

PHYS 253 Lab Syllabus and Schedule Fall 2020

ALL course information is posted on Blackboard

PHYS 253 Lab is a **REQUIRED** part of PHYS 253, whose general syllabus is posted separately.

Lab Handouts - Available on Blackboard

The PHYS 253 lab sessions include a roughly 30-60 minute "Recitation Exercise", which will be available in a separate document on Blackboard. Please look at them in advance of the lab (this is required). Every student should have the corresponding handout handy at the time of each lab session.

Lab Sessions (Weekly)

The prevalent pandemic forces us to do all lab work virtually without the students ever visiting the lab physically. This is, of course, not ideal, but it's the best we can do under the extenuating circumstances. The way we plan to do this is as follows.

- You **MUST** attend each assigned lab session via a remote meeting app (Zoom/Teams/Kaltura ... TBD) in its entirety. Your TA will host the meeting. They will be available to answer your questions for the full duration of the lab.
- Attendance will be taken. There will be a pre-lab quiz based on the manual for that day's lab.
- Video recording of the TAs performing each experiment, with commentary, will be posted online on Blackboard ahead of each week. You are encouraged to watch the 10-15 minute video for the given week before your lab session, although you will be given time to watch it during the lab session.
- After the screening of the video, you will be given a full set of data (readings) from the experiment.
- Students will be grouped with up to 3 members per group. Each group will get their own unique data, which they must analyze on their own. They can ask questions to the TA, and the TA may decide to answer it either individually or to the entire section, but groups are not supposed to communicate among themselves during the session.
- Each group will examine the data to be sure it makes sense. If you run into any problem, the TA will be available to answer your questions and help you.
- For some experiments, you will be asked to perform "simulated" experiments. Don't worry, the TA will show you how to do it. The results of these simulated experiments will closely resemble real experiments. You will analyze your own unique data from these simulations as well.
- At the end of the session, all that will be left for you to do on your own is writing the lab report and submitting it on Blackboard.

Submission of Lab Reports (Weekly)

After the completion of a lab experiment, students will have one week to submit their lab reports on Blackboard, where it will be automatically checked for plagiarism using SafeAssign. Let your TA know ASAP if you have any trouble with the submission (good reason to finish early!). **It is your responsibility, not the TA's, to ensure that the lab report was received.** So, if there is any doubt that it was submitted, email the TA with a screen shot. **If you are not getting feedback and grades on your labs, email the TA and/or the professor ASAP.**

You must receive a minimum of 60% of the total possible points in the lab to pass the lab portion of PHYS 253. Failing the lab results in failing the entire PHYS 253 course.

Reports are due ONE week after the lab session and must be handed in to your TA **before the START** of the lab session

Late reports will have points deducted as follows:

- Each day late will be a 4% deduction, up until 2 weeks late. Reports handed in after the beginning of the next lab will already be counted as 1 day late.

- Reports submitted more than 2 weeks late will not be accepted

Missing a lab will result in 0 points. You can make up a lab IF you contact the lab TA PRIOR to the lab and get their approval for legitimate reasons like family emergency, illness. Such requests must be accompanied by appropriate official documentation, such as a doctor's note.

Grading of lab reports (out of 100 total possible points)

1. 15 points for attendance in the lab, which includes your score on the pre-lab quiz. To prepare for this quiz, you need only to carefully read the lab manual in advance and show up on time at the virtual lab. If you arrive late, you will not be able to take the short quiz, which is worth 10 of the 15 points (5 points for each of 2 questions). Missing the lab is an automatic deduction of 15 points. After discussion with your TA (and only with your TAs approval) you may still turn in the lab by getting data from one of your lab partners, but the maximum number of points may be reduced.
2. 15 points for Theory section.
3. 20 points for Raw Data Collection (recording the data you gathered, including any simulation, in your lab report,).
4. 50 points for Result (presentation and interpretation of data, conclusion) in your lab report.

LAB POLICIES

1. Be respectful of each other (this applies to Instructors, TA's and students). Follow the TAs instructions. TAs can deduct points if students behave in negligent or disruptive manners.
2. The instructor and the university reserve the right to modify, amend, or change the lab syllabus (course requirements, grading policy, etc.) as the curriculum and/or program require.
3. If you feel there was an error in the grading of a lab report, discuss your specific questions with your TA, and if you are still unsatisfied, please contact the instructor. It is your responsibility to bring this to the TA and/or the professor's attention as soon as possible; complaints received months after-the-fact or after final grades are in will be given much less weight than those brought to our attention immediately.
4. You are expected to remain in the virtual lab session until you are let out or until the time for your lab section finishes. Leaving early is considered as disruptive - if this is problematic, please discuss with your TA and/or the instructor in advance.
5. Academic Integrity: You should work together with your lab partners in taking and analyzing data, and you will find that discussing the experiment with your partners helps you to understand the results. However, you should record your own data, and the lab reports that you turn in must be your own work in your own words. You cannot copy or paraphrase ANY portion of your partner's reports, doing so will be considered plagiarism. SafeAssign will be used to help detect plagiarism. For more details on SafeAssign, see <https://www.niu.edu/blackboard/assess/safeassign.shtml>. Please refer to the section on Academic Misconduct at NIU: <https://www.niu.edu/conduct/academic-misconduct/index.shtml>

Lab Report Format/ Rules

- Lab reports MUST BE TYPED: hand written/scanned lab reports will NOT be accepted.
- Lab reports consist of a Data Collection and Observation sections, and a theory section. A full format of your lab reports are as follows (5 or 6 sections):

Section 1: Title and name

- a) Your name
- b) Date (when you did the lab)
- c) Names of your lab partners (be sure to spell the first and last names correctly)
- d) Lab section
- e) Title of the experiment that you are reporting on.

Section 2: Theory (Experimental Lab only)

- 1. State the physics theory, objectives and formulas that are explored in this lab using your own words.
- 2. Comment on how the results of your experiment compare to the theory/objective of the lab. One paragraph is sufficient.

Section 3: Raw data

Tables must have a title and appropriate units (meters, seconds, etc.). Example of a title:

Amplitude and Period as a function of Mass

Run	Mass (gram)	Amplitude (meter)	Period (second)
1	50	0.0020	30.0
2	100	0.0037	32.4
3	150	0.0069	31.9

Section 4: Result

- 1. Use Excel or an equivalent spreadsheet application, such as Google Sheets, to produce all graphs
- 2. Graphs must be titled with labels and units on the axes. Use captions wherever appropriate.
- 3. Show all equations (using equation editor in Word or the equivalent) that are used to produce the tables and graphs, and any “number crunching” that you do.

Section 5: Discussion

- 1. Answers to questions given in the lab manual. These answers should be a paragraph in length. Failure to write complete sentences and paragraphs with justification for your answers will result in point deductions. Each skipped question will also result in deductions.
- 2. Calculation of and/or discussion of errors.

Section 6: Conclusions

- 1. What was the objective of this lab? Was the theory from the lab manual and course verified, or not?
- 2. State whether you learned something useful, whether you think it was a success, or whether things could be improved in future iterations. This section can be as long or brief as you would like, but is required.

Lab Sections (all virtual)

Lab section	Time	TA name	TA e-mail
253-A	Th 9:00-11:50	Alec Lancaster	alancaster2@niu.edu
253-B	M 6:00-8:40	Tyler Labree	tlabree@niu.edu
253-C	Tu 9:00-11:40	Mark Mekosh	mmekosh@niu.edu
253-D	W 9:00-11:50	William Baker	wbaker5@niu.edu
253-E	Tu 3:00-5:50	Spencer Kelham	skelham1@niu.edu
253-G	Th 3:00-5:50	Spencer Kelham	skelham1@niu.edu
253-J	Tu 6:00-8:50	Tyler Labree	tlabree@niu.edu

Lab Schedule (subject to change)

Week #	Week start	Recitation	Lab
1	08/24/20	None	Introduction + FCI
2	08/31/20	Vectors	Skyscraper
3	09/07/20	None	TA lecture on how to write a proper lab report
4	09/14/20	Motion	Coin Toss
5	09/21/20	Motion contd.	Inclined Plane
6	09/28/20	Forces	Projectile Motion
7	10/05/20	Forces contd.	Pulley
8	10/12/20	Acceleration	Axle
9	10/20/20	Energy	Ballistics
10	10/26/20	Momentum	Collision
11	11/02/20	Angular momentum	Pendulum
12	11/09/20	None	Moment of Inertia, Part 1
13	11/16/20	None	Moment of Inertia, Part 2
	11/23/20	None	No lab - Thanksgiving break
14	11/30/20	None	FCI Post-test after lab finishes

TA Name	NIU email	NIU email alias	Phone	Sections
Baker, William	a1806348@mail.niu.edu	wbaker5@niu.edu	7088379000	D (W 0900)
Kelham, Spencer	a1904611@mail.niu.edu	skelham1@niu.edu	2609277801	E (Tu 1500), G (Th 1500)
Labree, Tyler	a1903706@mail.niu.edu	tlabree1@niu.edu	8599573397	B (M 1800), J (Tu 1800)
Lancaster, Alec	a1874483@mail.niu.edu	alancaster2@niu.edu	8153474593	A (Th 0900)
Mekosh, Mark	a1876510@mail.niu.edu	mmekosh@niu.edu		C (Tu 0900)