

Identification	Subject (Code, title, credits)	PSCH 111 Astronomy 6 ECTS
	Department	Physics and Electronics
	Program (undergraduate, graduate)	Undergraduate
	Term	Fall, 2023
	Instructor	A.F. Abdulkarimova
	E-mail:	wolfraye@gmail.com
	Phone:	+99451 4503607
	Classroom/hours	Ahmed Rajabli street, 3rd parallel, (Narimanov campus)
	Office hours	Tuesday 14:00-15:00
Prerequisites	-	
Language	English	
Compulsory/ Elective	Elective	
Required textbooks and course materials	<ol style="list-style-type: none"> http://www.as.utexas.edu/~elr/Astronomy-LR.pdf Introduction to Astronomy, Jeffrey Wright Scott, 2010- https://openstax.org/books/astronomy/pages/1-introduction Fundamental Astronomy, Hannu Karttunen and etc. 5 th edition. 2007- http://www.znu.ac.ir/files/uploaded/editor_files/observatory/files/Fundamental%2BAstronomy%2B5th%2BEdition.pdf C.M. Quluzadə, “Klassik astronomiya” Bakı, 2007. R.Ə.Hüseynov, “Astronomiya”, Bakı, 1997. Кононович Э.В. Мороз В.И. Общий курс астрономии, Москва, 2001. https://www.nasa.gov/ https://www.esa.int/ 	
Course outline	<p>Astronomy is the oldest science that studies objects and phenomena observed in the universe. The mysteries of the sky call the human mind to meditation and the study of the physical world. We call this boundless and ever-changing world the Universe. The concept "Universe" includes the Earth with the rest of the planets, and the Sun, and other stars, galaxies, and the environment in which they are located. Modern astronomy studies very distant space objects. It is important for humanity to investigate the activity of the Sun and its influence on earthly processes, to answer several questions. Is there life on other planets, how space affects the development of all living things, etc.?</p> <p>Astronomy is a course which covers the entire panorama of the universe from the origin and structure of the solar system to the properties. Astronomy describes the origin and evolution of the stars, galaxies, and cosmology. It explains different kinds of calendars, such as Solar and Lunar calendars depending on the annual motion of the Earth and rotation of the moon around the Earth. It studies Lunar and Solar eclipses which are very interesting events that are observed on Earth with naked eyes.</p>	
Course objectives	<p>The aim of teaching astronomy is to understand astrophysical processes and systems, ranging from our own sun to stars, galaxies, and the whole universe. Astronomy studies the position of celestial bodies in the celestial sphere, their coordinates, the factors that affect these coordinates, and the measurement of time.</p> <p>The main goal of Astronomy is to teach students following issues:</p> <ol style="list-style-type: none"> Study of the apparent and real positions and motions of celestial objects, determination of the shape and size of celestial bodies and the distance to them. Determination of the structure, physical state, and chemical composition of celestial bodies. The study of the formation and evolution of celestial bodies and the systems they form. 	
Learning outcomes	<p>By the end of the course, students will be able to:</p> <ul style="list-style-type: none"> - Conceptualize the structure of the solar system and the universe. - Classify and explain the reason for the differences between the planets in our solar system, stars in the sky and types of galaxies in the universe. - To construct drawings correlating various planetary, stellar, and galactic motions - Trace the evolution of stars and the universe. 	

	<ul style="list-style-type: none"> - Define rising and setting times of celestial objects. - Determine Lunar Phases 		
Teaching methods	Lecture		+
	Group discussion		+
	Experiential exercise		+
	Quiz, Classroom Exams		+
	Others		+
Evaluation	Methods	Date/deadlines	Percentage (%)
	Midterm Exam		30
	Attendance	At each lesson	5
	Quizzes	During the semester	10
	Activity	During the semester	10
	Presentation		5
	Final Exam		40
	Total		100
Policy	<ul style="list-style-type: none"> ▪ Preparation for class The structure of this course makes your individual study and preparation outside the class extremely important. The lecture material will focus on the major points introduced in the text. Reading the assigned chapters and having some familiarity with them before class will greatly assist your understanding of the lecture. After the lecture, you should study your notes and work relevant problems and cases from the end of the chapter and sample exam questions. • Withdrawal (pass/fail) This course strictly follows grading policy of the School of Humanities, Education and Social sciences. Thus, a student is normally expected to achieve a mark of at least 60% to pass. In case of failure, he/she will be required to repeat the course the following term or year. ▪ Cheating/plagiarism Cheating or other plagiarism during the Quizzes, Mid-term and Final Examinations will lead to paper cancellation. In this case, the student will automatically get zero (0), without any considerations. ▪ Professional behavior guidelines The students shall behave in a way to create a favorable academic and professional environment during the class hours. Unauthorized discussions and unethical behavior are strictly prohibited. • Attendance Students who attend the whole classes will get 5 marks. for three absence student loses 1 mark. • Quizzes There will be a quizzes per two weeks. The quizzes will be announced in the classroom two weeks before and will relate to homework. • Activity Students who will be active during discussion of past lessons will be awarded with one activity mark. • Presentation Students will submit their presentations at the end of the semester and will be graded out of 5. Topics will be given by the instructor, the main requirement for the presentation should be research oriented. 		

Tentative Schedule			
Week	Date/Day (tentative)	Topics	Textbook
1	18.09.23	Science and the Universe: The nature of Astronomy. The Birth of Modern Astronomy: Ancient Astronomy. The sky above The Celestial Sphere Early Greek and Roman Cosmology. Ptolemy's Model of the Solar System. Heliocentric model of Copernicus. Galileo's Astronomical Observations	Chapter 1,2 http://www.as.utexas.edu/~elr/Astronomy-LR.pdf
2	25.09.23	Earth, Moon, and Sky: Earth and sky. Locating places on Earth. The Turning Earth. The Seasons and Sunshine. The Length of the Day. <i>Quiz</i>	Chapter 4 http://www.as.utexas.edu/~elr/Astronomy-LR.pdf
3	02.10.23	Earth, Moon, and Sky. Phases and motions of the Moon. Lunar Phases. The Moon's Revolution and Rotation. The Pull of the Moon on Earth.	Chapter 4 http://www.as.utexas.edu/~elr/Astronomy-LR.pdf
4	09.10.23	Eclipses of the Sun and Moon: Eclipses of the Sun. Appearance of a Total Eclipse. Eclipses of the Moon. How to Observe Solar Eclipses <i>Quiz</i>	Chapter 4 http://www.as.utexas.edu/~elr/Astronomy-LR.pdf
5	16.10.23	An Introduction to the Solar System: Overview of our planetary system. An Inventory. Mass of Members of the Solar System.	Chapter 7 http://www.as.utexas.edu/~elr/Astronomy-LR.pdf
6	23.10.23	An Introduction to the Solar System: Composition and structure of planets. The Terrestrial Planets. Origin of the solar system. <i>Quiz</i>	Chapter 7 http://www.as.utexas.edu/~elr/Astronomy-LR.pdf
7	30.10.23	Smaller Members of the Solar System. Moons, Asteroids, and Comets.	Chapter 7 http://www.as.utexas.edu/~elr/Astronomy-LR.pdf
8	06.11.23	Midterm Exam	
9	13.11.23	Earth as a Planet. The global perspective. Earth's Interior. Magnetic Field and Magnetosphere. Earth's crust. Earth's atmosphere. Weather and Climate	Chapter 8 http://www.as.utexas.edu/~elr/Astronomy-LR.pdf
10	20.11.23	Earth as a Planet. Earth's crust. Earth's atmosphere. Weather and Climate <i>Quiz</i>	Chapter 8 http://www.as.utexas.edu/~elr/Astronomy-LR.pdf
11	27.11.23	Earthlike planets: Venus and Mars Rotation of the Planets. Basic Properties of Venus and Mars The geology of Venus. The geology of mars	Chapter 10 http://www.as.utexas.edu/~elr/Astronomy-LR.pdf
12	04.12.23	The Giant Planets. Exploring the outer planets. The Giant Planets. Appearance and Rotation. Composition and Structure. Atmospheres of the Giant Planets. <i>Quiz</i>	Chapter 11 http://www.as.utexas.edu/~elr/Astronomy-LR.pdf
13	11.12.23	The birth of stars and the discovery of planets outside the Solar System. Star Formation. Molecular Clouds: Stellar Nurseries. The Orion Molecular Cloud. The Birth of a Star.	Chapter 21 http://www.as.utexas.edu/~elr/Astronomy-LR.pdf
14	18.12.23	The Milky Way Galaxy. The architecture of the Galaxy. Disks and Haloes. Spiral structure Galaxies. The discovery of Galaxies. Types of Galaxies	Chapter 25, 26 http://www.as.utexas.edu/~elr/Astronomy-LR.pdf

		<i>Quiz</i>	LR.pdf
15	25.12.23	Active Galaxies, Quasars, and Supermassive Black Holes. Quasars, The Big Bang. The age of the universe. A model of the Universe.	Chapter 27, 29 http://www.as.utexas.edu/~elr/Astronomy-LR.pdf
		Final Exam	

This syllabus is a guide for the course and any modifications to it will be announced in advance.

