



Exam Preparation

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Overview of the Module

Definition and components of supervised learning

Classification approaches and underlying optimisation algorithms

Regression approaches and underlying optimisation algorithms

Regularisation, model validation and foundational theory

Brief recap of all content in the Week 11 revision lectures.

Exam Format

- Question 1: Core Concepts (20 points)
 - Two sub-questions on core concepts from Leandro's content
 - Two sub-questions on core concepts from Jian's content
 - (Estimated level of difficulty 1/3)
- Question 2: Leandro's Content (20 points)
 - Two subquestions
 - (Estimated level of difficulty 2/3 and 3/3)
- Question 3: Jian's Content (20 points)
 - Two subquestions
 - (Estimated level of difficulty 1/3 and 3/3)
- Appendix with formulas

Formulas

- Check the list of equations that you are expected to remember by heart.
 - Under Week 12's content on Canvas.
- In terms of other equations or formulas:
 - You still need to be able to understand them, despite not having to memorise them.
 - By understanding them, you would be able to, e.g.:
 - Explain them (e.g., see Quiz 1b, Question 6).
 - Apply them (e.g., see Quiz 1b, Question 4. PS: in the exam you would be given the equation for p_1).
 - Explain some steps on how to obtain them (e.g., see 2021-22 main exam but you would be given the dual problem formulation for SVMs in the appendix, Question 3b, and Quiz 1b, Question 5).
 - Propose variations of the formulas to solve different problems (e.g., see 2022-23 main exam, Question 3b).

Suggestions on How to Approach the Exam

- Read a (sub)question. Underline what is being asked.
- Answer just as much as you feel is sufficient to address the points being asked.
 - PS: see the mock exam and exercise sheets for examples of what is sufficient.
- If you are stuck, move to the next question.
- After going through all questions, if you still have time:
 - Go back to any question where you've got stuck.
 - Double check if you would like to add any extra content to your answers.

Suggestions on How to Approach the Exam

- Check the time.
- There are three questions. So, around 40 min per question.

Examples of Kinds of Questions

- A = concepts, formulas, models, algorithms or strategies.
- Explain, justify, illustrate, exemplify or criticise A learned in the module [in a given context or problem].
- Apply A learned in the module to a given problem.
- Show steps on how to obtain A learned in the module.
- Identify problems or issues with A [in a given context or problem].
- Propose a new A to solve a given problem by building on the knowledge gained in the module.
- Explain, show or prove that (new) A are (or are not) adequate or useful for a given purpose.

Examples of Questions

Have a look at the exercise sheets, past exams, and mock. They all contain examples of questions that could be asked in an exam!

Note: some exercise sheets had questions that relied on formulas that you are not asked to memorise — you had access to those formulas in the slides when you solved the exercise sheets.

Marking

- The marking of the questions is not binary.
- Sometimes there is no single way to answer the question, but multiple different ways. More than one possible answer may be correct.
- **Important:** if you are asked to explain or justify your answer, please don't forget to explain or justify it!
 - Sometimes the justification itself is the most important part of your answer.
 - A random guess of yes/no as an answer has a 50% chance of being correct and may not be worth any points on its own.
- Explain your answer.
 - Even if the answer is not entirely correct, you can still gain points based on your reasoning.
 - Feel free to use drawings to support your reasoning or explanations.