PHYSICS 210: POLICIES AND PROCEDURES

(Spring 2007; Sections: 01, 02, 03, 04)

Prerequisite: credit or registration in Physics 204 or 208

I hear, I forget
I see, I remember
I do, I understand Anon

Physics is fundamentally an experimental science. The theories, laws and mathematical descriptions of the physical universe that have been created during the past 3000 years are based on the experience and observations of our ancestors. In the Lab, your understanding of physics is enhanced by lab discussions, personal reflections, observations, and experiments. Your ability to perform observations, take data, and analyze results rapidly and accurately will be enhanced by the use of microcomputers equipped with sensors for data collection and software for data display, mathematical calculations, graphing, drawing, the simulation of physical events and word processing.

The use of direct experience, new computer tools, and active participation will enable you to achieve an enriched set of learning goals. In addition to mastering an important body of knowledge and learning how to solve traditional physics problems, you should be able to develop your reasoning ability and computer and laboratory skills to a much greater extent than you would in an ordinary laboratory. Actually, in physics your powers of observation, reasoning ability and the depth of comprehension of physical theories are considered to be far more important than any memorized facts, equations, or theories.

Physics Faculty :	Trevor Melder	Hanna 131	342-1947
	Dianne Bruscato	Hanna 143A	342-1942
	John Anderson	Hanna 143B	342-1941
Department Head:	Dale Magoun	Airway Science 305	342-1918

Office Hours: Hours are posted on the door of each of our offices.
Student Assistants: Student teaching assistants (TA's) will also be available to help you.

TENTATIVE SCHEDULE:

Meeting	<-------	Dates	-------->	Tentative ACTIVITY
1	1–16–07	to	1–18–07	Introduction to Course; Discuss Syllabus, Policies, Procedures, etc.
2	1–23–07	to	1–25–07	Electric Field Hockey
3	1–30–07	to	2–1–07	Electric Field & Newton's Second Law Problems on CyberInteractor Homework: Complete unfinished CyberInteractor exercises
4	2–6–07	to	2–8–07	Discuss Homework Circuits Investigation #1: A Model for Electric Current; Activ 1–13 Homework: Complete Pretest: Electric Field and Newton's 2nd Law
5	2–13–07	to	2–15–07	Discuss Pretest; Finish Circuits Investigation #1 Start Circuits Investigation #2: The Electric Current Model & Applications; Activities 1–8 Homework: Exam #1 Review
	2–20–07	to	2–22–07	NO LABS (Mardi Gras Break; Enjoy your time off!)
6	2–27–07	to	3–1–07	Discuss Review for Exam #1 Finish Circuits Investigation #2: The Electric Current Model & Applications
7	**3–6–07**	**to**	**3–8–07**	**Exam #1 (Electric Fields, Newton's Second Law, and Circuits Investigation #1)** Circuits Investigation #3 (Skip GE1 thru 3) Homework: Exam #2 Review
8	3–13–07	to	3–15–07	Discuss Review for Exam #2 Circuits Investigation #4: Direct Current Circuits

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9	**3–20–07**	**to**	**3–22–07**	**Exam #2 (Circuits Investigation #2 and #3)** Radioactive Half–life with Dice
10	3–27–07	to	3–29–07	Radioactive Half–Life with Barium^{137}m Homework: Exam #3 Review
11	4–3–07	to	4–5–07	Discuss Review for Exam #3 Interference
	4–10–07	to	4–12–07	NO LABS (Spring Break; Enjoy your time off!)
12	**4–17–07**	**to**	**4–19–07**	**Exam #3 (Circuits Investigation #4 and Radioactive Half–life with Dice, Radioactive Half–life with Barium)** Start Fundamentals of Geometric Optics Homework: Complete Review Questions on Interference
13	4–24–07	to	4–26–07	Discuss Interference Questions Finish Fundamentals of Geometric Optics
14	**5–1–07**	**to**	**5–3–07**	**Laboratory Final Exam (Comprehensive)**

EXTRA HOURS:
You may need to use the lab room to check observations, to take data, to get some help on difficult problems or to use a computer. If there are sufficient funds, TA's (or an instructor) may be in Hanna 129 at times posted on the lab door. You may **not** use these times to start an experiment and you may **not** leave your scheduled lab early thinking you'll catch up during these times. You will need to leave your Student ID or your driver's license with the TA and sign in the lab for a particular station. You will be responsible for any damage to equipment discovered at the next lab section after your visit.

REQUIRED MATERIALS: You should purchase at the ULM bookstore:

1. A current (labeled for use in the **current semester**)
   Physics 210 Activity Guide Lab Packet
2. A three-ring binder (any color/style) *with at least a 1.5 inch diameter ring.*

The student will keep the materials organized in the three–ring binder.

BEFORE AND DURING LAB--WHAT'S EXPECTED?

Before coming to each lab, you should read the appropriate sections of the activity guide for that lab day. Complete the Activity Guide (GE) entries and exercises in each lab session unless otherwise specified by the instructor. You should do any assigned reading and complete the assigned problems.

During lab sessions you are expected to work through each of the lab activities as a group, **discuss ideas with classmates, your instructor and the lab assistants. You are expected to be actively engaged in the learning process with a positive attitude.** Attitudes can be displayed in many ways using both verbal and non–verbal communication.

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WRITTEN AND ORAL WORK:

Activity Guide Entries: In–lab written work will consist primarily of documenting your lab activities by filling in the requested entries *in your own words* in your packet. You are encouraged to keep your own notes as well. Your entries will describe observations, derivations, calculations, and answers to questions. Some experiments will use the ✍ symbol to signify an entry is required or will use the symbol to signify an item that needs to be printed. *The pages containing each lab's entries are to be handed in at the end of the lab period unless your instructor tells you otherwise.* Entries will be graded for **completeness, clarity, and honesty**. We are not merely looking for "right answers" as each observation or reflection represents a unique experience. Each part of an entry will be worth points unless otherwise specified. Often your guidebook entries will be read by a student teaching assistant, the lab instructor, and one or all the faculty. Points assigned by the student reader may be adjusted by the faculty. As a result of the heavy time demands for grading, your readers may make some errors in judgment. If you think that this is the case, ask the Instructor about the basis for your score or for comments on the Activity Guide Entries. At the end of the semester your Activity Guide scores will be converted to a percentage grade. Some instructors may choose to give a "pop" quiz before, during, or at the end of lab. If so, the quiz grade **may** become a portion of your Activity Guide grade.

EXAMINATIONS:

There will be periodic examinations as well as a final. Questions on these examinations will be based primarily on lab activities and exercises. Emphasis will be placed on demonstration of the ability to apply the concepts learned **to new situations**. Material from the exams will be drawn from the Activity Guide, assigned exercises and personal notes. Some exams will require you to perform exercises on the computer. Working additional problems and reworking old ones, as well as reviewing assigned readings and written work is probably the best way to prepare for an examination. Each exam will have conceptual questions, observational or data analysis questions, and problems. **Only rote memorization of material will not help you to pass exams.**

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POLICIES:

Cutting – Cutting without a legitimate excuse is not allowed. A legitimate excuse is one judged by the Instructor or Laboratory Supervisor to be **necessary, unavoidable, and verifiable.** If the student has such an excuse, a make–up lab will be allowed. It is the student's responsibility to notify the Instructor of **university excuses** BEFORE the absence occurs, and to arrange for the make–up lab and/or to take a test **early** by requesting permission to do so at least one week in advance. Make–up tests after the regular test will not be given for official university excuses except for accident or serious illness. **The Department of Mathematics and Physics believes that classroom attendance is an essential component of this course. Any student who accumulates 2 (10% of number of class meetings) unexcused absences must withdraw from the course or receive a failing grade. An excused absence is defined in the University Catalog and the Student Policy Paper.**

Making Up Excused Absences – Any lab period missed for which there is a legitimate excuse (determined by the laboratory supervisor) must be made up at a time arranged for in advance with the Instructor. A legitimate excuse is one that is judged to be unavoidable and can be documented and verified. Excuses from the infirmary or other medical personnel **must state or imply illness or accident requiring immediate attention, limited activity, bed rest, isolation,** etc. Official university excuses are processed by the office of the Academic Vice President. If, on occasion, a lab group does not finish the Activity Guide entry assigned for that day, they may be permitted by the Instructor to complete it outside of class. The report then may be returned within one week for full credit. Activity Guide entries (lab reports) turned in after one week will receive NO credit. This policy will hold for the Fall and Spring semesters. The time for turning in late lab reports for both Summer Sessions will be one day.

Miscellaneous – Absolutely NO tobacco, food, drink, or foul language are permitted in the classroom. Students are asked to turn off any personal electronic devices such as cellular phones, beepers, mp3 players, video games, etc. At the discretion of the instructor, each instance of class disruption related to these types of devices may result in a penalty of up to 10% on the next or current exam. GRADUATING SENIORS ARE NOT EXEMPT FROM ANYTHING.

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Respect for Equipment – We expect you to treat the equipment with the UTMOST RESPECT (In other words, BE CAREFUL!). Careless handling of the equipment WILL NOT be tolerated. We advise you to check your equipment when you first arrive at lab. If something is broken, report it to the instructor, teaching assistant, etc., along with your lab station code (i.e. D2, C5, E4, etc.). If everything is fine at the beginning of the lab and equipment is broken at the end of the lab, then it will be assumed that your lab group was responsible and hence your group's grade will be lowered. If a piece of equipment is broken at the beginning of the lab session, then it will be assumed that the group in the preceding lab section is responsible and that group will receive a lower grade. At the end of every lab period your table should be left with equipment arranged neatly, with the computer **on**, the ULI off, and scrap materials thrown away. You should **Quit** (not "Close") each application except "Finder" on the computer.

Seat Assignments – A seating chart will be made during the first or second lab meeting. The instructor reserves the right to change a student's seat assignment.

Academic Honesty – You are encouraged to discuss and debate the ideas in any of your assignments with your instructors, TA's, lab partners, and other classmates. If you work on assignments cooperatively, rather than independently, you may share ownership of spreadsheet and Cricket Graph files. However, any written assignments must be expressed in your own words and reflect your own format details. Thus, you may not copy (even with some modification) problem solutions, and Activity Guide entries, or written material on examinations. Also, the **possession of any student's completed Activity Guide entries (whether the original or a photocopy) from any previous semester is NOT allowed and will be considered cheating.** This possession includes not only the Activity Guide entries but also copies of the spreadsheets, graphs, and graph data files, both copies on paper (hard) and copies on diskettes (electronic). **If you are caught with any of the above mentioned materials, the minimum penalty will be a zero for the work involved and normal university rules regarding cheating and academic dishonesty will be followed.**

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GRADING:

• Tests (25% of total grade)	
Test 1	5%
Test 2	5%
Test 3	5%
Final Examination	10%
• Activity Guide Entries with pop quizzes	75%
TOTAL	**100%**

Grading Scale

- $90 \leq$ **A** ≤ 100
- $80 \leq$ **B** < 90
- $70 \leq$ **C** < 80
- $60 \leq$ **D** < 70
- **F** < 60

If a problem arises during the course of the laboratory, please feel free to consult your Laboratory Instructor about the matter at hand. If you are not satisfied with the results, you may then consult the Department Head. If your problem still persists, you may then consult the Dean of Arts and Sciences.

DROP DATE (with a "W"): Friday, March 23, 2007

Mid–Term Grading: Mid–Term grades will be posted on "ARROW" between Monday, March 5th and Wednesday, March 7th.

GOALS– By the end of the semester the students should be able to

i.	have a general knowledge of the basics concepts of electricity, magnetism, geometric optics, waves and radiation (e.g. voltage, current, resistance, focal length, lens equation, principle of superposition, constructive and destructive interference, half–life, decay rates, etc.)
ii.	manually operate a computer to run software to observe, collect, record, analyze, and graph data.
iii.	use certain meters and probes to make measurements of specific quantities.
iv.	describe their work, both orally and written, in a very clear and precise manner.
v.	use critical thinking skills to reason and predict the outcome of particular situations based on prior experience and knowledge.
vi.	work effectively within a group of two or three students.

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