Program	Type of studies (cycle)	Third cycle
	Name of the program	Doctoral Studies in Mathematical and Computer Science

Course

Course title	**Noncommutative Rings**

Course code	Semester	Course status	ECTS credits	Contact hours
PMAT 680	II	Optional	10	30

Aims and intended learning outcomes	The aim is to introduce students with the fundamentals of the theory of associative noncommutative rings, their techniques, as well as with the active areas of research, such as the theory of radicals, graded rings, etc., depending on the candidates' interests.

Course content/topics

- Examples (constructions) of noncommutative rings
- The Jacobson radical
- The Wedderburn—Artin Theorem
- Simple and primitive rings
- Fundamentals of graded ring theory

LITERATURE

[1] T.-Y. Lam, A First Course in Noncommutative Rings, Springer, 1991.
[2] N. Herstein, Noncommutative rings, Carus Math. Monographs 15, 1968.
[3] A. V. Kelarev, Ring Constructions and Applications, Series in Algebra 9, World Scientific, 2002.
[4] C. Nastasescu, F. Van Oystaeyen, Methods of Graded Rings, Lecture Notes in Mathematics 1836, Springer, 2004.
[5] B. J. Gardner, R. Wiegandt, Radical Theory of Rings, Pure and Applied Mathematics 261, Marcel Dekker, 2004.

Grading

	Criterion	Points	Cut-off points
1.	Written assignment		
2.	Project	40	20
3	Final exam	60	35
	Total	100	55