

# Course Syllabus

## Astronomy 191-1 — The Solar System

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Fall 2006 MWF 1:00-1:50 PM Chem-Phys 155

<http://lightning.pa.uky.edu/Ast191>

**Instructor - Dr. Gary J. Ferland**, Office CP 291; Telephone 257-8795; Office Hours, Monday. 11-12, Tuesday. 10-11. e-mail: [gary@pa.uky.edu](mailto:gary@pa.uky.edu) I am usually in the office and can meet with you at other times. Please contact me for an appointment to make sure we don't miss one another.

**Grading Assistant:** Tori Aul, e-mail: [Tori.Aul47@uky.edu](mailto:Tori.Aul47@uky.edu), office Chem-Phys 250

### Course Requirements

**Prerequisite** AST 191 is a non-mathematical physical sciences course. Very little math is used.

### Course Goals and Content

Ast 191 and 192 are non-mathematical introductions to our Universe. Ast 191 concentrates on our solar system, the sun and planets. Astronomy 192 covers stars, galaxies, and the Universe. The two courses are completely independent and may be taken in any order – Ast 191 is not needed to take Ast 192.

Astronomy is the most ancient and purest of the sciences. It studies our place in the Universe, asking such basic questions like “where are we?”, “how did we get here?”, and “where are we going?” We begins with an overview of planets, stars, galaxies, and the Universe. The sun and the various planets in the solar system are described, compared, and contrasted with the Earth. Understanding how the Earth was formed, how life began here, and the possibility that this occurred elsewhere constitutes a thread running throughout the course.

### Course Material

**Recommended Text:** *Voyages to the Planets*, by Fraknoi, Morrison, & Wolff, 3<sup>rd</sup> edition, or *Voyages through the Universe*, by Fraknoi, Morrison, & Wolff, 3<sup>rd</sup> edition. Older versions of the text are very similar and can be used. We will also post links to web sites that cover the same material as the lecture.

**Sample Tests:** Old tests are available on the class web site.

### Course Grade

The course grade will be earned from four tests, a written component that consists of observations of phases of the moon, and optional extra credit.

**Tests.** There will be three tests during the semester and a final exam. All tests are machine-graded multiple choice. Bring a #2 pencil! The first three tests are during normal class time, but the final is at 1-3PM on Dec 13. All tests are in our normal classroom. The final exam counts as much as two hour exams and is half review of the first three exams and half over material covered since the third test. You must keep your old exams until the course is over in case of problems with how the exam was graded.

**Exam Review Sessions** will usually be held the Monday afternoon before the exam in the class room. A study guide will be available on the class web site.

**Makeup Exam.** All four tests must be taken to complete the course. An exam missed for a valid reason can be made up by taking a makeup exam. Makeup exams consist of short-answer essay questions. The date and time of the make up exam will be announced both in class and on the web site. More than one make-up exam will only be given in

<i>Ast 191 Course Grade</i>			
<i>Component</i>	<i>Date</i>	<i>Points</i>	<i>% Grade</i>
Test 1	Sep 13	100 pt.	19.2%
Test 2	Oct 11	100 pt.	19.2%
Test 3	Nov 15	100 pt.	19.2%
Final	Dec 13	200 pt.	38.5%
Phases of the Moon		20 pt.	3.8%
Cumulative Total		520 pt.	100.0%

exceptional and well-documented cases that meet the University's criteria for a valid absence, as described in section 5.2.4.2 of your *Student Rights and Responsibilities* handbook.

**Written Component.** We will observe the moon 4 times over the period between new moon (Aug 23 ) and full moon (2 weeks later), and describe it with a report. All reports must be turned in on the class web site within two days of the observation, and none will be accepted after Sept 12. New moon marked the beginning of the month for all ancient cultures. Over the following two weeks it will move away from the sun and we will see increasing amounts of its "day" side. At the end of two weeks the moon will be in its full phase, and it will appear as a bright circle of light. During this time the moon will move from the western to the eastern horizon and will have traveled roughly 700,000 miles. Details for the format of the moon reports will be discussed in class when the moon project starts and are also given on the class web site.

**Extra Credit** is earned by asking questions in class! Extra credit will be offered to encourage communication between students and the instructor. To earn 2 points extra credit, ask one or more questions on a given day in class or respond to a question asked of you by the instructor. Then write your name, student number and at least one of these questions along with its answer on a sheet of paper and submit this sheet to the instructor after class.

You may earn up to 10 points extra credit over the semester. No more than two points (one question) can be earned during one class period and no more than 4 points (2 questions) may be earned after Test 3. This credit is truly *extra* credit. That is, the extra credit system can only augment your grade but not detract from it if you choose not to participate.

Other extra credit opportunities will be announced as the semester progresses. These will generally involve writing small essays concerning topics that come up in class. This extra credit is in addition to the extra credit offered for questions in class.

**Internet Access:** The moon reports and extra credit will be turned in on the class web site and grades will be posted there. If you do not have internet access or for other reasons do not wish to submit material this way you must make special arrangements with the instructor early in the semester.

**Posted grades:** Grades are posted on the class web site after each hour exam to allow you to verify our record keeping. You must notify the instructor of errors in the posted grades before the next test is given. For instance, all corrections to grades recorded through Test 1 must be made before Test 2 is given.

**Course evaluations** are an important (and mandatory!) component of our Department's instructional program. An on-line course evaluation system was developed to allow each student ample time to evaluate each component of the course and instructor, thus providing the Department with meaningful numerical scores and detailed commentary while minimizing the loss of instructional time in the classroom. To access the system, simply go the Department of Physics Web page at [www.pa.uky.edu](http://www.pa.uky.edu) and click on the link for Course Evaluations; then follow the instructions. You will need to use your student ID# to log into the system, and this will also allow us to monitor who has filled out evaluations. However, when you log-in you will be assigned a random number that will keep all your comments and scores anonymous.

### **Course Outline**

<b>Subjects</b>	<b>Text Chapters</b>
Introduction	1, 6
Gravity, Orbits	2
Timekeeping, moon phases, tides, eclipses	3
<b>TEST 1</b>	<b>Sep 13</b>
Light, Telescopes,	5
The Earth, impact cratering	7
<b>TEST 2</b>	<b>Oct 11</b>
The Moon, Apollo	8
Age of Solar System, its birth	8, 13
Mercury	8
<b>TEST 3</b>	<b>Nov 15</b>
Venus, Mars	9
Jovian Planets	10
rings, moons	11
<b>Final Exam</b>	<b>Dec 13, 1-3PM</b>