

# Washington State University

## Physics 101 Lab Syllabus

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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.

### **STUDENT RESPONSIBILITIES**

- Read the syllabus. The regulations/guidelines in this syllabus take precedence over any oral commitments that may be made. (The Lab Director is responsible for the final interpretation of these policies.)
- Attend your regularly scheduled lab section every week. If you do miss or will miss your regular lab due to sickness or another valid reason, refer to the Requests for Make-up Labs section of this syllabus for more details.
- Adhere to the University "Standards of Conduct for Students." This includes being on time and listening while the teaching assistant is introducing the lab. Violations of this policy will affect your lab grade.
- Make sure that all submitted work is your own. Academic dishonesty is not tolerated and is grounds for failing the course.
- **DO NOT BRING FOOD, TOBACCO, OR BEVERAGES INTO A LAB ROOM.**

### **PREPARATION FOR LABS**

- Before each lab period read the lab manual and related course material, particularly if the material has not already been covered in lecture. Though every effort is made to have the lectures and labs well coordinated, we are not always successful.
- Bring your lab manual, calculator, course textbook, pen and pencil, eraser, scratch paper, ruler and protractor to lab each week.
- Come prepared to perform mathematical calculations based on the level of math (algebra, geometry, and trigonometry) appropriate for the course.

## GRADING POLICIES

### COMPONENTS OF THE LAB GRADES

The lab grade is weighted as follows:

Pre-Labs, Lab Homework, and Lab Reports	80%
Lab Exam	20%

NOTE: Consult your lecture instructor for the weight given to the lab grade in the total course grade.

#### ***Pre-Lab Preparation Sheets (RealTime Physics Labs Only):***

Each RealTime Physics pre-lab sheet will be evaluated on the basis of 10 points maximum. Since you have not performed the experiment yet, the pre-lab sheets are graded most heavily on the reasoning behind and the thoughtfulness of your answers. Be specific with your answers but include brief explanations of your thinking to get that answer.

#### ***Lab Homework (RealTime Physics Labs Only):***

At the end of each RealTime Physics lab experiment you will find a homework set to accompany that experiment. The homework set is submitted for credit, but not the experiment itself. The lab experiment must be completed before beginning to work on the homework. You are welcome to begin working on the homework portion during the regular lab period **after** completing the lab experiment. **The graduate teaching assistant in your lab section must sign and date the first page of your homework set to verify that you have completed the required experimental exercises before proceeding.**

#### ***Lab Reports:***

Lab reports are short papers describing in detail what data-taking procedures you used in the lab, the reasons for taking the data that you did, the data analysis using graphs and other calculations, and your summary and conclusions. Even though you may work in a group, each individual must submit a laboratory report. Although the data for lab partners is necessarily the same, it is expected that the data analysis, discussion of results, and the conclusions will be individual work. For more information regarding lab reports refer to the Physics Lab Report Details document immediately following this syllabus. **Have the teaching assistant sign and date your unfinished report BEFORE you leave the lab each week!**

#### ***Lab Exams:***

Lab exams are given during the regularly scheduled lab periods during Closed Week, or Dead Week (the last week of regular classes for the semester). The exam may include experimental techniques, methods of data analysis, and/or concepts

covered during the semester. All of your graded RealTime pre-lab and homework exercises, the RealTime laboratory workbook, your graded lab reports, and the regular lab manual are open for reference during the exam. Textbooks are not open during the exam. Work on the exam is individual. BE SURE TO BRING YOUR CALCULATOR! Look for more information about the exams, including sample problems, on the website for your physics lecture section.

### ***Some Additional Notes:***

All laboratory exercises are important so no scores will be dropped at the end of the semester. Questions regarding grades on lab homework or lab reports need to be discussed within two weeks of the student receiving the graded material (earlier at the end of the semester!). Your lab grade is reported to the course instructor at the end of the semester and is incorporated into your overall physics course grade as defined on the instructor's syllabus. Final lab percentages should be posted on the bulletin board on the 3<sup>rd</sup> floor of Webster by Wednesday of Final Exam week. Any changes/questions need to be made by Friday morning of Final Exam week, since final grades are then submitted to the instructors.

### **THE LAB GRADING SCALE RELATIVE TO THE LECTURE:**

The laboratory component of your class grade is based on a different grading scale from that used in the lecture part of the class. For the laboratory the following guidelines are used to convert percentages into letter grades:

A	-	(90 – 100%)
B	-	(80 – 89.99%)
C	-	(70 – 79.99%)
D	-	(60 – 69.99%)
F	-	(less than 59.99%)

Note: Plus and minus grades are included at the tops and bottoms of the letter grade ranges.

The lecture and laboratory grades are then weighted appropriately and put together to give the final course grade. **By Physics and Astronomy Department policy a student earning a lab percentage less than 50% will receive an F grade for the class, irrespective of his/her performance in the lecture portion of the course. On the other hand a student who fails the class, but had a laboratory percentage of at least 80%, may choose to “carry over” this score when the class is retaken. To take advantage of this option a student must notify the lab director or his designee during the first week of the semester that the class is being repeated.**

### **LAB HOMEWORK AND REPORT GRADING GUIDELINES**

#### ***General Considerations:***

- 1) If you let any person with a physics background equivalent to your own read through an “A” level report, she/he should be able to read through the report understanding

what the experiment was, how it was performed, how the data was obtained, how the data was analyzed, whether the results were expected, and why they were expected. In short this person should be able to reproduce your experiment (assuming familiarity with the equipment) just the way that you performed it based on your report.

- 2) A "B" level report lacks at least one of the important characteristics listed in paragraph 1) just above or is simply weak in several aspects, and a "C" level report lacks at least two of these important characteristics or is very weak in several aspects.
- 3) **Simply copying text from the lab manual or the internet into your report is never acceptable and at a very minimum will be totally disregarded in the evaluation of the report.**

### ***Lab Homework and Report Grading Details:***

Lab reports must satisfy additional requirements (see details in the Physics Lab Report Details document that immediately follows this syllabus). Lab homework sets and lab reports are evaluated on the basis of 100 points maximum.

Each homework/report is similar to an English research paper where the evaluation is quite subjective. The possible grades (on a scale of 0-100 points) assigned to the sets will usually be limited to:

100, 95, 90, 85, 80, 75, 70, 65, 60, 55, 50, ....

**[Note:** A grade range (90-100); B grade range (80-90); C grade range (70-80); D grade range (60-70); F (<60) with plusses and minuses included as appropriate in each grade range.]

The teaching assistant (TA) will read through your homework/report making a few comments and noting problem areas. At the end it should be clear to the TA in which letter grade range the homework/report belongs. For example if it is determined to be in the "B" range, then a score of 80, 85, or 90 is assigned depending on whether it is a weak, solid, or strong B. You will not see where each point is deducted. The final score reflects both the content details and the overall clarity of the final product.

### ***Automatic Grade Deductions:***

- 1) No late pre-lab preparation sheets will be accepted for credit. Have them completed before coming to the lab.
- 2) Late lab homework sets and lab reports are subject to a penalty deduction of 10 pts/day for each day after the prescribed deadlines.
- 3) Reports placed in the wrong lab section slot in the large wooden cabinet located in the hall on the 3<sup>rd</sup> floor of the Webster Physical Sciences Building are subject to a 5

pt deduction. For your convenience a list of all physics lab sections showing the course number, time of day, and name of the TA is posted on the inside of the left hand cabinet door.

### ***Equalization of Lab Grades:***

At the end of the semester the average percentage score achieved by all of the students in a lab section will differ somewhat from lab section to section. This is inevitable and expected. However, in the event that lab sections have averages that are too disparate, the lab director may modify the letter grade/percentage conversions stated earlier in an attempt to make the grading more equitable. Thus students who were graded more rigorously than average may be raised in grade, while those who were graded too leniently may be lowered in grade. Any adjustments, if done at all, will be made carefully and thoughtfully with the goal of representing the quality of students' laboratory work in the most consistent and equitable way for each class involved.

## **PRE-LAB , LAB HOMEWORK, AND LAB REPORT SUBMISSION POLICIES**

RealTime Physics pre-lab preparation sheets are due at the beginning of the lab period when the experiment will be performed. **No late pre-lab sheets will be accepted for credit.**

The completed RealTime Physics homework set(s) for each lab should be removed from the workbook along the perforations, stapled together at the upper left corner, and submitted.

**LAB HOMEWORK SETS AND REPORTS ARE DUE BY 5 P.M. ON THE SECOND DAY FOLLOWING THE DAY THAT THE LAB IS PERFORMED.** For instance homework sets or reports for labs performed anytime on Tuesday are due by 5 p.m. on Thursday. Labs performed on Thursday or Friday are an exception to the rule and will be due on the following Monday (Tuesday if Monday is a holiday) by 5 p.m. **Please submit homework sets and reports in the slot reserved for your class lab section (for example, the slot identified as 101 L-7 is for PHYS 101 lab section 7) in the large brown wooden cabinet located in the hall on the third floor of the Webster Physical Sciences Building. The cabinet is open from 8 a.m.- 5 p.m. Monday-Friday with the exception of official university holidays. KNOW YOUR LAB SECTION NUMBER AND INCLUDE IT ON EVERY SUBMISSION!** There is a deduction of 10 pts/day (on the basis of 100 pts possible) for late homework or reports.

## **REQUESTS FOR MAKE-UP LABS**

If you missed your regularly scheduled lab (or will miss one) with a valid reason, notify your teaching assistant (TA) by email and submit a "makeup request" to the lab director via email at [physlabs@wsu.edu](mailto:physlabs@wsu.edu). For valid reasons you may be able to perform

a particular lab earlier or later in the week than your regularly scheduled lab time subject to availability of space, so make your requests as early as possible. You can check alternate lab times by looking at the [Schedule of Classes](#) on the university website. Such an arrangement avoids the necessity of arranging a special make-up lab. This is easier for both you and us. Look up your class (PHYS 101, etc.) on the Physics Department web site and click on the link "[Lab makeup policies and schedules](#)" to find what information needs to be included in your request. If you are authorized to make up the lab in another lab section with a different TA from your own, it is your responsibility to make sure that your report is submitted promptly to your regular TA for grading and recording purposes. The report is still due before 5 p.m. on the second day following your actual work in the lab with the exceptions previously stated in this section of the syllabus. Make-up labs not following this procedure won't be accepted for credit.

**Any make-up lab must be completed and submitted by 5 p.m. on the Friday of the week after the missed lab was regularly scheduled.** There will be no exceptions to this rule except for verifiable emergencies.

The physics labs close the Friday before Closed Week (Dead Week) so that lab exams may be set up. No make-up labs can be done after this date, and all work must be submitted to the TA prior to this date to be considered for credit.

## **STUDENT CONDUCT POLICY**

"Washington State University, a community dedicated to the advancement of knowledge, expects all students to behave in a manner consistent with its high standards of scholarship and conduct. Students are expected to uphold these standards both on and off campus and acknowledge the university's authority to take disciplinary action. The purpose of these standards and processes is to educate students and protect the welfare of the community."

(as quoted from the Preamble to the [Washington State University Standards of Conduct for Students](#)) The detailed rules, regulations, and policies can be found in the [Standards of Conduct for Students](#) available through the Office of Student Conduct.

## **DISABILITY ACCOMMODATIONS**

Reasonable accommodations are available for students who have a documented disability. Please notify the instructor or TA during the first week of class of any accommodations needed for the course. Late notification may cause the requested accommodations to be unavailable. All accommodations must be approved through the Disability Resource Center (DRC) in Administration Annex 205 (phone 335-1566).