

Course card
Undergraduate studies 2019/2020

Title	Astronomy
Title (in polish)	Astronomia

Coordinator	Dr hab. Andrzej Baran, prof. UP	Teaching staff
ECTS* points	5	Astronomy Department

Course description (learning outcomes)

This course aims to teach students the fundamental concepts of astronomy, especially concerning the Universe as a whole, the Solar System, units used in astronomy, astronomical observations, the night sky, the calendar, phenomena occurring in the Earth-Moon-Sun system, and phenomena resulting from the rotation and orbital motion of the Earth.

Prerequisites

Knowledge	Basic knowledge of the laws of physics.
Skills	Basic ability to describe problems in physics.
Completed courses	High school physics.

Learning outcomes

Knowledge	Learning outcomes for the course	References to degree outcomes
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	<p>W01 – has solid knowledge of the fundamentals of astronomy</p> <p>W02 – knows astronomical phenomena appearing in the day and night sky</p> <p>W03 – knows how to perform simple astronomical observations</p>	<p>K_W01, K_W02, K_W03, K_W09</p>
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	Learning outcomes for the course	References to degree outcomes
Skills	<p>U01 – can use definitions applicable in various branches of astronomy</p> <p>U02 – can use the mathematical methods of physics and astronomy</p> <p>U03 – can apply fundamental algorithms to solve problems in astronomy</p> <p>U04 – can discuss astronomical topics clearly</p> <p>U05 – can find information from published literature, the internet and other sources, interpret them and draw conclusions</p> <p>U06 – can prepare written and oral presentations on astronomical topics</p> <p>U07 – can learn independently and find solutions to problems in contemporary astronomy</p>	<p>K_U01, K_U02, K_U03, K_U04, K_U06, K_U07, K_U08, K_U09</p>

	Learning outcomes for the course	References to degree outcomes
Social abilities	<p>K01 – is interested in the latest astronomical discoveries</p> <p>K02 – can assess their own knowledge critically</p> <p>K03 – can formulate questions and attempt to solve them</p> <p>K04 – can present their knowledge in a manner comprehensible to their chosen audience</p> <p>K05 – understands the need for popularization of astronomy</p>	<p>K_K02, K_K04, K_K07</p>

Organization									
Form of classes	Lecture (W)	Classes in groups							
		A (large group)	K (small group)	L (Lab)	S (Seminar)	P (Project)	E (Exam)		
Contact hours	30			15					

Teaching methods

Classes are taught in a system of 2 hours of lectures and 1 hour of laboratory classes per week, using multimedia and online resources. Materials will be prepared in English to allow students to familiarize themselves with the specialist English-language terminology associated with the astronomical topics being taught and make future international learning easier.

Assessment methods

	E – learning	Didactic games	Classes in schools	Field classes	Laboratory tasks	Individual project	Group project	Discussion participation	Student's presentation	Written assignment (essay)	Oral exam	Written exam	Other
W01								X					X
W02								X					X
W03								X					X
U01								X					X
U02								X					X
U03								X					X
U04								X					X
U05								X					X
U06								X					X
U07								X					X
K01								X					X
K02								X					X
K03								X					X

K04									X					X
K05									X					X

Assessment criteria	The students knowledge will be assessed by the teaching staff and a grade given.
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Assessment criteria	
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Course content (topic list)

<ol style="list-style-type: none"> 1. The structure and distance scale of the Universe 2. Units used in astronomy 3. Night sky and constellations 4. The Earth's orbit and Kepler's Laws 5. Time systems used in astronomy 6. Daily and yearly motion of the Earth 7. Phenomena in the Earth-Moon-Sun system 8. Astronomical observations 9. The Solar System
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Basic literature

<p>Ziemia i Wszechświat, J.M.Kreiner Astronomia dla każdego, D.Block Astronomy: A Self-Teaching Guide, D. L. Moche</p>
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Additional literature

<p>An Introduction to Modern Astrophysics, Carroll and Ostlie Fundamental Astronomy, H. Kartunnen</p>
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Total work hours according to the Total Student Workload

number of hours in contact with teaching staff	Lectures	30
	Classes (exercises, laboratory etc.)	15

	Other contact hours	15
number of hours of independent study	Reading in preparation for classes	25
	Preparation of a short written paper or presentation using the fundamental literature for the subject	10
	Preparation of a proejct or presentation on a given topic (group task)	10
	Preparation for examination/grading	20
Total work hours		125
Number of ECTS points according to the ratio 1ECTS=25h		5