Class: Biophysics I Lab Meeting: TWH 1:00-3:00 Teacher-on-record: Dr. Jason Boyles
Teacher: Dovletgeldi Seyitliyev

The Physics lab course will consist of a number of experiments and meets twice a week for 2 hours. Read the syllabus (see below) before the first class. Lab will meet the first week of classes. During the first meeting, the Concept Test will be given and the exercise described in the next chapter "Igor-Pro and Equation-Writer" will be covered.

After successful completing this course, students will be able to analyze data and evaluate accuracy and precision, and will have an understanding of basic concepts in mechanics, laboratory techniques and equipment.

PHYS 232 Syllabus

Co-requisite lab for PHYS 231, Intro Physics and Biophysics 1

1. Topnet lists a "Teacher-on-record", however, teaching will be done by a Graduate Assistant (this is the "teacher").
2. Questions/Complaints/Problems: Talk to your Teacher first, but if no resolution can be reached contact Dr. Dobrokhotov, the Laboratory Director. Do not contact the Teacher-on-record as listed on Topnet. The role of the Teacher-on-Record is to mentor the Teacher. The role of the Lab-Director is to solve problems that may arise.
3. Your lab Manual will be given to you on the first day of class.
4. Grading
   Your grade will be determined by: Grade = 0.1xQuiz-average + 0.05xConcept Test + 0.2xFinal + 0.55xReport-average + 0.1xProject.
5. Quizzes
   A short quiz will be given during the first few minutes of each class. It is designed to check if you have read the write-up of the experiment that you will do that day. The quiz at the very first class is about the syllabus. You must read the syllabus before the first class. The purpose of these quizzes is that you come to class prepared. Experience has shown that students who do not prepare have difficulties finishing on time, whereas students who are well prepared are able to finish easily within the 2-hour class period.
6. Concept Test
   At the first class you will do a concept-test, and in week 14 you will do the same concept-test. This test is a multiple-choice-test on objectives & ideas you will learn in the lab class. You will not receive a copy of this test. You are not allowed to make notes during the test, but you are allowed to make notes about it during the first class after you hand it in. As a matter of fact, you SHOULD make notes about it then, so that you can study the concepts you did not understand. Your first score of the Concept Test will not count, but the instructor will keep it on record to mark your progress by comparing Concept Test #1 with Concept Test #2.
7. Final
   Final = test you will do during the last class involving taking and analyzing data, the final is given the week prior to class finals during the regularly scheduled lab meeting time.
8. Report = Long Report or Short Report
   a) Long Report consists of Abstract (10% of your grade on the report), Introduction (15%), Materials/Methods (15%), Results (45%) and Discussion+Questions (15%).
   b) Short Report consists of Abstract (20%), Results (50%), Discussion+Questions (30%).
9. In general, every other week you will hand in a Long report or Short report. Your teacher will tell you whether a Short or a Long report is due. Examples of each are given elsewhere in the manual. The grading rubric lists individual sections and the points for each item required for the report. If a section is not required for a specific report, the points are dismissed (The instructor will inform you of needed sections for specific labs).
10. Your Report is due in electronic form 48 hours before your next experiment, and you must send it by e-mail to your teacher or grader or hand in a hard copy. **The teacher or grader shall return your report with feedback & grade before your next class**. There will be a late penalty of 3xN points if the report is N hours late, if N <

33, but if N ≥ 33 your grade on that report will be zero. Late penalties may be waived in exceptional circumstances, but the only person who can waive the penalty is Dr. Boyles.

11. If you miss a lab with a valid excuse, you must do the experiment in another section (check Topnet for a schedule of all sections). Notify both your teacher and the teacher of the other section in advance. If you also know you will miss due to sporting events, conferences, etc, notify both teachers prior of the upcoming absence in order to make arrangements to make-up the lab.
12. Abstracts
    Abstract = a short summary of the experiment stating what you did, how you did it, and what you got. For example, if you measured g, the acceleration due to gravity (that is a result you will measure more than once), you should state your result, the value of your g ± SDM, mentioning the accuracy and the precision. An abstract must be understandable to any outsider. Therefore, a reference to a page number or any other specific information must not occur in a good abstract. Introduction = theory including equations/definitions/principles, illustrated with diagrams whenever appropriate. Materials/Methods = EITHER a concise and original summary of the description in the manual (copying or paraphrasing the manual will not be accepted) OR a useful suggestion of an improvement of some of the procedural descriptions. Results = Tables and graphs of the data + calculations of SDM, etcetera. Discussion = summary of the most important results, and an explanation of discrepancies and errors. Never write “human error”, because that has no meaning whatsoever except to say that you are human (cows may write in their reports “bovine error, mice may write “murine error”, but you should NOT write “human error”). An excellent error discussion may give us (meaning the teachers, the lab manager and the lab director) ideas what equipment to buy or how to change the write-up so that future students may get better results. Note that you will not be graded on how close you will get to the accepted result. It is not important that your data are bad as long as you can explain it. All graphs and fits should be prepared using Igor-Pro during class. Note that Igor-Pro does NOT give you the units of your slope or other fitting parameters and does NOT present the data in the correct number of significant figures. It is your job to know the units and know how to round the data using the correct number of significant figures.
13. Projects
    Project = extra work on an existing experiment. This extra work must be done when the experiment is scheduled. It will be necessary to plan ahead and be extremely well prepared for this experiment. Ideally, your extra work will lead to an improvement in the experiment in the future. You must discuss your plans for this project with your teacher or lab director not later than the 2nd week of the semester. Your teacher or lab director will also have suggestions for projects if you are not sure what to do. After completing the project you write a Long report about it. This report is due when the report for that experiment is due and must have an addendum describing your results and ideas for improving the experiment.
14. Pass/Fail Tests
    Pass/Fail tests: There will be 4 or 5 pass/fail tests. You can do these pass/fail tests as often as necessary. The teacher or the TA will proctor these tests. You must pass all these tests. Whenever you are done early you should ask the teacher or the TA permission to take one of these tests. Your teacher will give you more details. One of them is plotting and fitting data to a straight line using Igor-Pro. Almost every experiment requires you to do such a fit.
15. In compliance with university policy, students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) for this course must contact the Office for Student Disability Services in DUC A-200 of the Student Success Center in Downing University Center. Please DO NOT request accommmodations directly from the professor or instructor withour a letter of acommodation from this office.
16. Title IX: Western Kentucky University (WKU) is committed to supporting faculty, staff and students by upholding WKU’s Title IX Sexual Misconduct/Assault Policy (0.2070) at https://wku.edu/eoo/documents/titleix/wkutitleixpolicyandgrievanceprocedure.pdf and Discrimination and Harassment Policy (0.2040) at https://wku.edu/policies/hr_policies/2040_discrimination_harassment_policy.pdf. Under these policies, discrimination, harassment and/or sexual misconduct based on sex/gender are prohibited. If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to the Title IX Coordinator, Andrea Anderson, 270-745-5398 or Title IX Investigators, Michael Crowe, 270-745-5429 or Joshua Hayes, 270-745-5121.

17. Please note that while you may report an incident of sex/gender based discrimination, harassment and/or sexual misconduct to a faculty member, WKU faculty are “Responsible Employees” of the University and MUST report what you share to WKU’s Title IX Coordinator or Title IX Investigator. If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU’s Counseling and Testing Center at 270-745-3159.
