

# Sparsity course: summer semester 2021/22

## Evaluation criteria

There are three components affecting the final grade: homeworks, quizzes, and oral exam. Homework and quizzes should roughly have a similar weight as the exam, but they are counted differently.

**Homeworks.** In each assignment, there should be two easy problems, a medium problem, and a challenging problem. Each assignment will have an around 4 weeks period between publishing and deadline. In principle, solutions should be typed in latex and submitted (as a pdf) through moodle. Scans of clearly readable hand-written solutions are also allowed. Solutions can be written in English or in Polish.

Your solution to each problem will be graded in the so-called olympic scale:

- Full solution: 6 points
- Full solution with minor issues: 5 points
- At least half of a solution: 2 points
- Anything less: 0 points

Note that anything less than half a solution is rounded down to 0 points. There might be some variations, like additional items for bonus points. As usual, solutions should be described in a clear mathematical style and serious presentation issues may lead to reducing the score.

Solutions to homework assignments are expected to be results of individual work. See the paragraph on individual work below for a detailed explanation.

The homework score will be mapped to a grade modifier from  $\{-1.0, -0.5, 0.0, +0.5, +1.0, +1.5\}$ . This modifier will be added to the grade from the oral exam. The cutoffs for modifiers will be exactly decided during the semester, but roughly it should be like this:

- To get modifier  $-0.5$  one should solve half of the easy exercises.
- Solving almost all the easy exercises should be sufficient to obtain modifier  $0.0$ .
- To get modifier  $+1.5$  one should solve all the easy and the medium exercises, and some of the hard ones as well.

**Quizzes.** After every lecture we will publish a short quiz about the material from the lecture, which is intended to test your understanding of definitions and results. A typical quiz will involve five questions with five yes/no subquestions each, and should take 15-20 minutes to solve. You can take each quiz as many times as you want. A quiz is deemed passed if one achieves a full score on it. Quizzes will be published and solved through moodle, and are expected to be solved individually (see specific rules below).

The quiz from lecture  $N$  will have a deadline at the beginning of lecture  $N + 1$ , at which point the quiz will be closed. Passing at least 75% of the quizzes gives an additional  $+0.5$  modifier to the grade, additive to the grade from the homeworks.

**Oral exam.** The exam will be based on a random pick of several questions from various topics that were discussed during the semester. The exact form will be determined later, but in principle there will be a question from each major topic and the examination should take around 45 minutes per person. The grade from the oral exam will be from the set  $\{-\infty, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5\}$ . After adding the modifier from homeworks, the grade will be rounded as follows:

- Everything below 3.0 maps to 2 (not pass).

- Everything above 5.5 maps to 5!
- 5.5 maps to 5.
- All the other grades are kept unchanged.

As usual, there will be two dates for the exam: first in the normal exam session, and second in the retake exam session.

**Individual work.** All three components described above are intended to evaluate the student's individual performance. Therefore, we expect that within each of these components, every student will work on their own.

As far as solving quizzes and homeworks is concerned, mathematical discussions with other students are forbidden and considered cheating. This in particular applies to:

- Group work or helping each other with solving the quizzes.
- Any form of mathematical communication about homeworks. This includes group work, hinting, asking for hints, comparing write-ups before submitting them, and so on. Loose non-mathematical conversations (for instance, "I did Problem 2 and you should try as well, because it's actually easy.") are allowed.

Obviously, this applies within the timespans when respective components are due: discussing quizzes after passing them, or homeworks after the deadline has passed, is allowed and encouraged.

For homeworks, you are free to use and cite the following sources: material from lectures and tutorials, the *Sparsity* book as well as other standard books on graph theory (e.g. Diestel's book), and Wikipedia. However, you are asked not to search for solutions in research papers.

Cheating attempts during the oral exam will result in failing the course and suitable reporting.