暨南大學 JINAN UNIVERSITY

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JINAN UNIVERSITY
Introduction to Astronomy

Lecturer:TBA
Time: Monday through Friday(June 17, 2019-July 19, 2019)
Office hours: 2 hours (according to the teaching schedule)
Contact Hour: 60 (50 minutes each)
Credit: 4
Location: MBACenter
Office: MBA Center 107
E-mail: TBA

Course Description

The main emphasis of Introduction to Astronomy will be on the newest discoveries in astronomy and the latest developments in space exploration. This course offers a general survey of many topics in modern astronomy. We discuss our location in the universe, the Solar System and its planetary bodies, how they orbit the Sun, and their major properties. We explore how thousands of exoplanets have been discovered in other planetary systems, and if alien life is possible on those planets. We describe the mode of operation of telescope technology of the biggest observatories on earth. We explain the properties of stars, and their evolution from nebulae to final objects such as black holes. We distinguish between the different morphologies of galaxies, and explore their properties. We discuss the big bang and the birth of the universe, and explore potential scenarios for the end of the universe. We investigate dark matter and dark energy, and the roles they play in the universe expansion. By the end of this course, students should have a clear understanding of how our universe works, and how astronomical discovery is linked to the technical and cultural progress of civilization.

Required Textbook

The Cosmic Perspective Fundamentals, 2nd edition (2016), by J. Bennet, M. Donahue, N. Schneider, M. Voit. Publisher: Pearson. ISBN-13: 978-0133889567.

Course Hours

The course has 25 sessions in total. Each class session is 120 minutes in length. The course meets from Monday to Friday.

Assessment

Your final grade is based on the following components:

Quizzes/Homework	20%
Group Exercises	25%
Midterm Exam	25%
Final Exam	30%
Total	100%

Grading Scale

The instructor will use the grading system as applied by JNU:

Definition	Letter Grade	Score
Excellent	A	90-100
Good	B	80-89
Satisfactory	C	70-79
Poor	D	60-69
Failed	E	Below 60

Quizzes/Homework

Multiple self-assessment quizzes and homework assignments will be offered for students to practice their concept understanding and to prepare for the lectures. These quizzes and homework assignments will be POSTED ON BLACKBOARD on a weekly basis. Many of these assignments will be discussed during class and/or recitation. Late homework will NOT be accepted, except in the case of a documented medical reason (documentation is required).

Group Exercises

At the end of each week (on Fridays) students will have the chance to practice their understanding of the concepts discussed in class by working in small groups on exercises involving cosmic calculations, astronomical measurements, the laws of universal gravitation, thermal radiation, Doppler shift, radiometric dating, sizes of extrasolar planets, orbital velocity, standard candles, and Hubble's Law.

Attendance Policy

Attendance at lectures, recitations, and group activities is expected and required. Continued absences will detract from your final grade. If you have to miss a class or recitation session for an acceptable reason, such as illness or religious observance, please let me know in person, with a written document, prior to missing the class. In addition, missing a class for an acceptable reason **will not excuse you from completing the class exercises and the out-of class assignments** so, if you miss a class, it is your responsibility to obtain notes from a classmate and contact the instructor in order to complete all the assignments by their original or extended deadlines.

Class Schedule

Week 1

Lecture 1: A Modern View of the Universe (Ch 1)
Lecture 2: Understanding the Sky – Seasons, Moon, Planetary Motion (Ch 2)
Lecture 3: Changes in Our Perspective – Universe, Telescopes, Gravity (Ch 3)
Lecture 4: Hunting the Edge of Space – Part 1 (NOVA-PBS)
Group Exercise #1: Astronomical Measurements (sizes, distances, motion)

Week 2

Lecture 5: The Solar System (Ch 4)
Lecture 6: The Terrestrial Planets (Ch 5)
Lecture 7: The Outer Solar System (Ch 6)
Lecture 8: Origins – Earth is Born (NOVA-PBS)
Group Exercise #2: Roots of Astronomy and Universal Gravitation

Week 3

Lecture 9: Extrasolar Planets (Ch 7)
Lecture 10: The Sun and other Stars (Ch 8)
Lecture 11: Stellar Lifecycles (Ch 9)
Mid-Term Exam (Lectures 1 to 11)
Group Exercise #3: Thermal Radiation, Doppler Shift, Radiometric Dating

Week 4

Lecture 12: White Dwarfs, Neutron Stars, Black Holes (Ch 10)
Lecture 13: The Milky Way and Other Galaxies (Ch 11)
Lecture 14: Cosmic Distances and Hubble's Law (Ch 12)
Lecture 15: Big Bang Theory and the Birth of the Universe (Ch 13)
Group Exercise #4: Orbital velocity, standard candles, and Hubble's Law

Week 5

Lecture 16: Dark Matter and Dark Energy (Ch 14)
Lecture 17: Hunting the Edge of Space – Part 2 (NOVA-PBS)
Lecture 18: Life in the Universe (Ch 15)
Lecture 19: Origins – How Life Began (NOVA-PBS)
Cumulative Final Exam

Academic Honesty

Jinan University defines academic misconduct as any act by a student that misrepresents the students' own academic work or that compromises the academic work of another. Academic misconduct includes (but is not limited to) cheating on assignments or examinations; plagiarizing, i.e. misrepresenting as one´s own work any work done by another; submitting the same paper, or substantially similar papers, to meet the requirements of more than one course without the approval and consent of the instructors concerned; sabotaging another´s work. Instructors will ultimately determine what constitutes academic misconduct in the courses they teach. Students found guilty of academic misconduct in any portion of the academic work face penalties ranging from a lower grade in the assignment to a final grade of E for the entire course.