

Phys-D004C-63 LAB: Physics for Scientists and Engineers – Fluids, Waves,  
Optics, and Thermodynamics  
Lab Syllabus for section 43052  
Spring 2016

**Instructor:**

Dr. Patrick Huet

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**Class Meeting Time & Place:**

M 2:30 PM – 5:20 PM, S17

**Description:**

This Lab course is companion to PHYSICS 4C - Physics for Scientist and Engineers: Fluids, Waves, Optics, and Thermodynamics taught by Dr. Lana Sheridan, Spring 2016. The course consists in 10 laboratory experiments and one final lab exam.

All lab experiments are conducted in groups. Students within each group are encouraged to collaborate on discussing the experiment, doing the data analysis and redacting a lab report, if one has been requested.

Each student will maintain a lab book for each experiment conducted. The lab book will be kept in the lab classroom unless required for redacting a lab report. The lab book will be periodically checked and graded on its content.

A lab report will be requested for some of the labs. Redacting the lab report is a collaborative effort and corresponding grade will apply to all members within a group.

The final grade will take into account class attendance and participation, content of lab book, quality of lab reports, and final exam.

**Laboratory Objectives:**

1. Maintain a legible, coherent and useful lab book utilizing extended written passages.
2. Take accurate measurements with confidence and understand the uncertainties associated with them.
3. Analyze data using graphical, statistical, and computer based techniques.
4. Analyze data to induce scientific conclusions.
5. Collaborate with others as a team to produce collective and reproducible results.
6. Collaborate with others as a team to publish a lab report to convey reproducible results.

**Lab Policy:**

There will be no makeup lab; a student missing a lab session will receive a grade of zero for the missed lab report and/or content of the lab book. A makeup grade can be arranged only in case of emergency absence and after a written proof of the cause of the absence is provided. Students must notify the instructor of any planned absence in advance.

You are dismissed from a lab for the day after you have the instructor's permission to leave. Although you may leave the lab for a *short* time and then return, attending lab and leaving early for the day without explicit permission from the instructor will constitute an unexcused absence.

Students must adhere to lab and equipment safety, to be reviewed at the beginning of each lab. All materials and equipment used during the lab must be returned back to their appropriate locations by the end of each lab.

The Lab book is a critical component of the course and must be kept up-to-date and be well-maintained.

Reports are designed to convey crucial information and must be well-organized, concise and accurate. They can be formatted with the use of Excel, Word, or equivalent programs and include data presentation, equations, tables, graphs integrated to the body of the report that is written in English. Reports will be assigned a due date.

The LABS SKILLS MANUAL is recommended and will be reviewed with your instructor on the first lab day.

Every lab requires the following items:

1. A *quadrille* ruled (looks like graph paper), non-spiral bound lab book. This book will be kept permanently in the lab after you bring it the first day.
2. A pen *and* pencil.
3. A ruler.
4. A scientific calculator. It would be helpful if your calculator could perform statistical functions, but it is not required.

### Exam:

There will be one final exam. The final exam will be comprehensive and will be held on the last week of the Spring quarter. Every student must make every effort to take the exam on the scheduled date and time – There will be no makeup exam. Under very exceptional circumstances you may be excused from an exam, but you must notify me by email before the exam and provide valid reason and documentation of your situation.

### Grading Policy:

Attendance & Participation	25%
Lab Book (individual)	25%
Lab Reports (team)	25%
Final Exam	25%

Lab report Rubric	Max Score
Format and Presentation	15
Objectives, Theory, Experimental Setup	15
Data, Graphs	15
Calculations	15
Analysis with Sources and Estimations of Error	30
Conclusion	10
<b>Total</b>	<b>100</b>

The overall grade will be communicated to Dr. Lana Sheridan and integrated to the overall grade of the course per corresponding grading policies.

### Academic Integrity:

Students must adhere to fundamental principles of academic integrity. Severe lack of academic integrity may result in a zero-lab grade and/or exclusion from the laboratory.