**COURSE SYLLABUS - PHY 113**
**INTRODUCTORY ASTRONOMY LAB**
**1 CREDIT HOUR**
**FALL 2007**

**Location of Class:** Farrington Bldg. 211

**Lab Supervisor:** Dr. Brian Oetiker
**Office:** Farrington Bldg. Rm. 316

**Lab Instructor:** _____
*(Please write your lab instructor's name here)*

**Email:** _____
*(Please write your lab instructor's email address here)*

**Course Description:** This course is designed to allow you to apply some of the astronomical techniques and concepts discussed in PHY 133. You are not required to enroll in both PHY 113 and PHY 133 simultaneously, but it is strongly encouraged. An attempt has been made to correlate the material in this laboratory to the PHY 133 class. Because each PHY 133 class covers material at a different pace, you may encounter topic in the lab that were not covered in the lecture. To help you prepare for lab, a series of pre-lab questions are included in the lab manual. You should answer these questions using your lecture notes from PHY 133 or your textbook.

**Course Objectives:** Please refer to the lab schedule below for course objectives.

**Required Textbook:** Laboratory manual available from bookstore.

**Required Supplies:** Scientific calculator, ruler, protractor.

**Attendance: ATTENDANCE IS MANDATORY FOR ALL SCHEDULED LAB CLASSES. EACH ABSENCE WILL LOWER YOUR GRADE BY 5%, IN ADDITION TO THE WORK YOU MISSED.**

*You will be required to make up any missed work in the event of an emergency. Contact your lab instructor as soon as you can in order to inform him/her of any emergency situation.*

**Grading Scale:**

A: 90%-100%
B: 80% - 89%
C: 70% - 79%
D: 60% - 69%
F: 0% - 59%

**Grade Breakdown:** Your grade will be based on the successful completion of the following:

| | |
|---|---|
| **Lab reports:** | **50%** |
| **Final Exam:** | **20%** |
| **Quizzes:** | **20%** |
| **Observatory:** | **10%** |

**Quizzes:** A brief (5-10 question) multiple-choice quiz will be given at the ***beginning*** of each lab period. The quiz will cover the pre-lab questions that are contained in each lab. It is essential that you complete the pre-lab questions before coming to class.

**Final Exam:** The final exam will cover all of the topics and concepts covered during the semester, including the information in the lab manual and your visit to the campus observatory.

**Lab Reports**: Each week you will perform a series of activities, and you are required to synthesize the information. Please refer to the attached "Lab Report Guide" for instructions regarding your lab reports.

**LAB REPORTS ARE DUE AT THE BEGINNING OF THE NEXT LAB SESSION. LATE LAB REPORTS WILL NOT BE ACCEPTED.**

**Academic Dishonesty**: Students are expected to maintain honesty and integrity in the academic experiences both in and out of the classroom. *See Student Syllabus Guidelines*.

**Classroom Rules of Conduct:** Students are expected to assist in maintaining a classroom environment that is conducive to learning. Students are to treat faculty and students with respect. *Students are to turn off all cell phones while in the classroom. Under no circumstances are cell phones or any electronic devices to be used or seen during times of examination.* Students may tape record lectures provided they do not disturb other students in the process.

**Student Absences on Religious Holy Days**: Students are allowed to miss class and other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. Students remain responsible for all work. *See Student Syllabus Guidelines*.

**Students with Disabilities Policy**: It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should visit with the Office of Services for Students with Disabilities located in the Counseling Center. *See Student Syllabus Guidelines*.

**Visitors in the Classroom**: Only registered students may attend class. Exceptions can be made on a case-by-case basis by the professor. In all cases, visitors must not present a disruption to the class by their attendance. Students wishing to audit a class must apply to do so through the Registrar's Office.

**Role of Lab Instructor:** YOUR LAB INSTRUCTOR IS REQUIRED TO MEET WITH YOU ONLY DURING SCHEDULED LAB TIMES. *Don't expect to get a private tutorial outside class on information that you missed. In extenuating circumstances, either the lab instructor or the lab supervisor may choose to brief you on the missed material and allow you access to the lab equipment for completion of your write-up.*

It is *not* the lab instructor's responsibility to teach you all the material you need to complete the lab. Your lab instructor will provide you with a brief summary of the key points covered in the lab. During the lab, your lab instructor will circulate around the room and provide you with tips and hints to help you complete the exercise. *Do not expect your lab instructor to provide quick answers to all your questions. You are expected to make every effort to discover the answers on your own.*

**LAB SCHEDULE FOR FALL 2006:**

| Week of | Lab Exercise | Work Due | Comments | Observatory Credit |
|---|---|---|---|---|
| Aug 27nd | Introduction to lab. Planetarium exercise. | none | *Remember to do pre-lab questions before class.* | N/A |
| Sep 3rd | Labor Day. | No Labs This Week. | *No Labs This Week.* | N/A |
| Sep 10th | Lab #8: Telescope Optics | Pre-lab questions before class. | Do pre-lab before class. Observatory visit? | 150% (50% extra credit) |
| Sep 17th | Lab #1: Review of Mathematics | Lab #8 write-up. | Do pre-lab before class. Observatory visit? | 140% (40% extra credit) |
| Sep 24th | Lab #2: AstroLab: Cosmic Scale | Lab #1 write-up | Do pre-lab before class. Observatory visit? | 130% (30% extra credit) |
| Oct 1st | Lab #3: Planetarium | Lab #2 write-up | Do pre-lab before class. | 120% (20% extra credit) |
| Oct 8th | Lab #4: Astrometry & Celestial Coordinates | Lab #3 write-up | Do pre-lab before class. *Ruler, protractor needed.* | 110% (10% extra credit) |
| Oct 15th | Lab #6: Kepler's Laws & the Orbit of Mercury | Lab #4 write-up **Observations due.** | Do pre-lab before class. *Ruler, protractor needed.* | 100% (no extra credit) |
| Oct 22nd | Lab #7: Spectrum of Light | Lab #6 write-up. | Do pre-lab before class. Observatory visit? | 75% **(25% pp*)** |
| Oct 29th | Lab #9: Exploring Mars | Lab #7 write-up. | Do pre-lab before class. Final in 2 weeks. | 70% **(30% pp*)** |
| Nov 5th | Lab #10: Kepler's 3rd Law & Jupiter | Lab #9 write-up. | Do pre-lab before class. Final is next week. | 60% **(40% pp*)** |
| Nov 12th | Lab Final Exam | Lab #10 write-up. | Lab final exam. | 50% **(50% pp*)** |

**Note: Observatory observations are due the week of October 15th. Observations will be accepted after the week of October 15th, subject to a procrastination penalty. (*pp = procrastination penalty)**

**Lab Report Guide**

The purpose of the lab report is ***not*** for you to summarize what you did during the lab period. It ***is*** for you to synthesize the information you obtained from the lab exercise. (Generally, this is when you fully understand what you did, or realize you don't have a clue what you did). For labs that are more informational than experimental, you should do research using your textbook or the internet to expand on the topic.

The lab report must be written in complete, grammatically correct sentences. At the very least, you should use grammar and spell check. If you have problems writing, visit the writing center on the first floor of the Farrington Building. Your lab report must be typed with a 12pt font, and 1.5 to double-spaced. There is no excuse for not typing your lab reports as there are computers in all buildings on campus! Each report should contain no less than 250 words.

<u>The lab report should be formatted as follows:</u>

**Introduction:** Briefly outline the topic and purpose of the lab. *(1 paragraph)*
**Procedure:** List specifically what you did during the lab. It is not necessary to outline everything- only the parts that struck you as particularly important. If equations were involved, type them using equation editor or write them into your lab report by hand. Explain what the equations mean and why they were used. *(1-2 paragraphs)*
**Analysis:** Answer the post lab questions from the end of your lab, either by retyping them and answering them, or in a cohesive paragraph. *(1 paragraph)*
**Conclusion:** Discuss your results and comment on what you learned from the lab. If there were percent errors, explain why the errors were as high or low as they were. Remember, the formula for percent error is 100 x ((Accurate value – less accurate value)/ Accurate value)). The analysis and conclusion sections may be together if well written. *(1 paragraph)*