards being able to research new machine learning methods. If you’re mainly interested in picking up some machine learning tools, you should take a more applied course.

1 Course selection advice

MLPR is an (advanced) introduction to machine learning. Students taking the course have a large variety of backgrounds. To accommodate everyone, we start from the basics, but move quickly. You do not have to have taken a machine learning course before, but if you haven’t, you must have no difficulties with the other technical background that we assume.

Every year some students take MLPR without the required technical experience and then fail it. Don’t be one of these students! We require a sophisticated level of experience with mathematical reasoning and some programming. If you haven’t programmed in Python before, or have limited experience with some specific parts of the maths background, it’s possible to make these up in the early weeks. Take a look at the maths and programming self-test and notes on the course website, and ask yourself honestly whether this is material you can work with yourself. You’ll need to be able to answer new questions you haven’t seen before, and explain your reasoning to others.

If you are an Informatics undergraduate student, this course reviews some of the same material as IAML, but will be more technical. If you didn’t enjoy IAML, you should avoid MLPR! If you did like it, this course should reinforce and then extend that material.

Informatics MSc students and students from outside informatics should consider taking Applied Machine Learning (AML), instead of MLPR. The MSc guidance on machine learning related courses also discusses other courses for those interested in machine learning.

If you’ve already enrolled in MLPR, don’t be afraid to change your course selection. Keep an open mind about whether you should really be taking the course, and don’t be embarrassed to change if you find you don’t have the required background. You’re meant to finalize courses by the end of week 2. You cannot drop a course after week 6.

2 Notes

This course provides extensive notes. However, you need to work actively through the material. This is not a course where recalling facts will get you through the exam. Take your own notes while working through the materials. Especially anything that surprises you, or anything that you should work through with other students later. Try to summarize the points being made, and come up with your own questions. There are also unassessed questions throughout the notes, which are a core part of the course. You haven’t “covered” the notes until you have done the questions.

Despite our best efforts, our notes will contain some mistakes and unclear parts. Please use the hypothesis class forum, a web-based annotation tool. You can quickly highlight any part of the notes that need fixing or clarifying. Don’t be afraid to be picky, We want to fix
mistakes of any size (including typos) that might confuse others. We are also more than happy to expand on the material where student discussion reveals it’s necessary.

We give pointers to textbooks where reviewing the material from another point of view may be useful. However, except where stated as part of an exercise, we’re only expecting you to be familiar with the material we cover in the materials provided.

Some material in the notes is marked either “non-examinable” or “for keen students”, which means we’re not expecting you to study this material, but hope some of you will find it interesting. That said, you will be expected to be able to generalize your knowledge to models and machine learning problems that you haven’t seen. If you have read advanced topics, and outside the course materials, that might be easier.