

# Astronomy - course description

General information	
Course name	Astronomy
Course ID	13.7-WF-FizP-A-S17
Faculty	<a href="#">Faculty of Physics and Astronomy</a>
Field of study	Physics
Education profile	academic
Level of studies	First-cycle studies leading to Bachelor's degree
Beginning semester	winter term 2022/2023

Course information	
Semester	2
ECTS credits to win	2
Course type	obligatory
Teaching language	english
Author of syllabus	<ul style="list-style-type: none"><li>dr hab. Wojciech Lewandowski, prof. UZ</li></ul>

Classes forms					
The class form	Hours per semester (full-time)	Hours per week (full-time)	Hours per semester (part-time)	Hours per week (part-time)	Form of assignment
Lecture	30	2	-	-	Credit with grade

## Aim of the course

Presentation of basics ideas and problems of modern astronomy.

## Prerequisites

The knowledge of physics at the high-school level

## Scope

Elementary phenomena on the celestial sphere. Astronomical coordinate systems, time in astronomy. The Solar system and the Kepler's laws. The sun as an example star. Stellar energy sources. Stars – physical parameters and classification. Evolution of stars. Binary and multiple star systems. Stellar clusters. Interstellar matter. The structure of the Milky Way Galaxy. Galaxies and the universe. The beginnings and the future of the Universe. Big Bang theory and the cosmic background radiation.

## Teaching methods

Classic lecture

## Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Student is able to describe the elementary phenomena observed on the celestial sphere. He can name and describe the basic astronomical coordinate systems. He can name and characterize the basic constituents of the solar system – planets with their satellites, asteroids and comets, and the laws that govern their motions. He is able to describe the basic physical properties of the Sun, and the phenomena on its surface. He can explain the structure of the Sun and the sources of its energy. He can describe the basic parameters and the structure of stars of various spectral types. He can explain the evolution of the stars. Student is able to describe the basic interactions happening in binary stars. He can describe the Open and Globular Clusters, and explain their significance in our understanding of solar evolution. He can name and describe the basic components of the interstellar medium, and the structure of the Milky Way galaxy. He is able to identify and characterize various types of galaxies. He is able to explain the observational facts that led to the development of the big bang theory. He can name and describe the main stages of Universe's evolution.	<ul style="list-style-type: none"><li><a href="#">K1A_W01</a></li><li><a href="#">K1A_W03</a></li><li><a href="#">K1A_U01</a></li><li><a href="#">K1A_U02</a></li><li><a href="#">K1A_U06</a></li></ul>	<ul style="list-style-type: none"><li>an evaluation test</li><li>an oral response</li></ul>	<ul style="list-style-type: none"><li>Lecture</li></ul>

## Assignment conditions

Grade – oral test; passing criteria – positive grade.

## Recommended reading

- [1] J. M. Kreiner, *Astronomia z astrofizyką*, PWN, Warszawa 1988.
- [2] F. Shu, *Galaktyki, gwiazdy, życie*, Prószyński i S-ka, 2003.
- [3] D. Block, *Astronomia dla każdego*, Marba Crown 1994.
- [4] E. Rybka, *Astronomia ogólna*, PWN, Warszawa 1983.
- [5] E. Chaisson, S. McMillan, *Astronomy: A Beginner's Guide to the Universe*
- [6] M. Zeilik, S.A. Gregory, *Introductory Astronomy & Astrophysics'*

[7] L. Kay, 21st Century Astronomy

## Further reading

[1] M. Kubiak, Gwiazdy i materia międzygwiazdowa, PWN, Warszawa 1994.

[2] M. Jaroszyński, Galaktyki i budowa Wszechświata, PWN, Warszawa 1993.

[3] Ch. Keeton, Principles of Astrophysics, Springer, 2014

[4] F. Shu, The Physical Universe: An Introduction to Astronomy

[5] B. W. Carroll, D. A. Ostlie, An Introduction to Modern Astrophysics and Cosmology, Pearson, Addison-Wesley, San Francisco, 2006

## Notes

Modified by dr Marcin Kośmider (last modification: 04-04-2022 20:44)

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