

**Education Program at the Doctoral School
at the Nicolaus Copernicus Superior School
in the Collegium of Astronomy and Natural Sciences in Toruń
in the discipline of Astronomy 2024/2025**

1. General education characteristics

Education at the SGMK Doctoral School prepares for obtaining a doctoral degree in the discipline of Astronomy. Education includes the implementation of the education program and Individual Research Plan and leads to achieving learning outcomes for qualifications at level 8 of the Polish Qualifications Framework.

2. Learning outcomes (knowledge, skills, and social competences)

No.	Symbol	Symbol Specification for a doctoral student / graduate of the doctoral school	Description component code
KNOWLEDGE, the doctoral student / graduate knows and understands:			
1	W_1	to the extent enabling the revision of existing paradigms - the global achievements including theoretical foundations and general issues as well as selected specific issues relevant to the scientific discipline in which the doctoral dissertation is prepared	P8S_WG
2	W_2	the main developmental trends in science in the discipline in which the doctoral dissertation is prepared	P8S_WG
3	W_3	the methodology of scientific research	P8S_WG
4	W_4	fundamental dilemmas of contemporary civilization	P8S_WK
5	W_5	economic, legal, ethical, and other significant conditions of scientific activity	P8S_WK
SKILLS, the doctoral student / graduate is able to:			
1	U_1	use knowledge from various fields of science for creative identification, formulation, and innovative solving of complex problems or tasks, especially: <ul style="list-style-type: none"> • defining the aim and subject of scientific research, formulating a research hypothesis • developing research methods, techniques, and tools, and creatively applying them • deducing from the results of scientific research 	P8S_UW
2	U_2	critically analyze and evaluate the results of scientific research, expert activity, and other creative works as well	P8S_UW

		as their contribution to the development of knowledge in the area of conducted research	
3	U_3	transfer the results of scientific activity to the economic and social sphere	P8S_UW
4	U_4	communicate on	P8S_UK
		specialized topics to enable active participation in the international scientific community	
5	U_5	disseminate the results of scientific activity also in popular forms	P8S_UK
6	U_6	initiate debate	P8S_UK
7	U_7	participate in scientific discourse	P8S_UK
8	U_8	plan and carry out individual and team research projects, also in the international environment	P8S_UO
SOCIAL COMPETENCES, the Doctoral student / graduate is ready to:			
1	K_1	critically assess the achievements within the scientific discipline in which the doctoral dissertation is prepared	P8S_KK
2	K_2	critically assess their own contribution to the development of the scientific discipline in which the doctoral dissertation is prepared	P8S_KK
3	K_3	acknowledge the importance of knowledge in solving cognitive and practical problems	P8S_KK
4	K_4	fulfil the social obligations of researchers	P8S_KO
5	K_5	initiate actions for the public good	P8S_KO
6	K_6	maintain and develop the ethos of research environments through: <ul style="list-style-type: none"> • conducting scientific activity independently and in accordance with social values • respecting the principle of public ownership of the results of scientific activity, taking into account the principles of intellectual property protection 	P8S_KR

No.	Subjects	Semester	ECTS	Hours
A.	General subjects		4	60
1.	Scientist's Workshop	I-III	1	20
2.	Specifics of work in the discipline	I-III	1	20
3.	Philosophy or History of Science	II-VI	2	20
B.	Major subjects		20	359
1.	Course lecture 1	I-III	2	20
2.	Course lecture 2	III-IV	2	20
3.	Course lecture 3 (optional)	II-VI	2	20
4.	Interdisciplinary seminar	I-VIII	2	54
5.	Monographic lecture 1	II-IV	2	20
6.	Monographic lecture 2	V-VI	2	20
7.	Monographic lecture 3 (optional)	II-VI	2	20
8.	Supervisor monitoring	II-VIII	6	105
9.	Professional practice	III-VI	0	80
C.	Supporting subjects			
1.	Block of optional supporting subjects	I-VIII		0
D.	Supplementary subjects		2	20
1.	Scientific information	I-III	2	20
E.	Doctoral seminar	I-VIII	6	72
F.	Individual research plan	I-II	1	15
			33	526

No.	Subjects	Hours	ECTS	Semester
A	General subjects	60	4	
1	Scientist's Workshop (understanding entrepreneurship principles, transfer and commercialization of research results, principles of publishing ethics, responsibility in scientific activity, significance of science popularization, copyrights, and intellectual property protection)			I-III
2	Specifics of work in the discipline (practical aspects of academic work, obtaining funds for research, teamwork, research group management, preparation of scientific publications, presenting research results, career planning)			I-III
3	Philosophy or History of Science			II-VI
B	Major subjects	134	10	
1	Course lecture 1			I-III
2	Course lecture 2			III-IV
3	Course lecture 3			II-VI
4	Interdisciplinary seminar			I-VIII
5	Monographic lecture 1			II-IV
6	Monographic lecture 2			V-VI
7	Monographic lecture 3			III-VIII
8	Supervisor mentoring	105	6	II-VIII
9	Professional practice	80	0	III-VI
C	Supporting subjects			
1	Preparation of a manuscript for an article published in the Journal Citation Reports			2 ECTS
2	Submission of an application for external research funding			1 ECTS
3	Acquisition of external research funding (grant)			3 ECTS
4	Submission of a patent related to conducted research			2 ECTS
5	Participation in a scientific conference:			<=5 ECTS
6	Presentation at an international conference			1 ECTS
7	Poster presentation at an international conference			0.5 ECTS
8	Presentation at a national conference			0.25 ECTS (<=0.5)
9	Preparation and delivery of a doctoral seminar (or similar)			0.5 ECTS (<=4)
10	Participation in a scientific school, specialized workshops			1 ECTS per week
11	Science popularization:			<=4 ECTS
12	Lecture or demonstration			1 ECTS
13	Published article			0.5 ECTS
14	Educational activity			Dean's decision
D	Supplementary subjects	20	2	
1	Scientific information (use of literature, databases, writing tools)			I-II
E	Doctoral seminar	72	6	I-VIII
F	Individual research plan (execution)	15	1	I-II