PHYS 212L Physics II with Calculus Lab Syllabus (Fall 2016)

Location: MPCB 401
Day and Time: Tuesdays 7:30 am
Co-requisites: PHYS 212
Instructor: Jim Brennan, jbrennan@boisestate.edu
Physics Department Phone: 208-426-3775

Lab sections do not meet the first week of classes.

<table>
<thead>
<tr>
<th>Date</th>
<th>Lab</th>
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<tbody>
<tr>
<td>Aug 30</td>
<td>Lab 1: Electrostatics</td>
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<td>Sep 6</td>
<td>Lab 2: Electric Field Mapping</td>
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<td>Sep 13</td>
<td>Lab 3: Capacitors</td>
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<td>Sep 20</td>
<td>Lab 4: Ohm’s Law</td>
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<td>Sep 27</td>
<td>Lab 5: Bulbs</td>
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<td>Oct 4</td>
<td>Lab 6: RC Circuits</td>
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<td>Oct 11</td>
<td>Lab 7: Earth’s Magnetic Field</td>
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<td>Oct 18</td>
<td>Lab 8: Magnetic Field Determination</td>
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<td>Oct 25</td>
<td>Lab 9: AC Circuits</td>
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<td>Nov 1</td>
<td>Lab 10: Speed of Sound</td>
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<td>Nov 8</td>
<td>Lab 11: Resonance in Air Columns</td>
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<td>Nov 15</td>
<td>Lab 12: Double Slit</td>
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<td>Nov 29</td>
<td>Lab 13: Reflection and Refraction</td>
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<td>Dec 6</td>
<td>Lab 14: Lenses</td>
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GRADING:

- A+ = 98 - 100
- A = 95 - 97
- A– = 93 - 94
- B+ = 91 - 92
- B = 88 - 90
- B– = 86 - 87
- C+ = 84 - 85
- C = 82 - 83
- C– = 78 - 81
- D+ = 76 - 77
- D = 74 - 75
- D– = 69 - 73
- F = 0 - 68

- There are 14 labs in the semester. The lowest lab score will be dropped. This means that you can skip one lab entirely as long as you are satisfied with your scores on the remaining 13 labs.
- Grades will be maintained on blackboard. It is your responsibility to check the gradebook on blackboard and make sure as we go that the grades are accurate and no mistakes are present. The instructor will attempt to keep the grades current to within a week from when they were turned in.
• Makeup labs are not encouraged. However, if an emergency arises, a student may explain the situation to the instructor in person or by email. If a mutual agreement is reached, perhaps the student could attend another lab session that same week on a space-available basis and permission from that session’s instructor. Only two make-up labs will be allowed during the semester.
• Punctuality is also a very important part of lab. It is expected that you arrive on time to begin your laboratory experience. Tardiness is defined as arriving later than five minutes after the assigned starting time for your lab session. A warning will be issued for the first instance of tardiness. Each instance thereafter can be accompanied by a late penalty assessed against your individual report for that lab, or for extreme tardiness you may be denied entry to the lab, at the prerogative of the instructor. You are not guaranteed a spot with your normal team if you are tardy.
• Each student must contribute towards the completion of the lab. If a particular student is found not participating in their group, the instructor will give a warning. Further violations will result in that student potentially losing points towards their group and/or individual report score, according to the prerogative of the instructor.
• The end of course evaluations may be counted as extra credit at the end of the semester, at the prerogative of the instructor.

LABS: Labs will be performed using a team approach to reduce redundancy and foster cooperative learning. Each lab team will consist of three members, a Theorist, an Operator, and a Recorder. Team members will concentrate on their particular roles and give complete explanations to their teammates.
• Team members will check each other for accuracy and completeness and submit a Group Report (40% of total grade) which includes a cover page, theory/procedure section, data/graphs/calculations section, and a summary table by the end of each lab session. See Appendix D in the lab manual for more details.
• One group member (the Recorder) will submit the group report through Blackboard along with their individual report so that it can be checked for plagiarism.
• Individual Reports containing an essence, analysis, conclusion, and expansion (60% of total grade) will be submitted electronically on Blackboard via SafeAssign. The content of these reports are explained fully in Appendix D of the lab manual.
• Individual roles are changed for each experiment and groups may be reorganized at the instructor’s discretion. In case of an absence or a two-member team, the Operator’s role is split between the Theorist and the Recorder.

TEAM ROLES: Theorists concentrate on the relevant mathematical relationships and are responsible for any requested derivations. They contribute to the data-gathering, oversee calculations, and analyze any plots that may violate the relationships. Operators direct the operation of the equipment, data gathering, and plotting. Recorders devise data tables, assist with data gathering, record the data, and prepare the Final Results Table. Appendix A in the lab manual provides a more thorough description of the team roles.

IMPORTANT: IT IS EXPECTED THAT EVERY STUDENT READS THE LABORATORY EXPERIMENT TO BE PERFORMED BEFORE COMING TO CLASS!
ACADEMIC INTEGRITY: Academic integrity will be strongly enforced in this course. Any student caught cheating on any assignment may fail the assignment in question or fail this course dependent on a hearing with the course instructor. Academic Dishonesty is defined in the Student Code of Conduct (Article 2, Section 18). It is strongly suggested that you read and understand these definitions: http://osrr.boisestate.edu/scp-codeofconduct-article2/#18.

The Physics Department has the following policies for all PHYS211L and PHYS212L lab sections:

1. Students will hand in their own work. No copying of material from any sources or classmates is allowed, except for data and graphs from the common group report when appropriate. No submitting lab reports that are not your own original work or re-submitting labs you wrote from a previous semester is allowed. We encourage discussion amongst peers to help learn and master physics concepts, but work submitted for grading must be solely the individual student’s work and writing.

2. The first cheating violation will be considered academic negligence and result in a zero on that week’s lab report. The physics department and the Dean of Students will be notified, and the student will receive a warning from the instructor.

3. The second violation will be considered academic dishonesty. Offending students will be given an F for the course and immediately dropped from enrollment. All course lecturers, the physics department, and the Dean of Students will also be notified of the violation.

GOALS: Course objective is for the students to develop an appreciation and basic working knowledge of the most fundamental principles governing physical science that will form a basis for critical and analytical reasoning and lead to continued learning. Particular Learning Goals for PHYS 211L are to:

- Develop a theory appropriate for each lab which presents all major concepts, equations and derivations used and identifies all variables.
- Effectively communicate experimental procedure both verbally and visually.
- Set up the appropriate equipment for collecting the required data.
- Collect and record data in an organized and easy to read format.
- Utilize the collected data to verify or disprove a particular hypothesis.
- Recognize possible errors which might influence the consistency and validity of the data.
- Suggest improvements in the procedure that might produce better results.

DISABILITY SERVICES: Students with disabilities needing accommodations to fully participate in this class should contact the Educational Access Center (EAC). All accommodations must be approved through the EAC prior to being implemented. To learn more about the accommodation process, visit the EAC’s website at https://eac.boisestate.edu.