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

- The lecturers on this unit are:
  - James Cussens
  - Xiyue Zhang
  - Wei-Hong Li
  - Xiang Li
- The following people are GTAs on the unit: Siddhant Bansal, Omar Emara, Kal Roberts, Jonathan Erskine, Enrique Crespo Fernandez and Zhiyuan Xu
- James Cussens gives most of the lectures.
- Both a lecturer and GTAs are present at drop-in sessions and labs.

Teams

- There is a Teams group "COMS30035: Machine Learning (Teaching Unit) 2025/26 (TB-1, A)" 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 "COMS30083: Machine Learning 2025/26 (TB-1, A)" 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

- Apart from Week 1, lectures are 0900 Monday and 1500 Monday.
- There is one 3-hour lab each week starting at 1500 on Tuesday.
- Drop-in session on Thursdays (1700).
- 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 Tuesdays).

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 pen-and-paper exam 1300-1400 on Wednesday 29 October. We will use rooms MVB 1.07, MVB 1.08 and QB 1.80.
- 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.

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.

The role of labs

- The coursework will require you to apply the ML software we have been using in labs to machine learning problems. So doing lab work leads directly into doing coursework.
- Clearly, lab attendance is less crucial for those of you who will not be doing coursework.
- But, apart from the sheer joy of learning, I encourage students doing this unit as a MINOR to attend labs.
- Actively using, say, a Support Vector Machine method to learn a classifier, can more educational than passively having them explained to you.

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 lab exercises and any problems **not** from Bishop or Murphy will be released after the relevant lab.
- The problems selected from Bishop and Murphy have solutions available from the web sites associated with the book.
- 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.