

REGULATIONS OF THE PhD PROGRAMME IN COMPUTER SCIENCE AND MATHEMATICS – XXXVIII CYCLE

Approved by the Academic Board on November 19th 2022

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Art. 1 – Object of the Regulations

In conformity with the existing rules by the Ministry of Education, Universities and Research, this regulation defines the management and operation of the PhD Programme in Computer Science and Mathematics.

Art. 2 – Objectives

In addition to the general objectives illustrated in the Regulation concerning the PhD Programmes of the University of Bari Aldo Moro (hereafter referred to as “University Regulation”), issued in the University Decree no. 1867, on May 17th 2022, the specific objectives of the PhD Programme in Computer Science and Mathematics are to create highly professional and autonomous researchers who are able to take direct responsibilities in research activities, specifically in macro-areas, such as 01-A Mathematics, 01-B Computer Science and 09-H Computing Engineering.

A further goal of the PhD Programme is to integrate the PhD students as *early stage researchers* into an exchange and internship system that will facilitate national and international relationships. This will also be achieved through the participation of the PhD students in research projects of the Departments involved in the PhD Programme.

At the end of their studies, the persons getting the PhD should be well versed in the state of the art related to their PhD thesis. They should also be able to communicate with researchers on related topics, participate in progressive international projects and identify and validate the eventual practical and technological impact of their research. Thanks to some teaching experience gained (see art. 15), they should be ready to collaborate in any academic course where specific disciplinary

skills are required.

Art. 3 – Areas and scientific disciplines

The area of reference of the PhD Programme is

- Area 01 (Mathematics and Computer Science)

The scientific disciplines connected to the PhD Programme are:

- INF/01 Computer Science
- ING-INF/05 Information Processing Systems
- MAT/02 Algebra,
- MAT/03 Geometry,
- MAT/04 Mathematics education and history of mathematics,
- MAT/05 Mathematical Analysis,
- MAT/06 Probability and Statistics,
- MAT/07 Mathematical Physics,
- MAT/08 Numerical Analysis.

Art. 4 – General characteristics

The PhD Programme lasts 3 years. Candidates are admitted after a public selection. Calls for applications are published every year on the University of Bari website, indicating the number of positions and scholarships available.

The most qualified students are admitted to the PhD Course, regardless of sex, age, nationality, religion, race and social class.

The official languages of the PhD Programme are Italian and English.

Foreign students should learn Italian during the programme in order to get at least a basic knowledge of Italian.

Admission tests are usually in Italian, but they might be in one of the foreign languages indicated on the application form, if authorized by the PhD Coordinator on the basis of a formal and motivated request by the candidate. The candidate should also demonstrate appropriate knowledge of English. The PhD dissertation can be written in Italian, in English or in another language, if approved by the PhD Academic Board (see Art. 5).

Art. 5 – PhD Academic Board and PhD Coordinator

The PhD Programme Bodies are:

- a) The PhD Academic Board
- b) The PhD Coordinator

The PhD Academic Board (hereafter Academic Board) is composed according to the Art. 4 of the University Regulations and works according to both the University Regulations and Regulations of the PhD Programme in Computer Science and Mathematics – XXXVIII Cycle.

The Academic Board meets at least twice a year either upon request of the PhD Coordinator

(hereafter Coordinator) who chairs it, or upon request of the majority of its members. Notices regarding an upcoming meeting are sent out at least 7 days before the meeting date, usually by email. If the meeting is urgent, the notice may be reduced to 3 days. The agenda is usually communicated together with the meeting date.

The Academic Board meeting is valid if the majority of its members is present: the majority is determined after excluding those members who provided a written communication of the impossibility to participate in the meeting; however, at least 2/5 of the members have to be present to have a valid meeting. Decisions discussed during the meeting are valid if approved by the majority of the members present at the meeting. In the event that the number of votes for is equal to the sum of the votes of the abstentions and antonyms, the Coordinator's vote will prevail.

At the Academic Board meetings, the PhD student representatives (see Art. 6) may participate in discussions on topics concerning the general evolution of the program or learning activities, but they are not allowed to vote.

The Coordinator is elected by the Academic Board, as established by the Art. 4. of the University Regulations. The President of the University will approve the nomination with an administrative order. The Coordinator remains in office for 3 years and can be re-elected only once, but not exceeding a total term of more than 6 years.

The Coordinator supervises and performs tasks defined in the University Regulations and in the current Regulations.

Art. 6 – Election of the PhD student representatives

The participation of PhD student representatives in meetings of the Academic Board is made up of 1/6 of the total number of PhD students enrolled. The Academic Board nominates an Election Committee to organize the election procedures. The Election Committee interacts with all the PhD students to handle candidacy submissions and voting. The PhD student representatives are elected in the middle of the first year and their mandate lasts 2 years. If a candidate must quit before the end of the two-year mandate, the role is passed onto the candidate with the highest number of votes among those non-elected in the original election. If two or more candidates obtain an equal number of votes, the oldest student is elected.

Art. 7 – Supervisor and co-Supervisor

Within 3 months since the beginning of the PhD Programme, the Academic Board selects a Supervisor for each PhD student.

The Supervisor is chosen among the members of the Academic Board available for this role, taking into account the student's PhD curriculum and research field.

The duties of the Supervisors include helping students to improve their study and research techniques, integrating them into a research activity, and suggesting a research topic. Moreover, Supervisors must guide students to develop a plan for their academic path and follow the students' research path. Supervisors must also guide students to choose courses within the Department or, if required, in other Universities abroad, and prepare them for the final thesis. Supervisors inform the Academic Board about the PhD students' progress in their research activity or of any possible problems. Supervisors should also ask for the Committee's authorization if part of the student's PhD research activity needs to be completed abroad.

The Academic Board can also nominate one or more co-Supervisors for a student, internal or

external to the Academic Board; the co-Supervisor collaborates with the Supervisor in his/her duties and contributes further to the student's scientific and technological knowledge.

If necessary, the Academic Board may revoke a Supervisor's assignment, only after finding a substitute, whereas it may revoke a co-Supervisor's assignment without necessarily nominating a substitute.

Art. 8 – Evaluation Committee

After a PhD student has presented his/her research project and study plan, the Academic Board nominates the student's Evaluation Commission composed of the student's Supervisor (and Co-Supervisor(s) if any) and two other professors/researchers, of whom at least one must be a member of the Academic Board. The aim of the Evaluation Committee is to follow the student activity and progress through periodical meetings during the academic year and to evaluate the student's research work. In particular, the Evaluation Committee evaluates:

- The progress of the student's research project and his/her study plan (see Art. 9);
- The end-of-the-year reports produced by the student (see Art. 11 and Art. 12), providing a written report to the Academic Board;
- The preliminary version of the thesis (see Art. 12).

Art. 9 – Training Activities

The PhD programme offers the following courses:

- a) Specialized courses, of 1, 2 or 3 credits, for a total of 15 credits (each credit corresponds to either 8 hours of lectures plus 17 hours of individual works or 15 hours of practice plus 10 hours of individual works), which are topic-specific. The student chooses the courses of interest to be attended during the first two years; four of such courses, for at least a total of 8 credits, require a final exam to be given by the end of the second year of the PhD Programme. This type of courses may also include international summer/winter schools of interest for the individual research and courses of other PhD programs. Courses of master's degrees are excluded in the credit computation. Online courses must be approved before the attendance and are considered as specialized courses only after a final exam. Students are recommended to attend courses activated by the University of Bari for acquiring soft skills, but these are evaluated as additional educational activities and are not considered as specialized courses.
- b) Seminar cycle on “Scientific Research Writing” (1.25 credits);
- c) Seminar cycle on “Information Technology Outlook” (1.25 credits);
- d) Seminar cycle on “Research Management, Research Systems and Funding Systems (1.25 credits);
- e) Seminar cycle on “Dissemination of research results and intellectual property” (1.25 credits).

The seminar cycles (b-e) are activated during the 3 years of the PhD Programme. The PhD student must attend at least 70% of the offered seminars and pass the final exams if applicable.

Any changes or exceptions to these program requirements, regarding either attendance or exams, must be supported by a request written by the PhD student and approved by the Academic Board.

PhD activities may be conducted either in Italian or English.

The course offered and their schedules are discussed and approved every year by the Academic

Board; their schedule may be modified by the Coordinator when necessary. The Coordinator communicates any variations via the PhD Programme website.

Art. 10 – Study and research activities abroad

Around the 2nd year of study, the PhD student should consider spending some time abroad in foreign institutes to deepen his/her research. The study period abroad should last at least 3 months in total, but it can be made up of multiple shorter periods, each lasting no less than 1 month. Students usually choose to study in just one foreign institute, but they can also decide to study in multiple countries, as long as it is strictly beneficial to their research.

PhD students may study abroad or in other universities in Italy for up to 6 months, if authorized by the Coordinator. Any wishes to extend this period beyond the allowed 6 months must be approved by the Academic Board. In any case, the period of study abroad cannot last for more than half of the entire PhD Programme duration.

Exceptions concerning the study abroad period and its duration must be discussed and approved by the Academic Board.

Art. 11 – Admission to second and third year

Each PhD student:

- a) must demonstrate a very good attendance record in the PhD Programme, as established by the Academic Board. The attendance requirement is 1500 hours each year and it is reported in a register of the activities;
- b) at the end of the first year, must have passed at least 2 courses (grade of at least 18/30) of the PhD Programme; at the end of the second year, must have passed at least 4 courses (grade of at least 18/30) for a total of at least 8 credits (including first-year courses) and attended specialized courses for at least 15 CFU.
- c) must obtain a positive evaluation by the Academic Board at the end of the year. This includes an evaluation of the student's written annual report and the results of the interview by the Evaluation Commission related to the activities of the PhD student. The evaluation will also consider publications in:
 - International Conference Proceedings with peer review;
 - ISI and/or SCOPUS Indexed Journals.

The PhD student who does not fulfill the above requirements can be conditionally admitted to the successive year, but the condition must be met within 3 months.

Art. 12 – Admission to the final exam

To be admitted to the final exam, the PhD student should present the preliminary version of his/her thesis within 2 months of the end of the final year. The structure of the thesis must have been previously discussed by the PhD student with Supervisor and co-Supervisor(s), if any.

Once the Evaluation Commission has expressed its opinion on the preliminary version of the thesis, the Academic Board will evaluate each PhD student on their activities during the programme, as well as on their publications, in order to admit the student to the final exam. The admitted students will then be evaluated by 2 or more highly qualified professors (referees), who may come from other universities or institutions, possibly from abroad. These referees are selected by the Academic Board.

When the PhD student is informed by the Coordinator of the names of the referees, he/she will have to send the thesis jointly with a report on the activities of the 3 years and the list of his/her publications. The referees are required to evaluate the PhD student's thesis within 30 days and will give the Coordinator a detailed report including their comments and suggestions on how to improve it. They can either admit the PhD student's thesis or require a major revision within 6 months. After this time, the thesis is admitted anyway to the defense and the referees are requested to provide a new evaluation report. Upon request of both student and supervisor, the Academic Board may grant an extension of the maximum duration of twelve months for motivated scientific reasons, according to the Art. 4 comma 12-b of the University of Bari regulation. A request of funding for the additional year has to be evaluated according to Art. 8 comma 25.

Art. 13 – Final exam for obtaining the PhD degree

The Commission of experts, nominated by the Academic Board, is appointed by the President of the University with an administrative order and should respect, if possible, gender balance. It is composed of 3 members, plus 3 substitute members; at least two members are selected among full professors, associate professors and researchers of the scientific sectors of the PhD Programme, who may also come from foreign universities. In addition, there can be as further members no more than 2 experts belonging to public and/or private research institutions, including foreign institutions.

The members of the Academic Board and the Co-Supervisors cannot be members of the Commission of experts.

At least 2 members of the Commission of experts must not belong to the University of Bari.

Members of the Commission of experts of the previous year of this PhD program cannot be members of the Commission.

The administrative order of the President of the University establishes the nature and duration of the Commission's duties. Starting from the date of the administrative order, the Commission has 60 days to conclude its work. After this deadline, the Commission is not effective anymore and, if its duties are not finalized, the President will nominate a new Commission.

The administrative order also determines how to inform the PhD candidate about the Commission and the final exam date. PhD candidates must send a copy of their thesis to the Commission at least 29 days before the final exam date. The final exam consists in the public presentation and defense of the thesis. At the end of the discussion, the Commission approves or rejects the thesis with a written evaluation. The Commission may confer a grade “summa cum laude” by unanimous decision, in recognition of important scientific results.

If, for any reason, members of the Commission cannot be present at the final exam, the examination may be conducted by videoconference. This is allowed only if at least 2 members of the Commission are physically present during the exam.

The research and training activities performed by the PhD students are certified in a diploma supplement.

Art. 14 – PhD Student Duties

Each PhD student must:

- plan his/her research work with the Supervisor, and possibly co-Supervisor(s), defining multiple meeting times (at least once a month);
- submit the research project and the plan for study and scientific activities, agreed with the Supervisor and the possible co-Supervisor(s), within the first 3 months;



- respect deadlines when developing the research project and the study plan, presenting written reports as required;
- inform the Evaluation Commission about the research progress, defining at least three meeting each year;
- take the initiative to discuss any possible problems with the Supervisor and/or co-Supervisor(s) or, under extreme circumstances, with the Coordinator.

Art. 15 – Tutoring and teaching activities by PhD students

As established in Art. 8 of the University Regulations, PhD students can provide tutorial assistance to students or support teaching activities of the various Bachelor's and Master's degree courses of the Department of Computer Science and the Department of Mathematics, as part of their academic preparation. The Academic Board must discuss and approve these tutoring and teaching activities, which cannot exceed 40 hours of work in each of the first two years of the PhD Programme.

Art. 16 – Amending the Regulations

Each proposal to amend these Regulations must be approved by the Academic Board. Any amendments come into effect the day after the Academic Board's decision.

Art. 17 – Final Rules and related Regulations

These Regulations complement the current National and University Regulations concerning the PhD Programmes.

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