Instructor: Susan Fontanilla
Email: fontans@stthom.edu  (Please put the course name in the subject line of your e-mails, e.g. “PHYS 1112”)

Office: Robertson Hall, Room 108, Phone: 713-525-3835
Office Hours:  Mon & Wed: 01:30 - 3:30 p.m.     Tue & Thu: 10:30 - 11:30 a.m.
Other times and days: by appointment

Class Schedule:  Thursdays, 2:10 - 5:00 p.m.
Lecture/Lab Room: Robertson R116/R115

Textbook & Supplies:
- Lab Manual- The lab manual for the course, with instructions for all experiments will be posted on Blackboard. https://blackboard.stthom.edu/
- Lab Notebook- You must purchase a lab notebook (bound pages, not loose-leaf or spiral).
- Shoes – You must wear closed toe shoes in lab.
- Scientific Calculator

Course Description: Physics 1112 is the Laboratory to accompany the General Physics II lecture course. Although the laboratory and lecture courses may be taken independently, the lecture course is a prerequisite or co-requisite for the laboratory. Experiments are performed after an introductory lab session. The course concludes with a final practical examination.

Course Objectives: Each student is to become familiar with procedures and methods of laboratory experiments including the setup and calibration of equipment, and the collection and analysis of data by hand and by computer. Each student is to become proficient in reporting experimental procedures and results, and be able to analyze results and make conclusions and produce a typed report on experiments performed.

Blackboard: Blackboard (http://gregory.stthom.edu) will be used to post instructions, assignments, and announcements. Please check blackboard frequently to check for announcements. All tech questions/problems (e.g., your account, password, browser problems, etc.) should go to the University Help Desk- Student Help: IT Solution Center - ithelpdesk@stthom.edu or 713-525-6900 - Bb Tutorials

Grading: Your final semester grade will be calculated as follows:
- 60% Mini Lab Reports
- 20% Quizzes; Laboratory Participation (attendance, attitude, cooperation, skill)
- 20% Final Practical Exam

The letter grade for the course is based on the following Grading Scale:

<table>
<thead>
<tr>
<th>Percent Grade</th>
<th>94 –100%</th>
<th>90 – 93%</th>
<th>87 – 89%</th>
<th>84 – 86%</th>
<th>80 – 83%</th>
<th>77 – 79%</th>
<th>74 – 76%</th>
<th>70 – 73%</th>
<th>67-69%</th>
<th>60 – 66%</th>
<th>0 – 59%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter Grade</td>
<td>A</td>
<td>A-</td>
<td>B+</td>
<td>B</td>
<td>B-</td>
<td>C+</td>
<td>C</td>
<td>C-</td>
<td>D+</td>
<td>D</td>
<td>F</td>
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</table>
Mini Lab Reports: The mini lab report contains all raw data, and the calculations of final experimental results. Refer to the “Mini Lab Report Guidelines” posted on Blackboard and follow the given format. Print the lab report template from the “Blackboard” page of the experiment before you come to class and fill it out during the lab. It is even better if you develop your own template in the form of Excel table or Word table so you have it ready by the time you come to class. Attach additional pages to show sample calculations, answers to questions, graphs(if required) and a short analysis and conclusion (how do experimental and expected results agree, error sources, how you could improve the results). Every member of the group has to be around when you show your preliminary data.

Lab Notebook: The lab notebook is where you initially record your results, observations, notes and calculations. Use ink, not pencil. Your lab notebook is the authentic record of your experiments. It is not graded but you may use this on your final exam. If there is a problem with your data, include an explanation in your report. Recognition of a mistake and a well-reasoned explanation is more important than having high-quality data. A lab report containing data that is inconsistent with the original will be considered cheating.

Your lab notebook will be the only material allowed during the pre-lab quizzes and in the practical lab final so it is in your own interest to fill it with information about each experiment and keep it comprehensive and legible. Your notebook entries may consist of the following:

- Lecture Notes - any notes from your reading and the pre-lab lecture.
- Raw Data - raw data collection (e.g., currents, voltages...), and instrumental uncertainties
- Calculations - all required variables (e.g., resistance, voltage, percent error...).
- Experimental Results - final experimental results (e.g., resistances +/- uncertainty, with correct units and significant figures.
- Short Analysis/ Conclusion (how do experimental and expected results agree, error sources, how you could improve your results...).

Quizzes: Quizzes are given at the beginning of the class period to assess your preparation and reading of the material on the experiment as described in the Laboratory Manual. You are not allowed to use the Lab Instructions from Blackboard during the quizzes but only the handwritten notes in your notebook.

Attendance: Lab attendance is mandatory. You can NOT “get the data” from someone else to write your lab report. “The University expects all students to be regular and punctual in class attendance. Frequent unexplained absences may result in a student being administratively withdrawn from the course or in a grade reduction or failing grade, at the discretion of the faculty member” (see Undergraduate Catalog). Every experiment must be performed and the lab report submitted. A missed lab can only be “made up” in case of a documented absence and under conditions agreed to with the instructor; which the student must initiate the week of the missed lab by contacting the instructor (in person, email or phone). An excused absence includes hospitalization of yourself or an immediate family member, death of an immediately family member, or attendance at an approved school-related activity. Excused absences must be documented in writing. You will need to make a copy of the written excuse that I can keep for my attendance records. Try to schedule elective medical care outside of the class time. Turn in the document of your absence on the day you return to class. After that, your absence will count as unexcused. Failure to complete a lab will result in zero for that experiment.
Accessibility and Accommodations: If you have a documented disability that will impact your work in this class, please contact Counseling and Disability Services Office in Crooker Center (C&DS) located on the second floor of Crooker Center and can be reached at (713) 525-2169 or 6953. Give me a copy of your “accommodations” document as soon as possible.

Academic Honesty: All students are subject to the University’s Policy on Academic Dishonesty and the UST Student Handbook. Cheating will be punished in accordance with University procedures.

Breakage Fee: Lab equipment and glassware (e.g., lenses, prisms...) are not covered by the “lab fee” of the University. If you break any equipment/glassware during an experiment you will be expected to pay for its replacement. So please work carefully.

Lab Safety:
- You must wear closed toe shoes in lab.
- Backpacks must be placed against the wall.
- No food or drink (exception: water in backpack)
- Cell phones may not be used in lab (you may store phones in your backpack or pocket). If you need to take an emergency phone call, ask the instructor for permission to leave lab.

Failure to comply with any of these safety regulations can result in points being deducted from the lab grade for that day.

Checklist:
- Print out and read the lab instructions (well in advance) for each experiment and write down notes in your notebook and be ready for a quiz at the beginning of class.
- Print out the Lab Sheet or prepare the template using Excel (or Word) before coming to class.
- Bring lab manual, lab notebook, scientific calculator, and a sharp and open mind.

Please remember....
Richard Feynman wrote that the most important quality in a physicist is his or her integrity. The true purpose of these labs is not just to get the right answer. Develop good lab habits...cleanliness, orderliness, creativity, but most of all, integrity in the results. It is far better to get strange data and try to explain why you think it is wrong then to “fudge.” Almost all advances in experimental physics come from getting things wrong and figuring out why they went wrong.

Have a great semester and fun in the physics lab!
# General Physics II Laboratory Schedule*

<table>
<thead>
<tr>
<th>Dates</th>
<th>LAB Topics</th>
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<tbody>
<tr>
<td>Jan 24-26</td>
<td>Introduction. Discussion of Syllabus and Mini Lab Report Format.</td>
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<tr>
<td>Jan 31/ Feb 02</td>
<td><strong>Experiment 11: The Velocity of Sound - Resonance of Air Columns</strong> Note: The instructions are on Blackboard. Print out, study, and take notes in your notebook before coming to class. The Quiz will take place at the beginning of class. Bring your lab notebook and your lab instructions.</td>
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<tr>
<td>Feb 07/09</td>
<td><strong>Experiment 12: Standing Waves on a String.</strong></td>
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<td>Feb 14/16</td>
<td>Electric Field and Electric Potential PHET Simulations</td>
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<tr>
<td>Feb 21/23</td>
<td><strong>Experiment 13: Ohm’s Law and Simple Resistive Circuits</strong></td>
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<tr>
<td>Feb 28/ Mar 02</td>
<td><strong>Experiment 15: Kirchhoff’s Rules</strong></td>
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<tr>
<td>Mar 07/09</td>
<td><strong>Experiment 16: The Oscilloscope.</strong></td>
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<td>Mar 13-17</td>
<td>Spring Break. No Labs during the entire week.</td>
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<tr>
<td>Mar 21/23</td>
<td><strong>Experiment 17: RC Circuits</strong></td>
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<tr>
<td>Mar 28/30</td>
<td><strong>Experiment 18: Convex and Concave Lenses</strong></td>
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<tr>
<td>Apr 04/06</td>
<td><strong>Experiment 20: The Diffraction Grating</strong></td>
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<tr>
<td>Apr 12/14</td>
<td>Easter Break (April 13-14). No Labs during the entire week.</td>
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<tr>
<td>Apr 18/20</td>
<td>Make-up labs for documented absences</td>
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<tr>
<td>Apr 25/27</td>
<td>Review for Final Exam</td>
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<tr>
<td>May 02/04</td>
<td><strong>Final Exam, Time: 2:10 – 5:00 p.m. Room: Rob 116/115</strong></td>
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* The instructor reserves the right to make reasonable changes to the syllabus during the course. Any changes will be posted online and announced during class.