

We summarize here the basic information about the structure and regulations concerning the final exam for the course *Functional Analysis I*. This note should be regarded as an informal complement to the mandatory information provided in the *ETH course catalogue* and it is made available with the sole scope of helping in the process of preparation for the exam.

Structure of the exam and general regulations

- The duration of the written exam (in any session) will always be **180 minutes**.
- The time and place of the exam are solely determined by the *Akademische Dienste* department, and the instructor has no way of modifying them in order to accomodate special requests.
- During the exam no written aids nor calculators or any other electronic device are allowed in the exam room. Mobile phones must be **switched off and stowed away** in your bag during the whole duration of the exam.
- The structure of each written exam (in any session) will always be the same and is as follows: **7 problems** which are worth **10 points each**.
- Each problem is graded by two independent graders and is assigned a final evaluation (an integer number between 0 and 10) once the two graders reach a consensus.
- Said x_i your score on the i -th problem, with $i = 1, \dots, 7$ your final grade in the exam will be *bounded from below* by

$$\min \left\{ 6, \frac{\sum_{i=1}^7 x_i}{10} \right\}.$$

(I am writing *bounded from below* rather than *equal to* because the final grade distribution may be subject to a renormalization due to a number of factors that are a priori rather unpredictable. However, in the phase of preparation for this exam, it is advisable to assume that your final grade will be actually equal to the formula provided above.)

- As a result of the previous item, let me explicitly state that in any case:
 - (i) the *complete and correct* solution of 6 problems out of 7 is enough to obtain the maximum grade 6,0.
 - (ii) the *complete and correct* solution of 4 problems out of 7 is enough to obtain the pass/sufficient grade 4,0.

- With respect to the meaning of the words *complete* and *correct* let me clarify what follows: in the final exams all your answers do need to be properly justified. The sole indication of an unjustified answer has essentially no value whatsoever.
- It is fine and allowed to use theorems/statements proved in class without reproving them (**unless otherwise stated**), but you may be required to provide a precise statement of the result in question.

What should I expect in the final exam? The general structure of each written exam can be roughly described as follows:

1. About 10 – 15 points based on providing *definitions, statements of the key theorems, basic examples and counterexamples seen in class*;
2. About 40 – 45 points based on solving standard problems or presenting proofs that are strictly related to what you have seen in class or in the homework problems;
3. About 15 points for harder problems, that serve the scope of measuring the actual degree of scientific maturity you have acquired and how deep your understanding of the material actually is.

As explained above, even if you aim at the top grade you are not expected to solve all problems, so if you get stuck on a problem it is advisable to move on to something else. Just focus on those topics you are more fluent with.

Practical rules during examination

- Be punctual and wait at the door until we let you in.
- Your name will be preprinted on the cover sheet. The sheets will be distributed alphabetically and we will provide a plan which should help you finding your place.
- Put your student identity card onto the table.
- We will provide A4-paper (no other paper is allowed in the exam room!) and write with blue or black pens.
- **Do not use pencils, erasable pens, red or green ink, and do not use Tipp-Ex.**
- Start every problem on a new sheet of paper and write your name and the number of your student identity card on every sheet of paper.
- Leave enough (≈ 2 cm) empty space on the margins (top, bottom and sides).

- You can solve the problems in any order you want, but please sort them in the end.
- Please write neatly! Please do not put the graders in the unpleasant situation of being incapable of reading your solutions, as this will most certainly not play in your favour!

A final word

Most importantly: we are all here to *value your preparation* and recognize the time and effort you have spent in studying for the exam. So try to approach the test with the right degree of concentration, but also without unjustified stress and fear. If you prepare with enough diligence and care, we will most definitely see it in the exam and will be there to reward you!