Doctoral Course in Mathematical Sciences

Internal General Rules

Introduction

This document contains our regulations concerning:

- The individual training plan
- Tutoring
- Public engagement activities ("Terza missione")

Individual Training Plan (summary)

The plan of activities includes:

1. A research project, prepared in collaboration with the supervisor.
2. Completing the following educational and training duties:
   a) Passing the exam of at least two courses from the Catalogue, of which at least one must be from the "Doctoral Program Courses" list.
   b) Attending at least three additional courses, where at least one is taken from the "Doctoral Program Courses" list (for such activities, PhD students must produce a short summary of what they have learned; these summaries should be attached to the annual report).
   c) Participating in at least one "soft skills" activity.

Duties a) and b) must be completed before the end of the second year.

3. Participating in the "Seminario Dottorato" and attending the seminars of the student's research group.
4. Participating in the *PhD Day*.
5. Optionally attending Summer Schools and courses of other Doctoral Programs; the number of credits recognized for these activities will be decided on a case-by-case basis. At most one among such activities can be credited, except in the case of research stays abroad of at least one semester (see below).

Furthermore:

6. Research and training periods abroad of at least three months are encouraged.
7. Participating in (paid) tutoring activities is encouraged.
8. Participating in public engagement activities is encouraged. Organizers of such activities are committed to providing financial compensation.

Choice of the supervisor and of the research topic

By the end of the **fourth month** of the first year, PhD students are assigned a supervisor by the Faculty Board, on the basis of their choice and of a research program. Students are informed about the deadline and the template for the research program (which must be signed by both the student and the perspective supervisor) each year by the secretary of the PhD school.

Individual Training Plan (generalities)

Objectives

The goal of the training plan is to educate students with both a broad mathematical and scientific culture and advanced expertise in their research area. Some courses, including those of the Doctoral Program, aim to broaden the students' knowledge, while others are specialized. To enhance their ability to present results and foster collaboration, students are required to deliver a talk at the "*Seminario Dottorato*" and at the *PhD Day*. For the same reasons, participating in tutoring and public engagement activities is encouraged.

List of activities

The activities students can undertake to meet the requirements of their individual training plans are described in the Course Catalogue, which is available on the Doctorate Program's website at the beginning of each academic year and updated throughout the year. Such activities are outlined below:

Course

A Course is a teaching activity that consists of a series of in-person lessons, totalling 16 to 24 hours, delivered over several days and culminating in a final examination. By passing the final exam, the students earn credits for the course. Attending additional courses and other training activities without taking the exam does not award full credits but is encouraged. Students must enrol in each course through the website of the PhD Program. By doing so, they commit to attending the course. Cancellations are allowed up to one month before the course starts. All courses are delivered in English. Recommendations to instructors on designing courses and exams are contained in a dedicated document.

Seminar

A seminar is a presentation of about one hour, without a final examination. Seminars are presented by qualified personnel, including Doctoral students, on research and highly specialized topics.

Individual Training Plan Activities

General Courses

Students must attend and pass the exams of at least one Course from the Doctoral Program (common to both curricula). Four or five courses are offered each year, and they may change annually. These courses are listed in the online Course Catalogue.

Sector-Specific Courses

Students must attend and pass the exams of at least one additional course listed in the Catalogue, either from the Doctoral Program Courses or specific to their curriculum. Several courses for the two Curricula are offered each year, typically lasting 16 hours, and the topics may change annually.

Courses without examinations

Students must attend at least three additional courses taken from the catalogue, with at least one of them belonging to the "Doctoral Program Courses" list (for such activities, PhD students must produce a short summary of what they have learned; these summaries should be attached to the annual report).

Students' activities within Summer or Winter Schools, courses offered by the Scuola Galileiana di Studi Superiori, by other PhD Schools or by PhD Programs of other Universities or Reading Courses may also be credited as a course without examination. The student must apply to the coordinator and crediting is subject to approval by the supervisor and the Executive/School Board. In general, **at most one** course not included in the Catalogue may be credited. **In case of a research period abroad** lasting at least one semester during the first or second year, a PhD student may ask the Faculty Board to replace sector courses (i.e., the Program

Courses are not supposed to be substituted) with other courses offered at a foreign institution during their stay. The number of additional replacements should be proportional to the length of the research period, and the total commitment should be equivalent to the normal commitment. For example, if a PhD student spends a full semester abroad, they may request to replace two of the "sector-specific courses." which is one more than what is allowed for students who do not spend extended research periods abroad. Each interested student is expected to submit all their requests for the approval of courses not included in the catalogue at the same time.

Soft skills courses

Students are encouraged to attend soft skills courses. Some of these courses are listed in the online Course Catalogue. Other activities are organized and advertised directly by the central administration. Attending at least one soft skills activity is mandatory.

PhD Day

The PhD Board organizes yearly a PhD Day that is open to the whole faculty and to students of the Master programme. Students must attend the PhD day and deliver a short talk. Guidelines for the PhD Day are contained in a dedicated document.

Seminars and Colloquia

a. All students, during the three years of the program, must attend the **Colloquia of the Department** and participate regularly in the Graduate Seminar ("**Seminario Dottorato**"). Within this seminar series they are also required to deliver a talk and write an extended abstract. Guidelines for the Graduate Seminar can be found in this document.

b. Students are also strongly encouraged to attend the seminars of their research groups that are relevant to their work.

Other training activities

Training activities offered by other Doctoral Programs at UNIPD, as well as those of other Italian and non-Italian Universities, can be used to fulfil part of the training requirements. In particular, there is an exchange agreement with the Doctoral Program in Information Engineering, and some of their courses are listed in our Course Catalogue. Schools may count towards fulfilling some of the training duties and are credited on a case-by-case basis, depending on whether they include a final examination or not.

Research abroad

Students are strongly encouraged to spend research periods abroad of at least three months (in total). In agreement with their supervisors, students must submit a request to spend a research period abroad to the Faculty Board well in advance. An increase of the scholarship of up to 50% can be granted to the students upon request. The PhD school highly values such research periods.

Participating in conferences

Students are strongly encouraged to participate in conferences, presenting their research results whenever possible. Travel and participation expenses are covered by the research budget of each student and possibly by the Doctoral Program's funds and the research funds of the supervisors.

Group activities

Self-organized collaborative activities are encouraged through dedicated discussion spaces.

How to register and unregister to courses

Students **must register** for all courses of the Graduate School that they want to attend, regardless of their intention to take the exam or not. We recommend registering as early as possible: the Graduate School may cancel a course if the number of registered students is too low. If necessary, the registration to a course may be cancelled.

Students can access the online registration form in the dedicated page of the Doctoral Course website at https://dottorato.math.unipd.it/current-activity/CurrentActivities by clicking on "click to enroll" for the chosen courses. To register, fill out the registration form with all required data, and validate with the command "Subscribe". The system will send a confirmation email to the address indicated in the registration form; please save this message, as it will be needed in case of cancellation.

Registration for a course implies the commitment to follow the course.

Requests for **cancellation** of a course registration must be submitted in a timely manner, and **at least one month before the course begins** (except for courses that begin in October and November), using the link indicated in the confirmation email.

Further yearly obligation

At the end of every academic year, students are required to submit a progress report on their activities, including course attendance, conference participation and presentations, articles written or under preparation, research advancements, etc. The deadline for the submission of this report is communicated by the PhD secretary. A template for the reports can be found here.

Thesis

At the end of the third year, students must submit and defend a PhD thesis. The thesis will be evaluated by external referees, who may suggest revisions. After revision, the thesis will be defended in front of an examination committee appointed by the Faculty Board. Typically, the defense takes place between two and six months after the end of the third year. All theses must be written in English.

Tutoring and public engagement activities

Students are encouraged to participate in paid tutoring activities (i.e., *tutorato* or *didattica di supporto*). Calls for such activities are issued yearly. No more than two contracts of this type are allowed during the second and third years. In the first year, tutoring is allowed only in the second semester.
Students are also encouraged to take part of public engagement activities (e.g., *Science for All*, *Circoli Matematici*, *Progetto Lauree Scientifiche*).
All such activities must be authorized by the School Board.

External students

Students from other institutions or PhD Programs of the University of Padova are welcome to attend the courses offered by the PhD Program in Mathematical Sciences, upon approval of the Faculty Board. For organizational reasons, we request all external participants to communicate their intention to the Secretary of the PhD Program as early as possible. They must register using the standard registration procedure.