

- **Format:** The exam will consist of 4 questions and you will need to answer 3. There will be 1 question on metric spaces, 2 questions on topological spaces and 1 question on normed vector spaces.
- **Content:** Some parts will be similar to homework/tutorial problems. The remaining parts will ask for proofs that we covered in class.
- **Non-examinable topics:** Completion of a metric space (Chapter 1), uniform continuity (Chapter 2) and dual spaces (Chapter 3).

Sample exam question

1. Let (X, T) be a Hausdorff topological space.
 - (a) Assume that $A \subset X$ is compact. Show that A is closed in X .
 - (b) Show that $B = \{(x, y) \in X \times X : y = x\}$ is closed in $X \times X$.
 - (c) Consider the case $X = \mathbb{R}$. Find the closure, the interior and the boundary of $C = [0, 1) \cup \{2\}$. You need not justify your answers.