

Mathematical Sciences

doctoral study programme, third Bologna cycle

COURSE STRUCTURE of the study programme

The doctoral programme is partly structured, but primarily individual in nature. It consists of the following components:

- Advanced mathematical courses covering the research topic chosen by the candidate together with the supervisor,
- Research by the candidate,
- Seminar presentations,
- A minimum of two scientific articles in SCI journals,
- doctoral dissertation.

During the first year, in accordance with their research interests, the student selects a supervisor who guides them in the selection of elective courses and in the preparation of the doctoral dissertation.

Within the advanced mathematical component, the student acquires up-to-date knowledge and becomes familiar with current open problems in the following areas of mathematics: analysis, algebra, discrete mathematics, financial mathematics, cryptography, computationally intensive methods and applications, and statistics. The content of these courses is provided to the student by the supervisor. In the case of a smaller number of students, courses are delivered in the form of individual consultations.

Within the framework of advanced mathematical topics, the student, under the guidance of the supervisor, develops a foundation for individual research work in the aforementioned areas. The student reports on their individual research work directly to the supervisor and also presents it at (departmental) seminars attended by students, academic staff, and other interested participants. Individual research work culminates in the preparation of the doctoral dissertation.

As part of the programme, the student completes a doctoral dissertation that represents a significant and original contribution to the global body of knowledge in mathematics. Prior to the defence of the doctoral dissertation, the work must be published (or accepted for publication) in international journals in the field of mathematics, specifically in at least two articles in journals indexed in the SCI database. More detailed criteria are prescribed by the Department of Mathematics at UP FAMNIT.

The doctoral dissertation is an original contribution to science and must be prepared in accordance with the university regulations governing doctoral work. Students may register the topic of their doctoral dissertation after successfully completing the first year of study. The procedure for topic registration and defence is specified in detail in the [Rules on the Preparation and Defence of Doctoral Dissertations at the University of Primorska](#).

The table below presents the conceptual scheme of the doctoral programme. The programme is structured so that most organized teaching takes place in the first year, while the second and third years are primarily devoted to research work.

Table 1: Structure of the study programme

3RD YEAR	Doctoral Dissertation (48 ECTS)		Seminar (6 KT)
			Seminar (6 KT)
2ND YEAR	Doctoral Dissertation (24 ECTS)	Individual Research Work (24 ECTS)	Seminar (6KT)
			Seminar (6KT)
1ST YEAR	Elective course – Advanced Mathematical Course II (12ECTS)	Individual Research Work (24ECTS)	Seminar (6KT)
	Elective course – Advanced Mathematical Course I (12ECTS)		Seminar (6KT)

Legend:

ECTS credits (ECTS) = credit points awarded under the European Credit Transfer and Accumulation System (ECTS). The credit system facilitates student mobility and the mutual recognition of completed academic requirements.

ECTS credits represent an average estimate of the time required to complete a course and include both organized forms of instruction (lectures, seminars, seminar and laboratory exercises, fieldwork, practical training, etc.) and the student's independent work (exam preparation and other course-related obligations, etc.). One (1) ECTS credit corresponds to 25 to 30 hours of study workload. Credits are awarded upon the successful completion of the requirements for an individual course.

Table 2: Elective courses - advanced mathematical courses

No.	Advanced Mathematical Courses (AMC)	ECTS
1.	AMC – Algebra I	12
2.	AMC - Algebra II	12
3.	AMC – Analysis I	12
4.	AMC – Analysis II	12
5.	AMC – Discrete Mathematics I	12
6.	AMC – Discrete Mathematics II	12
7.	AMC – Financial Mathematics I	12
8.	AMC – Financial Mathematics II	12
9.	AMC – Cryptography I	12
10.	AMC – Cryptography II	12
11.	AMC – Computing Intensive Methods and Applications I	12
12.	AMC – Computing Intensive Methods and Applications II	12
13.	AMC – Statistics I	12
14.	AMC – Statistics II	12

For assistance and guidance, students may consult the study programme coordinator.

Contact:

Programme coordinator:

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Student Services

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