

**AST 205**  
**Principles of Astronomy**  
**Winter 2008**  
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**Office Hours:** Monday & Wednesday 1:00 to 3:00 pm, Tuesday 11:00 to noon, Thursday 11:00 am to 1:00 pm, and by appointment. Please do not hesitate to let me know if you need to see me and cannot attend my regular office hours! You may also contact me by email.

**Required Text:** **Universe, 8th edition**, by Freedman & Kaufmann, Freeman Publishing Company.  
ISBN 978-0-7167-8584-2

**Recommended Text:** **Astronomy-A Self-teaching Guide**, by D. Moche, Wiley Publishing.

**Recommended Monthly Magazines:** **Sky & Telescope** and **Astronomy**

### **Astronomy Lab (AST 204)**

An optional lab, AST 204, meets once a week during the fall and winter semesters at select times in Rm 404, Sherzer Hall. The lab is a separate, one credit hour, course. If you wish to take the lab, you must enroll in it this term or in any future semester.

### **Observing Opportunities**

**You will be asked to complete assignments in the observatory as part of your required homework. The dates of these assignments will be announced in class and you will not have an opportunity to make them up if you do not participate.**

The EMU Astronomy Club is open to anyone with an interest in astronomy. The club meets in Rm 404 Sherzer Hall at 7:30 pm Thursdays. The club sponsors an open house in the observatory once each month; you may bring friends or family members.

An optional field trip to EMU's KEEC (Fish Lake) biology field station is scheduled for April 4-6th. This has been a popular and enjoyable experience for many astronomy students. The cost is \$50.00 which covers 2 nights' stay, 3 meals, hikes, observing, rocket launches, etc.

### **Reading Assignments**

You will be expected to read your entire textbook (**several times**). Specific reading assignments will be given in class. We only have class for a few hours each week for 14 weeks; it is impossible to cover all the course material during such limited contact time. There will be several exam questions that we can only cover quickly in class but that are discussed in detail in your text. You need to buy the text immediately and read it with great vigor. Specific reading assignments for each exam will be handed out at least one week prior to the test date.

## Homework & Observational Assignments

You will have several homework & observational assignments over the course of the semester. The value of each exercise will be indicated on the assignment and this segment of the course will make up 16.67% of your final grade. You will be expected to be conversant in high school algebra as you will need to use basic algebra to solve many of the homework problems. **No late homework will be accepted.**

Several of your homework assignments will be to solve problems from the textbook, or similar ones I write. There will be homework recitation the day the problems are due and each student will be expected to present an appropriate solution, on the blackboard, for their classmates at least twice during the semester. This is a graded activity.

## Research Project

You will research, under the guidance of the professor, a timely topic in astronomy and write a short paper about what you have learned. About four students will have the same topic to study and they will form a group to produce a presentation for the entire class. The presentations will be 10 minutes in length and be done using Power Point. Each member of the group will be expected to talk for at least 2 minutes. The value of each part of this activity will be indicated on the assignments and this segment of the course will make up 16.67% of your final grade.

## Exams

There will be four exams. Each exam is worth 100 points and will be a combination of multiple choice, fill-in and problem solving. The date of each exam is listed below. Exams I, II, and III will be given during the first hour of the class period. Exam IV will be during the scheduled time for the final exam; Friday, April 25, 2008 from 11:00 am to 12:30 pm. **NOTE:** It is University policy that **ALL** students must take the final exam, with their peers, during the regularly scheduled final exam period. Thus, **NO** exceptions will be made.

Make-up exams will be given at the discretion of the instructor and only if the student provides a documented reason for an excused absence. The following are examples of potentially acceptable excuses: major religious holiday (with one week prior notice), court appearance, funeral of immediate family member, or sickness (doctor's note required). All make-up exams will be more difficult than the regular exams.

The chapters and topics that will be covered on each exam are:

### EXAM I - Feb 6

Chapter	Topic
1	The scale of the cosmos
2	The night sky
3	Cycles of the Sky
4	Orbits
4	Gravity
4	Tides

measurement  
celestial sphere and constellations, seasons  
lunar motion, phases, eclipses  
Kepler's laws  
universal law of gravitation  
gravity & tides

5	Light and matter	physics of matter and light
5	Light in the atmosphere	scattering, scintillation, seeing
6	Telescopes and instruments	astronomical tools, spectroscopy

### EXAM II – Mar 5

7	Solar System	comparative planetology
8	Origin of the Solar System	planetary formation
10	The Moon	lunar geology
11	The Earthlike planets	inner solar system
12	Jupiter and Saturn	gas giants
13	Satellites of Jupiter and Saturn	satellites and rings
14	The Outer Solar System	outer planets, Pluto, Kuiper belt
15	Meteors, Asteroids and Comets	solar system debris

### Exam III - Apr 2

16	The Sun	our star, solar profile
17	Properties of stars	distance, the H-R diagram
18	Star birth	stellar birth, energy cycles
19 & 20	Stellar Life Cycles	role of mass, life cycles
21 & 22	Stellar Remnants	white dwarfs, neutron stars & black holes

### EXAM IV - Apr 25

23	The Milky Way	our home galaxy
24	Galaxies	our place in the universe
25	Active Galaxies and Quasars	galactic formation, quasars
26 & 27	Cosmology	dark matter, dark energy, Big bang

### Point Total and Grading Scale

Homework	100
Project	100
Exams	<u>400</u>
Total	600

Grades will be assigned according to the following point scale:

A	564 - 600	B	504 - 521	C	444 - 461	D	384 - 401
A-	540 - 563	B-	480 - 503	C-	420 - 443	D-	360 - 383
B+	522 - 539	C+	462 - 479	D+	402 - 419	E	0 - 359

There will be **no exceptions** made to this grading scheme.

### ASTR 503 & 504

It is the responsibility of all graduate students who are signed up for ASTR 503 and/or 504 to see me to get the extra assignment you will have to complete to earn graduate credit.

## Class Environment

We will maintain a professional, learning environment in the classroom at all times. Each student will be expected to be courteous to her/his classmates during lecture, during classroom discussions and during exams.

1. Students in ASTR 205 usually want to know if there is a way to earn bonus points for the course. The good news is that you all already have them! Yes, you each have 15 bonus points!! The bad news is that you can lose them.

Absolutely **NO** audio devices of any sort should ever go off in the classroom! If you are a parent with a sick child at home and the baby-sitter may need to contact you, then put your cell phone or pager on vibration mode and sit in an aisle seat so you can discreetly leave the class to make your call or talk on the phone.

If a cell phone (or other audio device) goes off in class, then the entire class will lose 5 bonus points. If, unbelievably, cell phones (or other audio devices) ring more than 3 times in class, then 5 points will be taken off everyone's exam score each time a phone rings again. Turn them off folks!



2. You may **NOT** use a laptop computer during class. The only exception to this rule will be for students who bring the proper paperwork from the student access office.