Phy 1060L Astronomy Laboratory

I. College/School  COSM
    Department  Physics

II. Course Information
    Course Title: Astronomy Laboratory
    Course Abbreviation and Number: PHY 1060L
    Course Credit Hours: 1
    Course Cross Listing(s) Abbreviation and Number:
    Check ("x") all applicable:
    General Education Course X___ Writing Intensive Course_____ Service Learning
    Course____
    Laboratory Course X___ Ohio TAG (Transfer Assurance Guide) Course ____
    Ohio Transfer Module Course_____ Others (specify)_____

III. Course Registration
    Prerequisites:
    Corequisites: PHY 1060
    Restrictions: none
    Other: none

IV. Student Learning Outcomes
    What the physics lab is designed to do:
    • Be a companion course to complement the lecture.
    • Develop and reinforce conceptual understanding of physical phenomena.
    • Provide hands-on experience with and enhance understanding of basic physical concepts.
    • Provide the opportunity to practice scientific writing.
    • Teach measurement skills using basic devices and instruments.
    • Use the computer as a data collection device and a tool for data analysis.
    • Develop the capability of choosing effective experimental procedures.
    • Provide opportunities to use the methods of science to explore natural phenomena.
    • Illustrate the power of mathematics in helping us to describe nature in relatively simple terms.

    The General Education Element 6 learning outcomes also apply:
    a. Understand the nature of scientific inquiry
    b. Critically apply knowledge of scientific theory and methods of inquiry to evaluate information from a variety of sources
    c. Distinguish between science and technology and recognize their roles in society
    d. Demonstrate an awareness of theoretical, practical, creative and cultural dimensions of scientific inquiry
    e. Discuss fundamental theories underlying modern science

V. Suggested Course Materials (required and recommended)
   Online downloadable experimental Laboratory Manual

VI. Suggested Method of Instruction
   Laboratory
VII. Suggested Evaluation and Policy

LAB REPORTS

- See details of lab reports required for each experiment in the lab manual.
- Write the report so that it is self-contained. In other words anyone with a minimal background in physics should be able to read it by itself and understand what you did for that lab. The teaching assistant knows what you should have done, but practicing writing and communication skills is part of what this course is about.
- Although neatness and style are important, the content of the lab report is the main criterion for grading. Spend more time on content than looks. However, making it easy for the teaching assistant to read your report and to understand exactly what you did is a good idea. You must be able to communicate the procedures used and the results of your experiment in a coherent, organized way to receive a good grade.
- **Have the teaching assistant sign and date your unfinished report BEFORE leaving the lab each week, and make sure that the signed sheets are submitted as part of your final report.**

Lab report grades: Each lab report grade will be based on a 50 point basis which will entail points distributed for answers to prequestions, post questions, discussion, calculation and possibly homework. The actual point distributions for individual labs will be highlighted in the Laboratory Manual. There will be 12 lab reports for a total of 600 total points for the semester.

VIII. Suggested Grading Policy
Lab grade will be determined on percentage of total points for the semester by the following scale;
A >90%
B >80%
C >65%
D > 55%

IX. Suggested Assignments and Course Outline

The following are the scheduled experiments that you will be doing. Please read each over completely before coming to lab to familiarize your self with the material. It is the student’s responsibility to come prepared to the laboratory so that instruction time can be kept at a minimum thus maximizing the time to do the experiment.

<table>
<thead>
<tr>
<th>WEEK OF</th>
<th>EXPERIMENT</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>No Labs</td>
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<tr>
<td>Week 2</td>
<td>Circumpolar Constellations*</td>
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<td>Week 3</td>
<td>Distance Measurements Using Parallax</td>
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<td>Week 4</td>
<td>Study of the Moon</td>
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<td>Week 5</td>
<td>Planetarium Visit**</td>
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<td>Week 6</td>
<td>Elliptical Motion</td>
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Week 7  Saturn’s Rings
Week 8  Study of the Telescope
Week 9  The Sun
Week 10 Winter Constellations*
Week 11 Spectral Classifications
Week 12 The Crab Nebula
Week 13 Pulsars
Week 14 No Labs

* Circumpolar Constellations lab and Winter Constellations lab require a night observation that you do on your own. These experiments should be done on the first clear night you have. Due to the variable weather conditions you will have approximately 3 - 4 weeks to complete and turn in your report from the time that they are assigned.

** The program will be at the Boonshoft Museum of Discovery’s Caryl D. Philips Space Theatre on any of the following dates. Monday, Oct. 5, from 11:30 a.m. to 12:30 p.m.; Tuesday, Oct. 6, from 3:00 p.m. to 4:00 p.m.; Wednesday, Oct.7, from 11:30 a.m. to 12:30 p.m.; and Saturday, Oct. 10, from 10:30 a.m. to 11:30 a.m. It is the student’s responsibility to provide their own transportation to the Planetarium, please attend only one session. A 25 point essay report is to be handed in the following class time. Instructions on how to get to the Planetarium can be found on their website: www.boonshoftmuseum.org

X. Other Information
   none

This is a sample course syllabus guideline. Course materials, method of instruction, evaluation and policy, grading policy, assignments, and other course matters can differ by specific course sections and individual professors. Additional information can be obtained by contacting the appropriate college and department.

Approved:
Undergraduate Curriculum and Academic Policy Committee
Faculty Senate

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