



The University of Jordan

Accreditation & Quality Assurance Center

COURSE Syllabus

Basics of Astronomy

اساسيات علم الفلك

1	Course title	Basics of Astronomy
2	Course number	0305302
3	Credit hours (theory, practical)	3 hours (3,0)
	Contact hours (theory, practical)	3 hours (3,0)
4	Prerequisites/corequisites	-
5	Program title	B.Sc. in Environmental and Applied Geology
7	Awarding institution	The University of Jordan
8	Faculty	Science
9	Department	Geology
10	Level of course	elective course for students from and outside the department
11	Year of study and semester (s)	2017/2018
12	Final Qualification	Toward acquiring a B.Sc. in Environmental and Applied Geology
13	Other department (s) involved in teaching the course	None
14	Language of Instruction	English (Use Arabic for some contents)
15	Date of production/revision	2017/2018(mostly Summer)

16. Course Coordinator: Dr. Khitam A. Alzughoul

Office numbers, office hours, phone numbers, and email addresses should be listed.
 Office Hours: S, M, T, Th (12:00-1:00)
 Office:; Geology 207
 E- mail: k.alzughoul@ju.edu.jo Office phone No. : 22260

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.
No other instructor

18. Course Description:

This Course focuses on the history of astronomy, Principles concepts of astronomy and rules, the tools of the astronomers, properties of electromagnetic light, the Celestial coordination systems, the contents of the solar system: including the Sun, the planets, moons, asteroids, comets, meteoroids and nearby stars with emphasis on Solar , Earth and The Moon characteristics, The movement of the celestial objects , the stars and galaxies.

1. 19. Course aims and outcomes:

A- Aims:

- 1- To have the acquire understanding of astronomical knowledge to gain appreciation for the earth, the air and the sky
- 2- To gain a practical skills of sky watching and finding specific directions and times.
- 3- To be responsible toward the Earth and the human beings and the environment as part of the universe
- 4- To be able to communicate on the oral and the writing level

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to ...

1. To identify and sketch some of the major constellations, planets and other celestial objects;
2. acknowledge the history and development of astronomy as a science beginning with pre-scientific cultures; the philosophy, methods, scope and limitations of science;
3. to apply the basic laws of planetary motion and the gravitational force; and to understand the basics of using data collection and analysis to learn about the physical world;
4. demonstrate how information is gained from the light emitted by the various objects in the universe;
5. acknowledge the contents of the solar system; and to focus on the characteristics of the Sun, Earth and the Moon
6. Apply knowledge and skills of skywatching, and to determine the directions and determine times and calendars.
7. Acquire understanding of some possible theories on the formation of the solar system and the universe; and the stages and mechanisms involved in the birth, life and death of stars.
8. to write a report on astronomical subject.

20. Topic Outline and Schedule:

References	Assessment	Outcomes	Instructor	Week	Content
Ch 1 Arny & Ch.2 (Chaisson) +Handout	- Assignment -Quiz -First Exam	1-2	Dr. Khitam Alzughoul	1-2	Introduction Constellations History of Astronomy Astronomy vs. Astrology Pre-Copernican

					Copernicus, Galileo, Brahe, Kepler, and Newton
Handout Ch 3 Army & Ch.2 (Chaisson)	- Assignment -Quiz - First Exam	3	Dr. Khitam Alzughoul		Main concepts in Astronomy
Ch 3	- Assignment 3 -Quiz - First Exam	4	Dr. Khitam Alzughoul		Electromagnetic Radiation
Ch 1 (Chaisson) Introduction Stott +Handout	- Assignment 4 -Quiz - First Exam	6	Dr. Khitam Alzughoul		The celestial Coordinates and measuring distances
Ch 4 Ch 1 Stott	- Assignment 5 Quiz hand samples, Groups -Second Exam	1-3	Dr. Khitam Alzughoul		Tools of the astronomy- <ul style="list-style-type: none"> • Telescopes • Observatories
Ch. 6-8 (Chaisson) Ch. 16 (Chaisson)	- Assignment 6 -Quiz - second Exam	5- 7	Dr. Khitam Alzughoul		The Solar System, Stars- The Sun,
Moore Ch 2 + Handouts	- Assignment -Quiz - Second Exam	5- 7	Dr. Khitam Alzughoul		The Earth
Handouts + Ch 12,13 (Army)	- Assignment -Quiz - Final	5- 7	Dr. Alzughoul		The Moon Origin of the Moon The Structure of the Moon The Apollo Findings

Ch. 9-10 (Chaisson) Ch5 (Army)	- Assignment -Quiz - final	5-7	Dr. Alzughoul		The Planets Interior Structure Atmospheres Satellites and Rings Minor Bodies of the Solar System Comets و Asteroids و Meteoroids
Hand Outs video	- Quiz Final Exam-	6	Dr. Alzughoul		تحديد الاتجاهات (القبلة) + مواعيد الصلاة Determining directions and the times of prayers
Ch 17 (Chaisson) Ch 6,7,8 (Army) Ch 9 (Army)	-Assignment Final Exam	7			The stars, Types of Stars, Star formation and evolution Black Holes Galaxies و Quasars
	-Project Discussion & Presentations	1-8	Dr. Khitam Alzughoul		14- Projects & Presentations
			Dr. Alzughoul	TBD	15- final examination

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- Power point presentations,
- Class Discussion
- Website visit,
- Watching videos related to topic
- Group Project- based teaching method

22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

1. delivering Assignments
2. Quizzes
3. Reports
4. Exams
5. Seminars
6. solving problems through discussion

23. Course Policies:

A- Attendance policies:

All students are expected to attend all classes and should arrive on time. **Attendance** is essential to learning, be there. Students should maintain discipline and respect one another in both words and action. They are expected to come prepared and participate actively in class discussion. **Be on time.** Active participation is essential to learning.

According to University regulations, the maximum absence allowed is 15% of classes. Makeup exams may be given for accepted excuses. No makeup for non exam work.

B- Absences from exams and handing in assignments on time:

-Following the University rules in this regards: if the student provide a legitimate excuse, then another compensation exam will be given.

A quiz will be given during most lectures (unless an exam is scheduled). Each quiz will be 2-4 questions and based on the previous week's lecture. Quizzes cannot be made up. The lowest quiz grade will be dropped.

Late Assignments

It is essential that papers and other assignments be completed and submitted on time. Once the due date without notice and justification, the submission is not accepted.

C- Health and safety procedures:

Following The University regulations

D- Honesty policy regarding cheating, plagiarism, misbehavior:

If cheating is proven, then student/s, will be showed up upon investigation committee and university's regulation rules. In this regards will be followed.

E- Grading policy:

Grades will be calculated based on points accumulated during the semester

- (20% for the first & second exams).
- Quizzes, Participations & Assignments 5%
- Term project 10%
- At the end of the semester there will be a comprehensive final exam. This exam will constitute 40% of your final semester grade.

F- Available university services that support achievement in the course:

- Library, Internet services for online resources

24. Required equipment:

1. Library
2. Online – internet access
3. Videos and Movies of Astronomy- related subjects.

25. References:

A- Required book (s), assigned reading and audio-visuals:

1. Army Thomas, 2004, **Explorations: Stars, Galaxies, and Planets**, McGraw Hill, USA
2. Chaisson, E. and McMillan, S., 2002. *Astronomy Today*, 4th Edition., Prentice Hall, USA
3. Circulated Hand-outs prepared by the instructor.
4. Stott, C. , 1999, *New Astronomer*, Dorling Kindersley DK, London

B- Recommended books, materials, and media:

1. Mosley, John, 2000, *Starrynight*, www.space.com, Canada

C- علم الفلك. جامعة اليرموك. 1992: عبد السلام غيث Raven, P.H., and L.R. Berg. 2006.

D- Moore, P. (1994): *Atlas of the Universe*, Rand McNally, USAE- 2006 *Encyclopedia of Space*, Dorling Kindersley DK, London

F- Any relevant website

26. Additional information:

Name of Course Coordinator: ----Dr. Khitam A. Alzughoul Signature: -----

Date: -----

Head of curriculum committee/Department: ----- Signature: -----

Head of Department: --Dr. Ghaleb Jarrar -- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----

Assurance

Copy to:

Head of Department

Assistant Dean for Quality

Course File