PHYS 210 - General Physics I

- Base Groups
- Conservation of Energy

Environmental Studies Majors
Internship Presentations

Eric Edwards
Environmental Health and Safety Intern at Fiat Chrysler

Kayla Maynard
A comparison of small mammal abundance patterns in two wet meadow restoration sites

Arpan Paul
Foraging patterns of Gray and Fox squirrels in response to predator and non-predator odors

Science Seminar

hosted by
Natural and Health Sciences

November 18, 2019
Environmental Studies Program
4:00 – 5:00 PM
Flory Auditorium (SCIC 203)

EVERYONE is welcome!
ALL MAJORS, ALL YEARS
Snack Provided

Manchester University

BASE GROUPS

BGDG

If you were given an all-expenses paid trip anywhere in the world for a week you and a friend where would you go?

BGWS

RQ # 10!

FROM THE SYLLABUS …

Laboratory:

The laboratory is an essential and required component of this course. Please arrive at your lab section on time! You will need a bound quad-ruled lab notebook (*e.g.*, National 43-475; no spiral bound notebooks, please) for recording your raw lab data, analysis, calculations, graphing, and conclusions. As much as possible, keep your lab notebooks in the laboratory until after the final exam. You will find the use of a spreadsheet or other software valuable for plotting lab work; any such plots should be appropriately and neatly mounted in your lab notebook using clear tape or gluestick. Networked computers are available in the labs.

Before coming to your lab each week, you must complete an online PreLab quiz. These quizzes will be posted on the *Canvas* site for this course (accessible through the GP I Web Page) each Friday evening. You will also be required to take a Pre/Post Concept Evaluation for this course administered via *Canvas*. More details will be given out in class. There will be no lab the first week of classes.

A portion of your lab grade will be reserved for a formal laboratory paper. This will be a paper written in currently accepted scientific format that is a report on one of your laboratory experiments. The first draft will be due on Monday, 25 Nov 2019, and the final copy on Monday, 02 Dec 2019. More details on the paper and on the lab in general will be discussed at the first lab meeting (and are available on the course website).

FROM THE SYLLABUS …

Lab 10 – The ballistic Pendulum

Formal Laboratory Paper:

Download the rubric that will be used for grading (and critiquing) your lab paper by clicking here.

As mentioned in the syllabus, you will be required to submit one formal laboratory paper during the term. For this paper, I will choose one of the labs that we have done during the term and you will write it up as if you were going to submit it to a scientific journal for publication. The format expected is that typical of most scientific journals; for a good example, take a look at some articles in the *American Journal of Physics* in the library. A draft will be due at the beginning of class (1 PM) on Monday, 25 November 2019 and the final copy at the beginning of class (1 PM) on Monday, 02 December 2019. You must turn in your draft at with your final copy AND you must email me a copy of the document as a Microsoft Word file. This lab paper will constitute 10% of your lab grade.

Reports should be word-processed, double spaced, in 12-point font, clearly written, and well organized with Microsoft Word. They should adhere to standard scientific paper format. For examples, see a copy of **The American Journal of Physics** (we carry this journal in our library). You may also be interested in the Guidelines for Contributors at the **American Journal of Physics** Web site. In general, the report should consist of an abstract, an introduction, an explanation of the experimental technique, a presentation of the data, analysis of the data, and a discussion of the results. Divide the paper in to sections, as appropriate for your particular experiment. The paper should end with a well-formulated conclusion section. Be sure to write the abstract *after* you have written the rest of the report! All graphs must be produced with a spreadsheet or similar type software package. A well-formatted table is an excellent way to present raw data from your experiment. All graphics and diagrams should be digitally included in the paper. An analysis of the uncertainties in your experiment will be expected; report all data with appropriate error bars. Appearance and content are both very important; insure that your report is complete and professional. Please refrain from using any fancy report covers.

Here are some excellent links on scientific writing:

Bates College

University of Arizona

San Diego State University

For best results, have a classmate proofread your report!

MECHANICAL ENERGY CONSERVATION

Two equivalent perspectives on conservation of mechanical energy (of isolated system with only "conservative" force interactions):

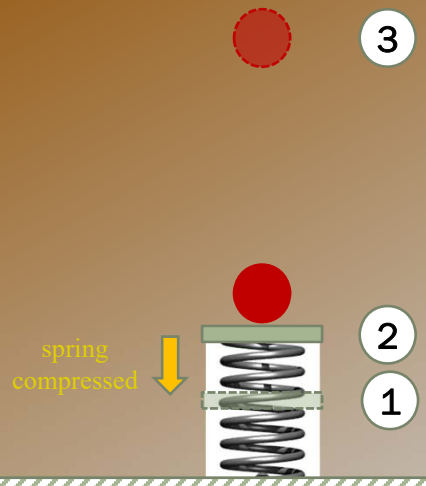
$$E_{mech1} = K_1 + U_1 = E_{mech2} = K_2 + U_2$$

OR

$$\Delta E_{mech} = \Delta K + \Delta U = 0$$

EXAMPLE

A spring compresses a distance $\Delta s = 10.0\ cm$ when a mass of $8.00\ kg$ is placed on it and the system is in static equilibrium. If the spring is compressed a distance of $40.0\ cm$ more and released, what is the speed of the mass as it passes through the equilibrium point and how high does it go?



Go 2 Seminar!