Recommendations for instructors

The courses aim to broaden PhD students' mathematical culture and critical skills, whose scope is becoming increasingly important also in relation to the use of AI. This tool, in fact, has a strongly interdisciplinary character and increasingly requires the ability to move quickly between languages, ideas, and methods from different fields, to make connections, and to ask the right questions. Courses must be designed with this perspective in mind. As much as possible, they should primarily aim to convey ideas, methods, and viewpoints, stimulating students' curiosity and independent or collaborative work.

Examination methods should also reflect this approach: their purpose should not be merely to assess the student for the purpose of obtaining the degree, but above all to offer a concrete opportunity for deeper understanding and cultural growth. With this in mind, seminar-based or project-based assessment methods are recommended, ideally on topics close to the PhD students' research interests or capable of connecting them with different mathematical fields. Such methods make it possible to exercise skills such as the critical reading and selection of papers, the synthesis of results, and the ability to communicate clearly and engage with an expert audience. Furthermore, the seminar can also be open to those who did not take the course, thus becoming an opportunity for outreach and discussion as well. Instructors nevertheless remain free to identify the assessment format best suited to their course, provided it is consistent with the aims outlined above and is not merely formal. Exams also serve an important formative function: they accustom students to working within defined deadlines and to identifying, within limited time, the central ideas and problems of a topic.

Supervisors of first-year PhD students are invited to design some courses that may be of interest to them in the next year.