

DEPARTMENT OF PHYSICS LABORATORY SYLLABUS

COURSE: Physics I Laboratory

TERM: **Spring 2012**

TEXT:

- You should bring your class text with you to each lab. Lab handouts will be available in an online from <http://www.uwf.edu/physics/resources>. It is YOUR responsibility to print it and read it BEFORE the day of the experiment.
- Carbon Copy Laboratory Notebook or Carbon Paper

INSTRUCTOR: <<Please see your course schedule for this information>>
e-mail:

Office hours

Rm:

LOCATION of Lab: Building 4 Room **450**

WITHDRAWALS: UWF policy requires that students submit to the Office of Records and Registration a completed withdraw from courses, which is a different policy from that used by some other institutions, notably PSC. Withdrawals from this course that are processed by **03/16/2012** will result in a “W” grade being recorded. Withdrawals after this date can be done only by withdrawing from the University; the grade assigned will be W or WF. No withdrawals can be made after the close of classes.

GRADING: Each lab is worth 30 points and the final exam, 40 points. The lab report should accurately reflect the details of your experiment, and will be graded according to the following points break down:

In Class:

- 5 point **Lab Practice** (This is based on you individual participation of taking data, setting-up and cleaning up the lab).
- 8 points **Lab Procedure:**
 - a. 2 points for Turning in at end of class: Students must turn in a copy of their written step-by-step lab procedure before they leave the lab/when they sign out of the lab.
 - b. 4 points for Content
 - c. 2 points for Typed copy of Procedure in lab report (This must be an exact copy of the hand-written copy)

Typed in word:

- 1 point **Title Page**
- 1 point **Purpose**
- 1 point **Equipment**
- 3 points **Principles**
- See above for points **Procedures** (must be present in the typed lab report to earn this point. This must be an exact copy of the hand-written copy)
- 3 point **Data**
- 3 point **Calculations**
- 2 point **Graphs**
- 3 point **Results/Supplemental questions**

The lowest lab grade will be dropped. (This can be used to drop a single absence.

GRADE SCALE:

Letter grades will be assigned as follows:

100%>	A	≥	93%
93%>	A-	≥	90%
90%>	B+	≥	87%
87%>	B	≥	83%
83%>	B-	≥	80%
80%>	C+	≥	77%
77%>	C	≥	73%
73%>	C-	≥	70%
70%>	D	≥	60%
60%>	F	≥	0%

FINAL EXAM 40 points:

The final exam is composed to 2 parts.

1. A written exam (20 points). This is based on the material that is learned in the lab through the semester. Both theoretical and experimental questions will be on this written exam. **This is taken online on elearning.**
2. Experimental exam (20 points): The student must set up a lab, based on the labs done during the semester, and determine the unknown (e.g. Determine the spring constant of an unknown spring. Determine the resistance of an unknown resistor.) A grade will be based on how well the student:
 - Sets-up the experiment.
 - Records the data utilizing proper units, significant figures, and use of the equipment.
 - Solves for unknown: use of proper equations, graphing of data, and correct answer.

3. The experimental final exam will be closed book, closed notes.

LABORATORY PROCEDURES:

You will work in groups of 2-3 unless there are not enough setups available. All parties must participate and contribute to the collection and recording of the data.* Each student will record their lab procedure during class and write their own lab report . **Only the data section** can be the same as your lab partners.

*No data may be used from a previous course nor copied from another group. If you are caught doing so, you will receive a grade of an F for the course. If you are found not to be participating and taking data you will receive a zero for the lab.

ATTENDANCE:

Attendance is mandatory for this course. Students are required to come to class on time and **sign-in the attendance sheet and sign-out at the end of class.** Students arriving more than **10 minutes late or do not sign-in to class receive an automatic 0** for that lab. No lab make-ups are allowed unless they meet the following university regulated criteria and a formal letter is presented to your instructor prior to your absence (except in the case of an emergency) to verify the legitimacy of the absence:

- A. Students will be excused from class to observe religious holidays of their faith. No major test, major class event, or major University activity will be scheduled on a major religious holiday.
- B. Absences for imposed legal responsibilities (e.g., jury duty, court appearance) will be recognized as excused absences.
- C. Absences resulting from participation in extracurricular activities in which students are official representatives of the University will be recognized as excused absences.
- D. Absences for serious illness, death or serious illness within the student's immediate family, military obligations, or other sound reasons offered by the student may be accepted as excused absences.

MAKING UP A LAB

If your absence meets the above criteria, it is your responsibility to

1. attend another lab section while the lab set up is still available with the permission of your instructor.
2. make up the lab on Friday. If your absence forces you to miss the other lab section, **it is the student's responsibility** contact his/her instructor and the Physics Office Manager (dfeltner@uwf.edu) to schedule a time to make up the lab for the following Friday or the next Friday. The lab cannot be made up after this time.
 - No labs can be made up during lab finals nor during finals week.
 - Missing reports will receive a grade of 0 at the end of the semester.

NOTE: If you miss three labs or more, you will receive a fail grade for the semester.

TURNING IN LABS:

Lab reports should be turned in before the beginning of the following class, in the form of a soft copy of a Word document, submitted in the dropbox folder set up for that lab. **No late lab reports will be accepted** unless the student cannot come to class for the reasons listed in the “Absence” section.* If this is the case, the student must immediately contact his/her instructor to schedule a time to turn in the lab.

*Excuses due to “Technical Difficulties” will not be entertained and a grade of a 0 will be given. This is the equivalent to “My dog ate my homework.” Usually, trying to submit your lab an hour before the lab is due typically results in “Technical Difficulties.” You should plan ahead.

If you have technical problems with elearning, please contact ITS Help desk <http://uwf.edu/helpdesk/> , not your instructor.

STUDENT & LAB CONDUCT:

Physics experiments contain lasers, hot surfaces and cryogenics, and high voltages and current. In order to maintain student safety, students must follow all safety precautions outlined in the labs and the directions of the Instructor. Students should refrain from eating or drinking in the laboratory.

Students are expected to behave in a manner that is professional and becoming of a University of West Florida student. In includes, but is not limited to, treating their fellow students and instructors with respect, and not abusing or misusing the lab equipment.

Honesty in our academic work is vital, and we will not knowingly act in ways which erode that integrity. Accordingly, we pledge not to cheat, nor to tolerate cheating, nor to plagiarize the work of others. (UWF Student Life Handbook). Academic dishonesty is a serious offense and will be taken seriously. Please refer to the UWF Student Life Handbook for a list of behaviors that fall under the definition of academic misconduct. The handbook also outlines the penalties for academic misconduct and the due process procedures that must be followed. (Lings to the Student Life Handbook and the UWF Academic Conduct Statement are posted on the UWF Web Site at : <http://www.uwf.edu/cas/resources/>).

EVERYTHING IN WRITING

In an effort to prevent any confusion about deviations that may occur on a class and individual basis, everything must be in writing. This must include a letter or email from the student, and a response from the instructor. Verbal arrangements are not binding and will not be accepted as valid evidence toward any grievances the student may bring forward.

ASSISTANCE:

The Student Disability Resource Center (SDRC) at the University of West Florida supports an inclusive learning environment for all students. If there are aspects of the instruction or design of this course that hinder your full participation, such as time-limited exams, inaccessible web content, or the use of non-captioned videos and podcasts, please notify the instructor or the SDRC as soon as possible. You may contact the SDRC office by e-mail at sdrc@uwf.edu or by phone at (850) 474-2387. Appropriate academic accommodations will be determined based on the documented needs of the individual. SDRC will provide the student with a letter for the instructor that will specify any recommended accommodations.

DEPARTMENT OF PHYSICS LABORATORY REPORT INSTRUCTIONS * *

Lab reports will be assembled and presented in accordance with the following guidelines:

All parts of the lab reports should be typed on a computer, hand written sections will not be accepted. All tables, calculations, and graphs **MUST** be done in Excel, and all equations typed using the equation editor in Word. The Excel document should be embedded or cut and pasted into the Word document.

The labs must be submitted on Elearning in a **Word document**. (See the section above for details).

You should start a new page for each “Page #” by inserting a page break.

Page 1 - **TITLE PAGE:** Title of the lab (centered, 1/3 of the way down the page, followed by your name, course and section, partner's name, and date.)

Page 2 - **PURPOSE:** Copied verbatim from your handout unless modified by the instructor.

EQUIPMENT: A list of the hardware you used in the lab, with an explanation of each device. (This is not copied straight from the handout!!!).

PRINCIPLE(S): A fairly complete explanation **IN YOUR OWN WORDS (Not copied from handout)** of the physics theory and principle(s) involved in the lab. Include applicable equations and explanations thereof. You should utilize the lab handout, lab lecture, and your textbook to explain the principles. **This should explain how your measurements can be used in conjunction with the theory to understand the Purpose** (e.g. “The equation for Newton’s 2nd Law is $F=ma$. This has the same form of the equation of a line; therefore if we plot F vs a , the slope of the line will give the mass.”)

Page 3 - **PROCEDURE:** A step-by-step description, in bullet form, of what you actually did in the lab. (Again, in your own words!!!) ***I should be able to hand this to a stranger and they should be able to follow your steps without the aid of the handout.*** You must write your procedure as you are doing the lab.

Note: Procedure does not mean what is given in the handout. It means what you did in the lab. For example, if you found that one particular measurement was difficult for some reason, you should state it. If you made a mistake, and had to repeat a measurement, both the first and repeated measurement must be reported, with a notation against the data which you feel is incorrect.

Page 4 - **DATA:** Usually in the form of (a) a neat table that your instructor has indicated should be used, and/or (b) computer-generated printouts. **Data tables must be sized to fit in the page.**

CALCULATIONS: All mathematical/algebraic work used in the lab should be shown. Obviously, it is not necessary to reiterate every single calculation that you perform on your calculator, but an example of each basic type of calculation, INCLUDING UNITS, should be presented. Calculation of percent error, common to many labs, should be included here. **If you use the equation in excel, you need to show an example of how you calculated it here.** You will also be graded on properly using excel equations here. For this reason it is necessary that you insert your tables as a 'Microsoft Excel Worksheet Object.'

Page 5 - **GRAPH(S):** (If applicable). All graphs should be scatter plots done in EXCEL and submitted as part of the rest of the report. Each axis should be properly labeled with units and the trendlines with equation clearly displayed on the graph. Each graph should have an appropriate title. Each **graph must fit on a single page, separate from the data.**

Page 6 - **RESULTS:** At least a paragraph addressing the overall relationship between variables involved in the lab. Be sure to include the resulting numbers so that you are quantitative in your description. You must discuss your percent error. You must give at least 3 REASONS for sources of error (**even if you do not calculate a percent error**).

Page 7 – **Supplemental Questions** This section includes all questions posed in the lab (unless explicitly stated that they go in the results section). This includes those questions specifically labeled Supplemental Questions, and questions posed in the rest of the handout.

THE KEY TO RECEIVING A GRADE OF 20 ON WRITTEN LAB IS NEATNESS AND PAYING ATTENTION TO THE DETAILS OUTLINED ABOVE.

PHYSICS I LABORATORY SCHEDULE

Week		Title
1	01/09 - 01/13	(No Labs)
2	01/16 - 01/20	Martin Luther King's Birthday (No Labs)
3	01/23 - 01/27	Introduction, Syllabus Review, & Meaning of Measurement
4	01/30 - 02/03	Graphical Analysis
5	02/06 - 02/10	Archimedes Principle
6	02/13 - 02/17	Thermal Physics
7	02/20 - 02/24	Gas Laws
8	02/27 - 03/02	Newton's Second Law part I & II
9	03/05 - 03/09	Conservation of Mechanical Energy
10	03/12 - 03/16	Collisions
11	03/19 - 03/23	Spring Vacation (No Labs)
12	03/26 - 03/30	Static Equilibrium
12	04/02 - 04/06	Rotational Motion
14	04/09 - 04/13	Waves
15	04/16 - 04/20	Lab Final
16	04/23 - 04/27	(No Labs)
17	04/30 - 05/04	Final Exam for lectures

Name: _____
Class Name: _____
Class Section: _____
Name of Instructor _____

Instructions: Answer the questions below. Once complete, scan and upload this sheet and place it in the “Dropbox” on elearning. *Note: No paper copies will be accepted.*

Due: This needs to be submitted by the end of the first week of class.

Syllabus Quiz:

1. Did you read the syllabus and do you understand it? Y/N
2. Do you think we will deal with rotational motion in this lab? Y/N
3. The lab data and graphs count for the entire grade T/F

By signing below, you affirm that you have read the syllabus and will abide by the contents within.

Signature: _____