

## How to Compose an Exam Question (the secret guidelines ... well, not anymore)

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- Exam questions are **composed** by a team of PhD students, in close collaboration with the professor.
- Exam questions are **validated** by another team of PhD students, in close collaboration with the professor.
- Good exam questions go slightly **beyond the lecture**, asking for instance about a model variant that was not discussed in class, but can be understood with the tools learned in class.
- Good exam questions are **abstract**, asking for little proofs.
- Good exam questions **combine two topics** of the class in a surprising way.
- Good exam questions are formulated in a **precise** way, such that there is no doubt. It should always be clear what kind of answer you want to see.
- Good exam questions match the **topic of the lecture**: The TI2 lectures are about 50/50 theory/practice.
- Good exam questions have a high **standard deviation**. Some students solve the whole question, others parts of the question.
- Boring (bad!) exam questions just ask some **detail** in the script; apart for multiple choice questions, these are highly discouraged.
- A good exam must also have a few **boring** questions. We have good questions to make sure that good students are better than average students despite a few minor mistakes. The boring questions make sure that we can separate average but diligent students from...
- A good exam is an **open book** exam! That does not mean that an exam question cannot have parts that are basically in the script.
- Also **multiple choice** questions can be gorgeous, if done right! Multiple choice answers often cannot be derived directly from the script, but need a tiny little bit of thinking too.
- If a question involves doing a **computation**, make sure that the numbers in the question are chosen in a way that the computation and result values become simple. (In essence, even if a pocket calculator was allowed, it would not be an advantage.)
- Write a sample solution before deciding how many **points** your question gets. If a good answer needs some lines of text, you need many points, even if the question is simple.
- The **total points** of an exam is equivalent to the exam time in minutes. When deciding on the points, a rough estimate is however 2 points per 1 minute (thinking time and writing time), as usually students will need more time than you anticipate, and time scarcity should not be the main driver for grading.
- If your question has a long **introduction** (better not), make sure to give the first question(s) somewhat more points, to give points to the time spent for understanding the introduction.