COMS30035, Machine learning:

Unit organisation

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Unit github page

- Most teaching materials and information are accessed via the unit's github page: https://uob-coms30035.github.io/
- This also gives you the unit schedule.
- There is a Blackboard page, but this is used only for quizzes.

Teaching staff

- James Cussens is the only lecturer for this unit.
- The following people are GTAs on the unit: Akin Eker, Siddhant Bansal, Shijia Feng, Omar Emara, Saptarshi Sinha, Tianye Wang and Kal Roberts.
- I give all the lectures.
- Both lecturer and GTAs are present at drop-in sessions and labs.

Teams

- There is a Teams group for this unit. It has 2 public channels:

  General Read-only for students. (We might use this for announcements, but we can also use Blackboard for that.)

  Open Students can post here. Feel free to use it as you wish; for example to ask questions.

- There is a separate Teams channel for students doing this unit as a MAJOR which is set up similarly and will be used for MAJOR-specific stuff (such as the coursework).

Teaching sessions

- Lectures on Mondays and Wednesdays (both at 0900).
- Drop-in session on Thursdays (1200) followed, from Week 3 onwards, by a 3-hour lab starting at 1500.
- During week 6 there is no teaching and during the coursework period (weeks 9-11) there is no teaching apart from coursework support sessions (1500-1700 Thursdays).

Special arrangements for Weeks 1 & 2

- Since the Linux lab in QB1.80 did not become ready in time, the labs for the first two weeks will be in **MVB1.15**.
- In addition, these labs will only last 2 hours and will start at **1600** not 1500.
- MVB1.15 has only 75 computers and there are 105 students on this unit, so some of you may have to share with a friend if everyone turns up and uses the MVB1.15 computers (which is unlikely).

Textbooks

- Bishop, C. M., Pattern recognition and machine learning (2006). Available for free here.
- Murphy, K., Probabilistic Machine Learning: An Introduction (2022). This book is also freely available here.
- Bishop is used more than Murphy.
- At the end of each set of lecture slides there will be a pointer stating where to find the relevant material in Bishop and/or Murphy.
- There will also (typically) be pointers to some problems taken from these textbooks.
- You can get help with these at drop-in sessions. It's fine to get help with a problem from an earlier week (particularly since the Thursday drop-in sessions come only a day after the Wednesday lecture).

Quizzes and problems

- There are both Blackboard quizzes (go to 'Quizzes' in the left hand menu of the *Machine Learning (Teaching Unit) 2024* Blackboard page) and problems associated with the lecture material.
- Pointers to both are included at the end of the slides for the relevant lecture.
- These are **formative** not **summative**, i.e. they do not count towards your mark for this unit.

Drop-in sessions

- You are not obliged to attend any drop-in sessions.
- You can get help with the quizzes and problems by coming to a drop-in session.
- But you can also ask us about anything at the drop-in sessions, e.g. further explanation of lecture material, pointers to additional reading, etc.

Assessment

- If you are doing this unit as a MAJOR (COMS30083), then you are assessed by a mid-term in-class test in week 6 (30%) and coursework (70%) done during weeks 9-11.
- If you are doing this unit as a MINOR (COMS30081), then you are assessed by answering Machine Learning questions (equivalent to a 1-hour exam) in the *Topics in Computer Science* December exam. This is a closed-book exam.

Mid-term test

- The mid-term test will be a Blackboard test 1400-1500 on Thursday 24 October using the computers in MVB 2.11.
- It will be closed book and you are not permitted to bring notes into the exam.
- Evidently only material from Weeks 1–5 will be examined.
- We're making it a Blackboard test just to streamline the submission and collection of your answers, there will be no e.g. coding exercises.
- A practice mid-term will be available soon.

Labs

- During lab sessions you do machine learning exercises.
- You can use either the machines in the room or your own machine.
- The machines in the room have the necessary ML software installed.
- You need to take certain steps to access that software: see the section on Lab Work on the unit github page.
- If you choose to use your own machine you will have to install the necessary software yourself. This is entirely doable and we're happy to attempt to help you if you hit installation problems, but we can't guarantee to be able to fix all such problems (particularly if you choose to use Windows).
- Labs are the most important part of the unit since there you actually **do** machine learning, rather than merely hear about it.

Lab materials

- The materials for each lab are contained in a github repo: https://github.com/uob-COMS30035/lab_sheets_public.
- For each lab you are presented with a Jupyter notebook which contains ML exercises for you to do. You complete each exercise by adding the necessary Python code to the notebook.
- There are links to these notebooks in the schedule on the unit's github page.
- Most labs require files (e.g. data, utility Python scripts) in addition to the notebook.
- The easiest way to ensure you have everything you need for each lab is to simply clone the git repo.
- (You can update your local git repo of the labs with a `git pull` before each lab, just to be sure you have any updates.)

Answers to formative material

- Answers to both lab exercises and problems will be released after the relevant lab.
- Quiz answers are not 'released' (the are multiple-choice). The quizzes are set up **not** to give you the correct answer if you give an incorrect answer. This is deliberate!

Python

- All your coding on this unit will be done in Python.
- This code will call ML library methods supplied by packages such as scikit-learn, pytorch and PyMC.
- (Note that Python is mostly used a wrapper; the native code called by Python was typically compiled from C/C++/FORTRAN source.)
- Your code will either be a regular script or in a JupyterLab notebook.
- Python coding, per se, is not taught on this unit.