

KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
DEPARTMENT OF PHYSICS

PHYS 215 – Introduction to Astronomy – fall 2025 (251)

1. **Instructor Detail:** Dr. Ashraf Farahat, Ph.D.
Physics Department (6- 140), KFUPM
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Tel: 013-860-7290
2. **Times and Locations:** PHYS215-01 and 02 Lecture -UTR 12:00- 12:50 pm, Location 63- 362
3. **Course Description:** An elementary introduction to astronomy. Topics covered include Celestial mechanics; the solar system; stellar measurement; stellar magnitudes and spectra; galaxies; cosmology.
4. **Prerequisite:** PHYS 102.
5. **Textbook:** “The Cosmos: Astronomy in the New Millennium” 4th Ed. By Jay M. Pasachoff & Alex Filippenko, Cambridge University. Press, Thomson-Brooke Cole 2013.
6. **Recommended by Instructor, yet Optional Books:**
 - Foundations of Astronomy 12th Ed, Michael A. Seeds & Dana Backman, Cengage Learning 2012.
 - Explorations: An Introduction to Astronomy 7th Ed., Thomas Arny & Stephen Schneider, McGraw-Hill 2013.
 - Discovering the Universe 9th Ed., Neil
 - Comins & William J. Kaufmann, W. H. Freeman 2011.
 - Astronomy Magazine (Monthly).
 - Sky and Telescope Magazine (Monthly).
 - “Astronomy Today” 8th Ed, Eric Chaisson & Steve McMillan, Addison-Wesley (2013).
 - Elm Al-Falak (Arab and Muslim Contributions to Astronomy), Yahya Shami, Dar Al-Fikr Al-Arabi Pub., Lebanon, 1997. (Arabic)

7. Grading Policy:

Students' assessment will be based on:

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|---|-------|
| • Classwork | (30%) |
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| • Major Exam I Sunday 12 October 2025 @ 6:30 pm) | (20%) |
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| • Major Exam II (Sunday 23 November 2025 @ 6:30 pm) | (20%) |
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| • Final Exam (date and time TBA by Registrar) | (30%) |

Grading Scale

90 - 100 A+

85 - <90 A

80 - <85 B+

75 - <80 B

70 - <75 C+

65 - <70 C

60 - <65 D+

45 - <60 D

0 - < 45 F

This is a tentative scale and it may be slightly modified based on the class average.

8. Attendance: Attending all classes is compulsory. A DN grade will be assigned once a student accumulates 8 unexcused absences.

9. Special Needs: If you have a disability or think you may have a disability (physical, learning, hearing, vision, psychological) which may need a reasonable accommodation please contact me as soon as possible to make proper arrangements.

Week	Topics	Chapter	Sec	Quiz
1	Grand Tour of the Heavens Light, Matter, and Energy: Powering the Universe	01	1.3,1.4	
		02	2.1-2.3	
		02	2.4,2.5	
2	Light and Telescopes: Extending our Senses	03	3.1-3.3	
		03	3.4-3.6	
		03	3.7,3.8	
3	Observing the Stars and Planets: Clockwork of the Universe	04	4.1 – 4.3	1
		04	4.4 – 4.7	
		04	4.8 - 4.10	
4	Gravitation and Motion: The Early History of Astronomy	05	5.1 – 5.3	
		05	5.5-5.6	
		05	5.7, 5.8	
5	The Terrestrial Planets: Earth, Moon, and their relatives	06	6.1, 6.2	
		06	6.3, 6.4	
		06	6.5	
6	The Jovian Planets: Windswept Giants	07	7.1 – 7.2	2
		07	7.3 – 7.5	
		07		
7	Pluto, Comets, and Space Debris	08	8.1 – 8.3	
		08	8.4,	
		08	8.5	
8	Our Solar System and Others	09	9.1 – 9.3	
		09	9.4, 9.5	
		09	9.6	
9	Our Star: The Sun Stars: Distant Suns	10	10.1 – 10.3	3
		11	11.1 – 11.4	
		11	11.5 – 11.8	
10	How the stars Shine: Cosmic Furnace	12	12.1 – 12.3	
		12	12.4 – 12.6	
		12	12.7, 12.8	
11	The Death of Stars: Recycling Black Holes: The End of Space and Time	13	13.1 – 13.3	4
		14	14.1 – 14.5	
			14.6 – 14.11	
12	The Milky Way: Our Home in the Universe	15	15.1 – 15.4	
		15	15.5 – 15.9	
		15	15.10 – 15.14	
13	The Universe of Galaxies	16	16.1 – 16.3	5
		16	16.4 – 16.6	
		16	16.7 – 16.10	
14	Quasars and Active galaxies	17	17.1 – 17.3	
		17	17.4 – 17.6	
		17	17.7, 17.8	
15	COMSOLOGY: The Birth and Life of the Universe	18	18.1 – 18.3	
		18	18.4, 18.5	
		18	18.6	

16	In the beginning	19	19.4, 19.6	6
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