PH 201 (03, 04 & 08) College Physics I: Laboratory Syllabus

Fall 2016 ∘ Northern Michigan University

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Begin subject line with *PH 201-03/04/08:* -- Please use your actual lab section

Office Hours: M-F, 15:00 to 16:00, in West Science Building 2513. Other times by appointment

Class Meetings PH 201-04 [CRN: 80495]: Tues 10:00 to 12:50 in WS 2607

PH 201-08 [CRN: 81368]: Wed 11:00 to 13:50 in WS 2607

PH 201-03 [CRN: 80494]: Thurs 18:00 to 20:50 in WS 2607

Webpage: https://educat.nmu.edu

Required Text: The Physics department will provide documentation for each lab.

For Lab There is no additional required text for lab.

Required Materials:

One copy of each of the required printed lab material will be provided to the student by NMU Physics. Students will provide their own copy of the textbook, paper, **pencil**, eraser, and calculator (NOT a cell phone or laptop, an *actual* calculator). The student's NMU issued laptop will also be required for some of the lab activities.

Class Meetings:

Laboratory sections will meet at each student's officially scheduled place and time. Students are *only* permitted to attend sections for which they are *officially* registered; no exceptions. Make-ups for missed labs are *not* possible (see below for specifics on the attendance policy).

Food or drinks in any form (including chewing tobacco, gum, etc) and cell phone (or any other non-approved electronic gizmo) usage are *not* permitted in the lab room.

Grading:

Laboratory	
Quizzes:	40%
Lab Recaps:	30%
Lab work (e.g. charts, graphs, participation, etc)	30%
Total Lab Grade:	100%

Laboratory (lab work):

The laboratory portion will consist of working through the interactive exercises during the class time, which will include activities such as data collection, analysis and answering questions within each exercise. Overall topics include classical mechanics (motion, forces, work, energy, momentum, periodic motion). Performance in the laboratory portion is evaluated via instructor in-class observation and lab work to be submitted at the beginning of the following lab period.

Quizzes:

Quizzes will be administered in the beginning of each class and will cover the material from the previous lab period.

Lab Recaps:

A short typed statement discussing the highlights of the relevant laboratory exercise. Students are required to use the format provided by the instructor. Recaps that are hand written (i.e. not typed)

or follow any form or format other than what is specified by the instructor will not be accepted under any circumstances.

Participation:
Punctuality (i.e. in your seat and ready to begin by the scheduled start time), not leaving early, being on-task and maintaining a respectful attitude all contribute to the participation grade. Completing physics education research or department assessments (general pre-test, post-test or other surveys) may also count toward your participation grade.
Full credit for participation is earned by making a serious effort in completing the assigned activities regardless of the *accuracy* of the particular responses. Participation points will be lost if equipment is utilized in any form that is not related to the prescribed exercise, fail to take part in group work or are otherwise not on task. Violations of the lab and general class rules may result in dismissal for the class period, reduction in participation grade, forfeiture of any submitted work left incomplete due to the dismissal and, if necessary, reported to the appropriate authorities.

Attendance:
Attendance contributes directly to the participation grade as if one is absent one is not capable of participating in a given activity. Absences will be excused for officially sanctioned university events, illness (documentation may be required), court appearances (plaintiff, defendant, witness, juror -- documentation is required), family emergencies (at the discretion of the instructor and may require appropriate documentation). If something occurs that you feel should be grounds for being excused it is your responsibility to contact your instructor, in writing, PRIOR to the absence (if possible, or as soon as possible after the absence) to discuss the situation. Excused absences for situations beyond the purview of NMU policy are at sole discretion of the instructor, will be evaluated confidentially, on a case-by-case basis and confirmed in writing.
An excused absence does NOT necessarily excuse you from completing the work. Arrangements for a planned excused absence, if possible, should be finalized (with written confirmation between the student and instructor) no later than the Friday before the week for which the absence will occur. Otherwise, establish contact with the instructor as soon as reasonably possible.

ADA Statement
In compliance with the ADA and university policy
"If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Dean of Students Office at 2101 C. B. Hedgcock Building (227-1700 or disserv@nmu.edu). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines."

Religious Holiday
Pursuant to university policy, a student who intends to observe a religious holy day should make that intention known, in writing, to the instructor prior to an absence. A student who is absent from a class, exam or exercise for the observance of a religious holy day shall be allowed to complete an assignment or exam scheduled for that day within a reasonable time around that absence.

Academic Integrity
Section 2.3.1 of the NMU Student Handbook discusses scholastic dishonesty; all of which will be upheld in all aspects of this course. Academic dishonesty will not be tolerated.

Appropriate behavior:
Students are expected to behave in a respectful, considerate and courteous fashion in any activity related to this course. Rude, disrespectful or disruptive behavior will *never* be tolerated.

Physics 201 Schedule of Laboratories (Fall 2016)

	Experiment	Description
Week 1	Graphing	A paper and pencil laboratory designed to introduce the student to data reduction and graphical analysis.
Week 2	Vector Sum Laboratory	A laboratory designed to illustrate sumnation of vectors and practice vector sum skills (laptop required for printer installation)
Week 3	Constant acceleration	Determination of *g* through a constant acceleration experiment. Computer graphing analysis discussed. (Laptop Required)
Week 4	Projectile motion	A lab designed to test your skills at calculating the motion of a projectile in flight and determine its landing location.
Week 5	Force and acceleration	Using the relationship between force and mass to analyze a constant force system. (Laptop Required)
Week 6	Friction	Simple measurements to determine coefficients of friction (Laptop Required)
Week 7	Uniform Circular motion	Determination of centripetal force exerted on a rotating object. (Laptop Required)
Week 8	Conservation of energy	A challenging experiment using a very simple setup (Laptop Required)
Week 9	Impulse and momentum	A collision experiment to test the impulse-momentum theorem. (Laptop Required)
Week 10	Conservation of Momentum	Observation of momentum conservation with dynamics carts (Laptop Required)
Week 11	Torque Balance and Force Sum	Sum of torques (Laptop Required)
Week 12	Moment of inertia	Experimental determination of the moment of inertia of a rotating system by a constant accelerating force. (Laptop Required)
Week 13	Simple Harmonic motion	One of the most used systems in physics to represent regularly repeating systems. (Laptop Required)
Week 14	Archimedes' Principle	Using Archimedes' principle (and basics of fluid statics) to determine the density of various objects. (Laptop Required)