

## Study plan

<b>Faculty offering the field of study:</b>	Faculty of Physics, Astronomy and Informatics
<b>Field of study:</b>	Physics and Astronomy
<b>Level of study:</b>	Second cycle
<b>Level of the Polish Qualifications Framework:</b>	Level 7
<b>Degree profile:</b>	General academic
<b>Mode of study:</b>	Full-time programme
<b>Number of semesters:</b>	4
<b>Number of ECTS credit necessary for completing a field of study on a given level:</b>	90
<b>Total number of teaching hours:</b>	approx.1170

### 1 Year

Name of a course module	Course name	Course code in USOS <b>0800- PA-</b>	semester	ECTS credits	Number of hours of direct contact with the teacher or tutor – compliant with a class type <sup>1</sup>					Form of crediting a course <sup>2</sup>
					L	C	L	T	...	
Obligatory courses 27 ECTS	Classical and celestial mechanics	CELMECH	I	5	30	30				E + GC
	Stellar physics	STELPHYS	I	5	30	30				E + GC
	Advanced mathematical methods	ANAMATH	I	6	45	30				E + GC
	Electrodynamics and field theory	ELFIELD	I	6	30	45				E + GC
	Atomic and molecular physics	ATMOLPHY	I	5	30	30				E + GC
Module 1 or Module 2 (free choice) 3 ECTS	Introduction to astrophysics	INASTRO	I	3	30					E
	Quantum information	QUANTINF	I	3	30					E
	Astrochemistry and astrobiology	ASCHEMA	I	3	30					E

<sup>1</sup> A class type in individual courses must comply with NCU regulations for determining the scope of duties of the academic staff, types of courses to be taught under these duties and the rules for calculating teaching hours.

<sup>2</sup> Graded credit, examination

Obligatory courses 14 ECTS	General relativity	GENREL	II	6	30	45				E + GC
	Quantum optics 1	QUANTOPT1	II	5	30	30				E + GC
	High-energy astrophysics	HENERGY	II	3	30					E
Astrophysics laboratory (obligatory) 3 ECTS	Optical astrophysics laboratory	OPASTLA	I	3			45			GC
	Radioastronomy laboratory	RADASTRO	II	3			45			GC
Module 1 or Module 2 (free choice) 5 ECTS	Optoelectronics laboratory	OPTELA	II	5			60			E
	Galaxies: formation and evolution	GALAX	II	5	30		30			E + GC
Obligatory 3 ECTS	Monographic lecture (from a list of courses)	-	II	3	30					E
Obligatory, 5 ECTS	University-wide courses (from a list of courses)	-	I, II	5	50					GC/E
<b>Total:</b>				<b>60</b>	<b>335</b>	<b>255</b>	<b>60-90</b>			<b>X</b>

## II Year

Name of a course module	Course name	Course code in USOS 0800-PA-	semester	ECTS credits	Number of hours of direct contact with the teacher or tutor – compliant with a class type					Form of crediting a course
					L	C	L	S	...	
Obligatory courses 14 ECTS	Condensed matter physics	CONMAT	III	3	30					E
	Physics laboratory	PHYSLAB	III	5			60			GC
	Astrohydrodynamics	ASTROHYDRO	III	4	30	15				E + GC
	Diploma proseminar	DIPROS	III	2				15		GC
Module 1 or Module 2 (free choice) <sup>3</sup>	Quantum optics 2	QUANTOP2	III	5	30	30				E + GC
	Quantum optics laboratory	QUANTOL	III	5			60			GC
	Statistical physics	STATPHY	III	5	30	30				E + GC
	Theoretical astrophysics laboratory 1	THEOAST LA1	III	3			45			GC
Obligatory courses 9 ECTS	Large-scale Universe	LASCUNIV	IV	3	30					E
	From complex chemistry to new physics	COMCHEM	IV	4	45					E
	Diploma seminar	DIPSEM	IV	2				15		GC
Module 1 or Module 2 (free choice)	Biophysics	BIOPHY	IV	5	30		30			E + GC
	Physics of planetary systems	PLANETSYS	IV	5	30		30			E + GC
	Theoretical astrophysics laboratory 2	THEOAST LA2	IV	3			45			GC
	Theoretical astrophysics laboratory 3	THEOAST LA3	IV	3			45			GC
Obligatory 3 ECTS	Monographic lecture (from a list of courses)	-	III, IV	3	30					E
Obligatory 4 ECTS	University-wide course (from a list of courses)	-	III, IV	4	60					GC
	Master thesis	MATHES		20						E
<b>Total:</b>				<b>60</b>	<b>285</b>	<b>45</b>	<b>150</b>	<b>30</b>		<b>X</b>

<sup>3</sup> 10 ECTS credits are obligatory in semesters III or IV

This study plan is effective as of winter semester of the academic year 2024/25

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*(Dean's stamp and signature)*