



Academic Inquiries: Jinan University

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# JINAN UNIVERSITY

## Introduction to Astronomy

**Lecturer:** Dr. Stefan Kautsch

**Time:** Monday through Friday (July 2, 2018 - August 3, 2018)

**Office hours:** 2 hours (according to the teaching schedule)

**Contact hours:** 60 (50 minutes each)

**Credits:** 4

**Location:** School of Tourism

**Office:** School of Tourism 210

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### Course Description

The main emphasis of Introduction to Astronomy will be on the newest discoveries in astronomy, and the latest developments in space flight and exploration of our cosmos. 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, such as the LAMOST (China), EELT (Europe), TMT and GMT (USA), as well as others. 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. Dark matter and dark energy

will guide us in the study of the whole universe, which is called cosmology. In this connection, we start at the beginning, the big bang, and will move to potential scenarios of the end of our universe. Finally, we describe exotic theories of multiple universes. By the end of this course, the students should have a clear picture of how our universe works, and will understand how astronomical discovery is directly linked to technical and cultural progress of human civilization.

### Required Textbook

*Cosmic Perspective Fundamentals*, 2<sup>nd</sup> edition (2016), by Bennet, J. O., et al.  
Publisher: Pearson, ISBN13: 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/Assignments	30%
Midterm Exam	30%
Final Exam	40%
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

### **Policies**

I want you to succeed in this course and at Jinan University. Here are some tips how to be successful in class: attend all lessons on time, prepare yourself by reading the textbook and not only rely on my slides, prepare your own study plan, stay awake during class. I encourage you to come see me during office hours or to schedule an appointment with questions or concerns about the course, and the universe. Any use of an electronic computational/communication device is strictly prohibited. Using such a device will result in a 5 point penalty on your final grade. Audio and/or video recording during, before, and after the course is strictly forbidden. There will be no makeup exams. Missed or late homework assignments and/or quizzes and reports will receive zero points.

### **Class Schedule**

#### **Week 1**

- Lecture 1: The State of Modern Astronomy
- Lecture 2: Space Missions and Explorations
- Lecture 3: Discoveries from Outer Space
- Lecture 4: Light and Telescopes
- Exercise 1: Information from Space

#### **Week 2**

- Lecture 5: Solar System
- Lecture 6: Orbits of Planetary Bodies
- Lecture 7: Exoplanets and other Planetary Systems
- Lecture 8: Life in Space
- Exercise 2: Hunting Planets

#### **Week 3**

- Lecture 9: Properties of Stars
- Lecture 10: Stellar Lifecycles
- Mid-Term Exam

Lecture 11: Black Holes and other Exotic Stars

Exercise 3: Observing Stars

#### **Week 4**

Lecture 12: The Milky Way

Lecture 13: Morphologies of Galaxies

Lecture 14: Formation and Evolution of Galaxies

Lecture 15: Dark Matter

Exercise 4: Galaxy Lab

#### **Week 5**

Lecture 16: Cosmology

Lecture 17: The Big Bang Theory

Lecture 18: The Fate of the Universe

Lecture 19: Multiple Universe Theories

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 scholastic 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 within these general definitions, however, instructors 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 lowering of their course grade to awarding a grade of E for the entire course.