

Introduction to Astronomy
(Phys 140)

Instructor: Dr. Jacob V. Hudson Jr.

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Lecture: Henry Hall #37 M,W, F: 11:00 am to 11:50 am.

Consultation Hours: M, W, F: 10:00 am to 10:50 am.

Textbook: Astronomy Today (4th Ed.)
E. Chaisson & S. McMillan, Prentice Hall

Optional Additional Texts: Astronomy: A beginners Guide to the Universe
E. Chaisson & S. McMillan, Prentice Hall

Astronomy: from the Earth to the Universe (5th Ed.)
J.M. Pasachoff, Saunders College Publishing

Prerequisites: The ability to analyze and solve problems using algebra, and concurrent registration in Physics 140L.

Course Description: Physics 140 is an introductory course in a physical science pertaining to the study of everything above and beyond the Earth's atmosphere. The basic concepts of physics and chemistry will be covered while trying to build a basic understanding of the various forms of matter within our universe. The study of planets, stars, exotic remnants, galactic structure, and cosmological outcomes are among the many topics that will be covered.

Course Goals: Upon successful completion of Physics 140, the student should be able to:

- Relate how the changing perception of science has lead us to our current understanding of the physical universe and our place within it.
- Explain how scientists use both qualitative and quantitative analysis methods to investigate how the universe works.
- Understand the basics laws of physics which govern the movement and workings of the planets, stars, and larger structure of the universe.
- Identify the instruments and methods astronomers use to investigate the physical universe.
- Explain the nature, characteristics, and distribution of various forms of matter in the physical universe.
- Define the theories of the origin and evolution of the planets, stars, galaxies, and the universe itself.
- List the current theories of the origin of life in the physical universe.

Materials Auxiliary: A simple calculator (non QWERTY type) is useful. For ESL students, a language exchange test may be used during exams, *but no electronic translators will be allowed.*

Assessment: The final grade will be determined by the total accumulated points a student has acquired throughout the semester. The points available are:

Exam I	100 points (20%)
Exam II	100 points (20%)
Exam III	100 points (20%)
Final Exam	200 points (40%)

If an exam is missed, it can be made up providing that arrangements for the make-up exam are agreed to before the original exam time; *You need to inform the instructor before the time of the exam that you will be missing.* In cases of dire emergency (documentation must be provided), the exam can be made up after it is missed but before the general results have been made public.

Lecture Topic Outline (tentative):

<u>Topic</u>	<u>Reading:</u>
1 Celestial Astronomy	pp. 3-32
2 History of Astronomy	pp. 33-60
3 Light and Matter	pp. 61-106
4 Tools of Astronomy	pp. 107-142
5 Comparative Planetology	pp. 143-164
6 The Earth – Moon System	pp. 165-194
Exam I	
7 The Terrestrial Planets	pp. 195-274
8 The Jovian Planets	pp. 275-354
9 Origins of the Solar System	pp. 355-404
10 The Sun	pp. 405-436
Exam II	
11 The Stars	pp. 437-466
12 The Dusty ISM	pp. 467-488
13 Stellar Evolution	pp. 489-542
14 Stellar Explosions	pp. 543-566
15 Exotic Objects	pp. 567-598
Exam III	
16 The Milky Way	pp. 599-628
17 Normal and Active Galaxies	pp. 629-690
18 The Big Bang?	pp. 691-738
19 Are We Alone?	pp. 739-757
Final Exam	