

State University of New York at Fredonia
College of Arts and Sciences
PHYS-123 College Physics Lab 1 Sections 01 and 02, Fall 2020

Instructor:

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Office Hours: I will NOT be in my office or on campus. Call me anytime. Zoom meetings are scheduled every Monday, Wednesday and Friday from Noon to 1PM, so the student can access audio and visual help if they need it.

Covid 19 mandatory requirements:

I. You will practice social distancing, i.e. you will be no closer than 6 feet to one another.

II. You will wear a facemask at all times.

III. You will use hand sanitizer liberally and frequently.

Class Meeting: Online weekly via YouTube videos as listed in OnCourse

Course Description: Laboratory lectures will be posted online on YouTube in place of the in-person-session per week. These lectures will treat topics covered in PHYS 121 and related lab procedures and theory. (Co-requisite: PHYS 121, College Physics I). Simulated-online-labs will be assigned and graded.

I. Rationale: PHYS 123 is the laboratory course accompanying the College Physics I lecture course. Because of the Covid 19 situation, the structure of the lab is completely different this semester. Students will not be in the classroom. You will perform the lab experiments online. Your access to the lab is called PIVOT and you can access it on the Internet. Basic concepts and methodologies will still be addressed; however you will perform “virtual” labs requiring no handling of equipment. That having been said, these labs are as important as if they were real and they have questions and requirements and these must be adhered to. The Online lectures I will post will focus on how to perform your online lab and the supporting theory. *Topics may not necessarily follow the lecture course schedule – this is intended and not the result of scheduling oversights or errors.*

II. Required Textbook: Instead of a textbook, you are required to purchase a license for PIVOT Interactives. This is a College Per Seat – One Term subscription. This license will cost you \$10, which is \$20 less than the lab manual ordinarily used. The class key is **73fd6e99** and can also be found on OnCourse. You will be given your own access code. You must be signed up for the correct course so that I can help you and great your progress. Labs must be completed within one week of assignment. **NO LATE LABS WILL BE ACCEPTED.** You are entering a world of deadlines and you might as well get used to them now.

III. Course Objectives and Outcomes: In addition to learning physics concepts in a more sensory and personal manner, students in this course will learn the elements of experimental analysis. Students will learn to present data in a clear fashion and to choose methods of analysis from which the desired quantities can be extracted. Graphical analysis and experimental error estimation will be frequently used. Students will discuss their results by clearly stating what was shown by the experiment, what was expected, and whether discrepancies fall within limits suggested by basic statistical analysis. Emphasis will be placed on attention to detail, critical analysis of results, and clear written communication.

IV. Evaluation and Grades:

Exact techniques of grading are still under review and shall be made available as soon as possible. In the meantime, the physics department grading level will be employed throughout the entire semester.

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| A | 86 – 100% | C | 56 – 60% |
| A- | 81 – 85% | C- | 51 – 55% |
| B+ | 76 – 80% | | |

V. Schedule and Policies:

A) Schedule of Experiments:

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| Week 1 | <u>Lab 1: An Introduction to Studying Motion: The Ping-Pong Ball Bazooka</u> |
| Week 2 | (copy of Lab 1) |
| Week 3 | <u>Lab 2: Dimensional Analysis (Pendulum Investigation)</u> |
| Week 4 | <u>Lab 3: Free Fall Five: Analyzing Motion of Objects in Free Fall</u> |
| Week 5 | <u>Lab 4: Modified Atwood's Machine</u> |
| Week 6 | <u>Lab 5: Friction</u> |
| Week 7 | <u>Lab 6: Hooke's Law</u> |
| Week 8 | <u>Lab 7a: Exploring Circular Motion</u> |
| Week 9 | <u>Lab 7b: Torque and the Human Knee Joint</u> |
| Week 10 | <u>Lab 8: Work and Energy Activity</u> |
| Week 11 | <u>Lab 9: Momentum and Energy Ratios During Collisions</u> |
| Week 12 | <u>Lab 10: Ballistic Simple Pendulum</u> |
| Week 13 | Thanksgiving Break |
| Week 14 | <u>Lab 11: Archimedes' Principle and Density of Precious Metals by Immersion</u> |
| Week 15 | NO LAB (maybe tying together any loose ends that might remain) |

Due each week: The previous week's Pivot Lab assignment

B) Policies:

Prompt and regular participation is expected and required. Plan to spend at least 1.5 hours for the lab session. Do not schedule conflicting activities.

Prepare ahead of time by reading, thinking, answering preliminary questions, and planning. Obtaining unexpected results is not a problem as long as they are recognized and discussed, but failure to follow instructions will result in significant grade penalties.

Answers to any preliminary questions which may be assigned by the instructor **are due online on OnCourse prior to beginning a following lab.** Completed labs are due in one week following assignment, no excuses, no mercy. Lab reports will be accepted up to one week late, with a grade reduction of one partial letter per day late. After one week, late reports will not be accepted. **Reasonable requests for extensions will only be granted for extenuating circumstances and if requested before the due date.**