

**Northern Arizona University**  
**College of Engineering & Natural Sciences**  
**Department of Physics & Astronomy**  
**Astronomy 180**  
**Introduction to Astronomy**  
**Spring 2008**

**Professor:** Dr. Stephen C. Tegler, Room 307/308, Physical Sciences Building 19.  
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**Office Hours:** TU 02:15 – 03:15 p.m. and TH 10:45-11:45 a.m., Room 307/308 of the Physical Sciences Building, or by appointment, please call 523-9382.

**Course Particulars:** This is a 3 credit hour course. The meeting times are T & TH, 12:45 – 2:00 p.m. in Room 130 of the Wettaw Building. The final exam is scheduled for Tuesday, May 6, 2008, from 12:30 – 2:30 p.m.

**Course Pre-requisites:** None. However, since this is a university-level course, I will assume a working knowledge of high school algebra and geometry.

**Course Description:** This course is an overview of modern astronomy. As we study the motions of celestial objects, the solar system, stars and galaxies, we will explore not only our geometric place in the Universe, but also our evolutionary place. The thematic focus of the course is technology and its impact, since we will be examining how our changing technology over the centuries has affected our view of the Universe. This liberal studies course meets a three-hour science requirement if taken by itself, and meets the lab science requirement if the separate lab, AST 181, is also taken. This course will address several of the liberal studies essential skills. Our work will focus on the logic of scientific inquiry, both quantitative and spatial reasoning, and both critical reading and thinking.

**Course Objectives:** After successful completion of this course, you will be able to:

- (a) Know enough basic facts in astronomy, and have sufficiently developed your ability to apply the logic of scientific inquiry, to be able to *critically* read an article on astronomy in the newspaper.
- (b) Use your knowledge of the solar system and spatial reasoning to know where to look in the sky to find the Moon and planets, depending on the phase or configuration.
- (c) Use quantitative reasoning to be able to solve various problems, and be able to interpret the results.
- (d) Use astronomical concepts and critical thinking skills to describe, using specific examples, not only our geometric place in the universe but also our evolutionary place, and how our understanding of that place has changed with changing technology.

**Course Structure:** The structure can be described as a “participatory lecture”. Class is a time to think, not a time to sit back and wait for information to be poured into you.

**Required Textbook:** *Horizons*, Tenth Edition, by Michael Seeds (ISBN 0495119636).

**Evaluation Methods and Deadlines:**

**Assessment:** We will use different instruments to assess achievement of the course objectives listed above. Two multiple-choice examinations will address your knowledge of basic astronomical facts and critical thinking. Quizzes will occur regularly, and will include both quantitative and non-quantitative problems. The final examination will be comprehensive.

**Reading Assignments:** The reading assignments are required. They are not a substitute for lectures. The lectures supplement the reading assignments.

**Examinations:** There will be two in-class examinations and a comprehensive final examination. They will consist of multiple-choice questions.

**Grading System:** Your semester grade will be weighted approximately as follows:

Quizzes:	~40%
Two In-Class Examinations	~30%
Final Exam	~30%

Below is an approximate grading scale:

>90%	A
>80%	B
>70%	C
>60%	D

**Course Policies:**

**Makeup Tests:** You must obtain permission in advance of the regularly scheduled examination in order to take a make-up examination. There will be no make-up quizzes.

**Attendance:** I expect you to come to class every day. However, there will be no formal mechanism for taking roll. In order to succeed, you must come to class.

**Statement on Dishonesty:** I will not tolerate dishonesty. Anyone caught cheating will fail the course.

**Departmental and University Policies:** Please see attached.

## **Course Outline:**

- Ch. 1 - Scale of the Cosmos
- Ch. 2 - The Sky
- Ch. 3 - Cycles of the Sky
- Ch. 4 - Origin of Modern Astronomy
- Ch. 5 - Astronomical Tools
- Ch. 6 - Starlight and Atoms

## **Examination 1**

- Ch.8 - Family of Stars
- Ch.9 - Formation and Structure of Stars
- Ch.10 - The Death of Stars
- Ch.11 - Neutron Stars and Black Holes

## **Examination 2**

- Ch. 12 - The Milky Way Galaxy
  - Ch. 13 - Galaxies
  - Ch. 14 - Galaxies With Active Nuclei
  - Ch. 15 - Cosmology In the 21<sup>st</sup> Century
- Ch. 16 – The Origin of the Solar System

## **Comprehensive Final Examination**