

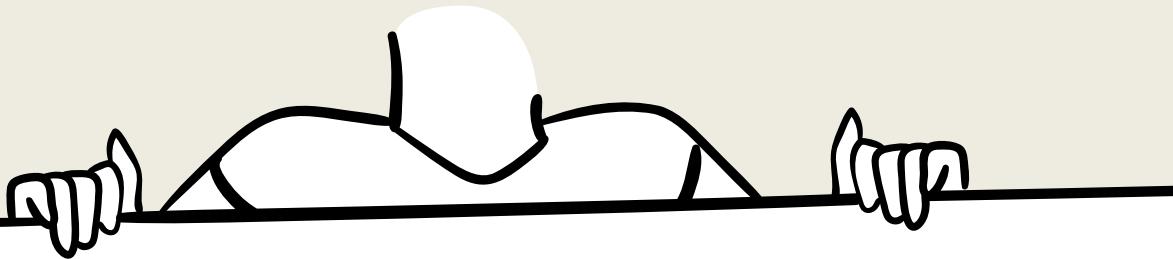
# What to expect from the module

## MACHINE LEARNING

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# Learning outcome



In this lecture,

- you'll get a good idea of what to expect from the module and how to engage well with it.

# Canvas – for module resources & info

Home  
Pages  
Assignments  
Grades

## Homepage

### Key information and resources



Module content



Module information



Reading list



Module contacts



Recordings



Assessments and Feedback



FAQs



Quick links: [Study Timetable](#) | [Assessment Deadlines](#) | [Progress & Feedback](#) | [Results](#)

Support: [ITS Service Desk](#) | [Library](#) | [Student Hub](#) | [Student Centre](#) | [Disability Support](#)

All module resources & info will be on Canvas.

# Module learning outcomes

When you've worked through the module's activities (mini-videos, interactive lectures, lab exercises, independent study), you'll be able to

1. understand machine learning terminologies and use them appropriately;
2. describe how several traditional and advanced machine learning methods work;
3. reason about the data needed to build a machine learning model for a given task;

# Module learning outcomes (cont'd)

4. prepare and preprocess data appropriately for building a model;
5. build and evaluate models using standard software libraries;
6. specify issues and risks that need to be considered and/or addressed.

# Learning activities

You are expected to engage in the following activities:

- ❑ Weekly mini-videos (~2 hours)
  - Core content & to be watched before the scheduled lecture
- ❑ Weekly lecture (2 hours)
  - Group and class discussions during the lecture
- ❑ Weekly code notebooks (~2 hours)
  - Hands-on building & evaluation of ML models
- ❑ Weekly lab (1 hour)
  - Opportunity to get help with code notebooks
- ❑ Weekly independent study (at least 4 hours)

# Other learning support

- Self-assessment quizzes
- Suggested readings
- Office hours for meeting with the tutor
- Padlets & Canvas FAQs for student-tutor Q&A
- Other
  - Maths and stats refresher resources
  - Peer Assisted Learning – for help with maths / coding

# Syllabus

- Introduction Week 1
- Other learning algorithms  
(Trees and Neighbours) Week 2
- Other learning algorithms  
(Hyperplanes and Likelihoods) Week 3
- Other learning algorithms  
(Neural networks) Week 4
- Problems & Data:  
At the centre of machine learning Week 5
- How good is my model? Week 6

# Syllabus (cont'd)

- ❑ AI & Ethics **Week 7**
- ❑ Advanced neural networks **Week 8**
- ❑ Feature learning & Generative models **Week 9**
- ❑ Reinforcement learning **Week 10**
- ❑ Coursework Q&A **Week 11**

# Skills needed

- Critical thinking & reflection

(see <https://www.sussex.ac.uk/skills-hub/critical-thinking#main>)

- Curiosity

(see <https://www.linkedin.com/learning/using-questions-to-foster-critical-thinking-and-curiosity/benefits-of-being-curious?resume=false&u=83331314>)

- Programming

- Maths & Statistics

# Assessment

- 100% coursework
- You will be:
  - expected to use your knowledge and practice from the module to solve a specific machine learning problem
  - required to submit your solution in form of:
    - a report;
    - code; and
    - machine learning output.
- See Canvas for more details

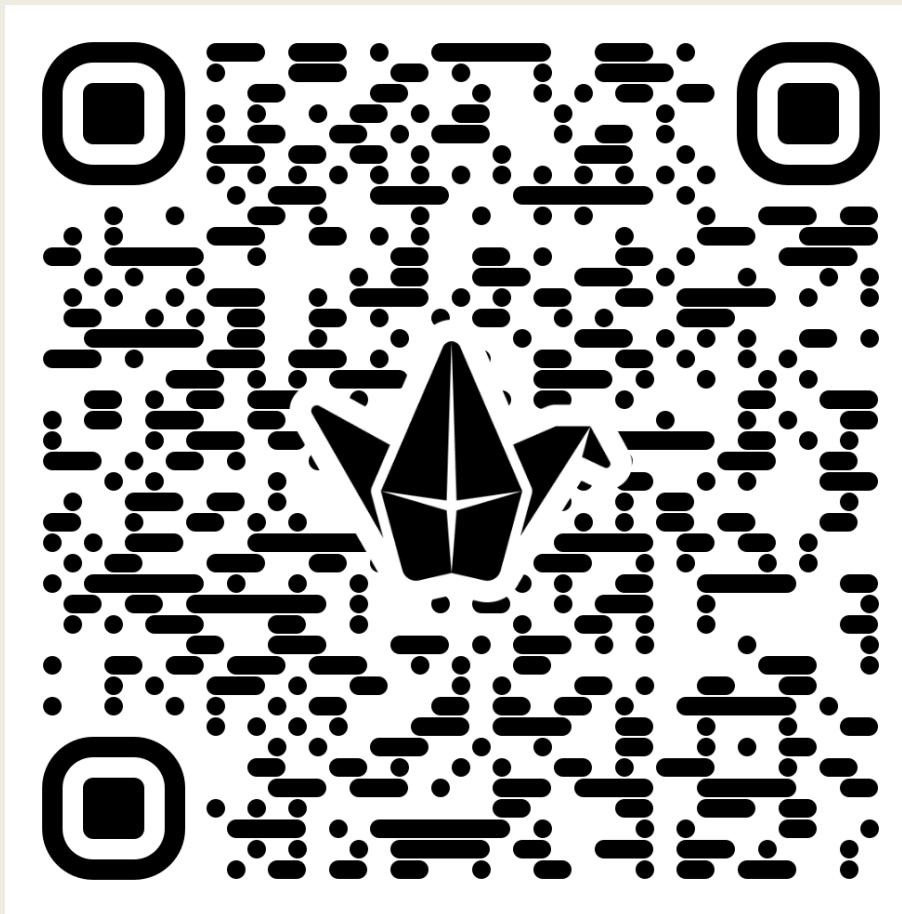
# Academic integrity

You must NEVER pass off any part of someone else's (or AI generated) work as yours.

# A caution about data

- **Copyright laws** - You must NEVER use any data without clear permission, e.g. CC BY, for your use purpose. Availability is NOT necessarily license to use! You could be in breach of copyright otherwise.
- **Data protection law** - UK has regulations ([GDPR](#)) that must be followed for use of personal data, i.e. data about an identified living person.
- **Ethics** - Widely accepted ethical values include strict rules about the use of data about/from humans in research ([including any university work](#)).

# Any questions???

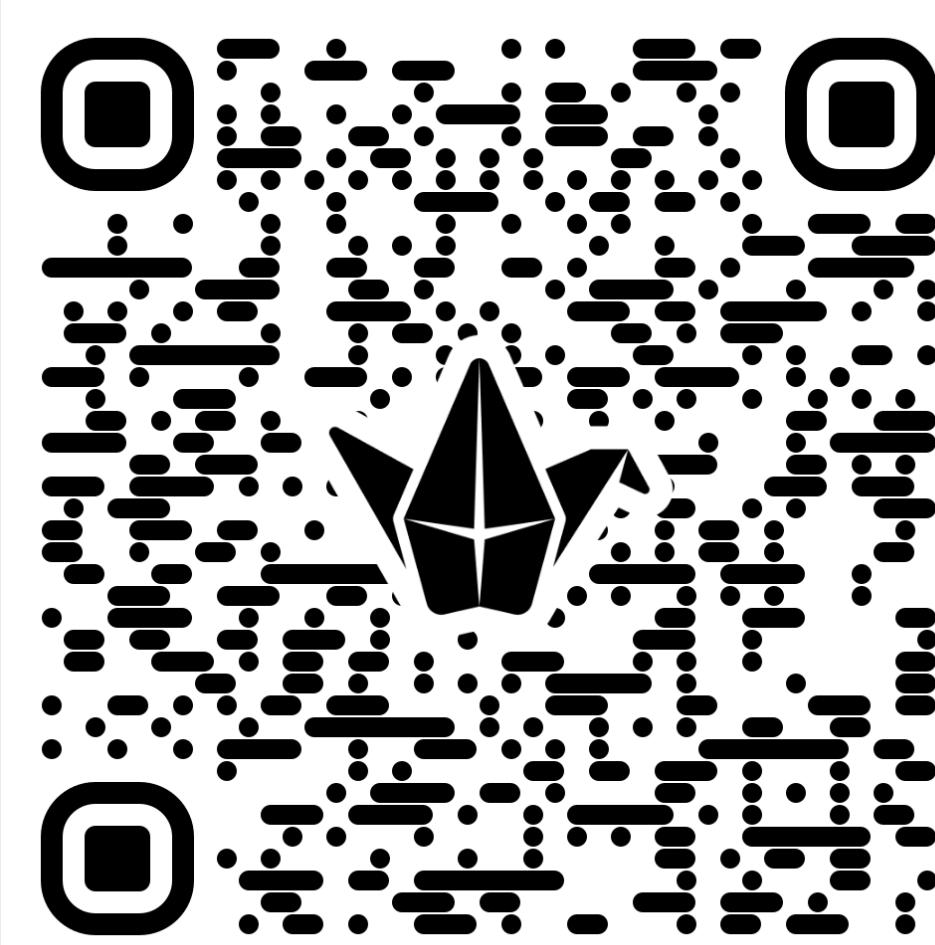


**scan the QR code to ask questions**

# Terminologies

What machine learning terms have you come across before?

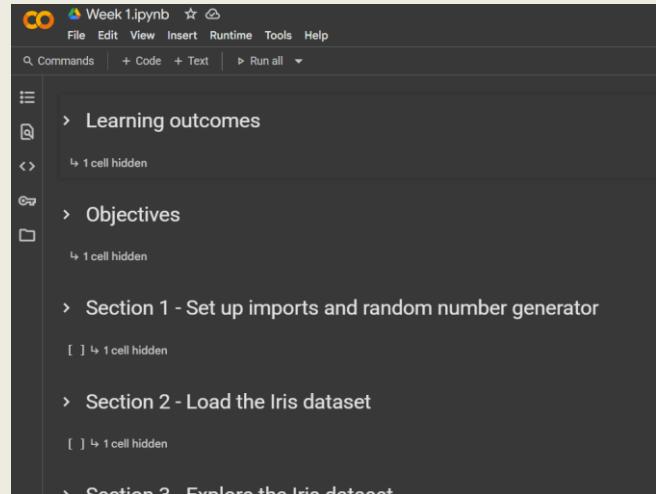
# Share AI tools you use or have heard about



scan the QR code to add

# Student To Do

- ❖ Watch Week 2 mini-videos ahead of next week's lecture
  
- ❖ Get to Week 1 code notebook & ungraded quiz when you can soon



The screenshot shows a Jupyter Notebook interface with the title "Week 1.ipynb". The left sidebar displays a tree view of the notebook's structure:

- > Learning outcomes
- > Objectives
  - > 1 cell hidden
- > Section 1 - Set up imports and random number generator
  - [ ] > 1 cell hidden
- > Section 2 - Load the Iris dataset
  - [ ] > 1 cell hidden
- > Section 3 - Explore the Iris dataset

## Quiz: The basic linear model

### Quiz instructions

Question 1	10 pts
In a basic machine learning task, the aim is to	
<input type="radio"/> minimise the loss function	
<input type="radio"/> update model parameters	
<input type="radio"/> fit a line to the data	
<input type="radio"/> predict a numerical target/label given a feature instance	

Questions  
① Question 1  
② Question 2  
③ Question 3  
④ Question 4  
⑤ Question 5  
⑥ Question 6

Next ▶