

# **General Physics Laboratory PHYS 131L**

## **Professor**

Dr. Jared Workman

## **Labs**

003 CRN 24602

WS 214 Thu 3:30-5:15

## **Welcome to Physics 131, Lab**

This syllabus is your guide to class policies and procedures as well as a tool for planning. Each student is encouraged to work with the instructor and their peers. The general objective for each student in this course is to learn the fundamentals of Newtonian Mechanics in a hands on, laboratory based setting.

Physics can be a very daunting subject when first encountered, the notions can appear strange and different students learn in different ways. If you do not understand something please come by and ask me for more help. You are also encouraged to work with you peers.

### **What to look for in this syllabus**

- How to contact me
- Evaluation (grades)
- Lab Policies
- Resources for student assistance
- Student Conduct
- Guaranteed Transfer

### **How to Contact Your Instructor**

**Visit my office:** WS 230C

**Office Hours:** Mon/Wed/Fri 10:00-11:00, Thu 1:30-3:30

**Leave me a message at:** (970)-248-1327

**Email me at:** <mailto:jworkman@coloradomesa.edu>

### **Evaluation**

Grades will be assigned as follows:

Excellent	A	> 90%
Good	B	80%-90%
Average	C	70%-80%
Deficient	D	60%-70%
Failing	F	< 60%

I can be contacted at any time to give you an update of your current grade. You are allowed to miss one lab, the rest must be completed during the lab period. If you know you will be absent contact me before hand to make arrangements to take the lab at another instructor's scheduled time.

Your grade will be the arithmetic average of the lab write-ups.

You may drop one lab. After the first missed lab each following missed lab reduces your final grade by 10% making it almost impossible to pass the course with 4 missed labs. You will be given the opportunity to make up a missed lab during the week the lab is being performed IF another instructor has space and time.

### **Lab Policies**

The main goal of lab is to help you learn physics by getting hands-on experience doing experiments and exercises related to topics discussed in class. Lab will meet each week during the semester and attendance is mandatory. If you must miss a lab, contact your lab instructor before missing lab to schedule a make-up. Lab make-ups are dependent on another instructor having the space to accommodate you. If none exists the lab **may** be waived if the circumstances requiring you to miss it are excused by the instructor.

Required materials for lab include a calculator.

Labs will involve doing a more or less standard physics experiment. For these you will pass in a brief lab report, including data, calculations, figures, and results.

Labs are designed to be completed during the 2 hour lab period, usually no pre-reading or after lab work (other than the write up) will be required. After each lab you will pass in a brief lab report or completed exercise at the beginning of the following lab. These will be graded and passed back the following week. Your final grade will be based on an average of these grades and attendance.

Labs will closely follow topics covered in the course, with a variety of labs investigating the motion, force, energy, etc.

You will be given handouts for most labs and will be expected to complete them during the period and create the write-up after the lab is over. Do not attempt to do the write up during lab.

You will be required to work with a partner. You should work together to produce the write up. If your partner is not doing their share please tell me and I will re-assign or separate you.

Labs which are not stapled will be penalized 10%. Lab write ups which do not have units EVERYWHERE will be penalized a further 15%.

There is a standard lab write up format which will be demonstrated in the first lab, if you fail to follow this format you will be penalized 25% of your grade for that lab. Lab penalties are cumulative so a lab write up with no staples, units, and the wrong format will suffer a 50% penalty.

### **Student Success at CMU**

[http://www.coloradomesa.edu/academics/documents/StudentSuccessatCMU\\_WCCC.pdf](http://www.coloradomesa.edu/academics/documents/StudentSuccessatCMU_WCCC.pdf)

### **Resources for Students**

**Your instructor:** I am here to help you learn; please let me know if you are having trouble with anything! My contact information is at the top of the syllabus, or you can talk to me after class or during my office hours.

**The Course Website:** Contains all class information and several helpful (and some just fun) links.

**Tutorial Learning Center:** HH113 <http://www.coloradomesa.edu/tutoring/index.html>

**Students With Disabilities:** Students with disabilities have certain privileges extended to them including but not limited to extended exam time. It is your responsibility to contact the EAS (Educational Access Services) At Houston Hall, Room 108, 1-970.248.1856 <http://www.coloradomesa.edu/eas/links.html> and bring me the necessary forms for any special dispensations received.

### **Class Policies**

All students expected to follow the Student Code of Conduct. Violations of the Student Code of Conduct may result in disciplinary action. The code of conduct is here [http://www.coloradomesa.edu/academics/policies/academic\\_integrity.html](http://www.coloradomesa.edu/academics/policies/academic_integrity.html). Some specific items that are important in this class are:

1. Create and sustain a respectful learning environment. Allow your fellow students to learn and the instructor to teach. Disrespectful, disruptive or abusive behavior toward an individual or group is unacceptable.
2. Due to the rapid pace of this course, late work is generally not accepted. In the event of illness, family emergency or other special circumstances, you must contact me BEFORE the deadline to make arrangements for late work or early tests. At the instructor's discretion, you may then turn in the work within 1 week of the deadline.
3. I encourage participation, ask questions, email me, ask for reading material for your own edification after the course is over, provide me with feedback. I am not directly grading you on participation but it will play a factor in the end of the semester grade. This is an interesting topic and I want you to be involved in learning it.
4. Turn off your cell phone.
5. No smart phones, ipads, earphones, etc during class time, no texting or web browsing. You all get one freebie phone ring then I may ask you to leave.
6. Laptops are fine for note taking but please do not web surf during class. If I find you surfing the web you forfeit your laptop privileges. Students using laptops are required to sit at the front of the class.
7. I will turn any students I find cheating, copying each other's work, or plagiarizing material over to the department chair, no exceptions. If you are unsure if something is prohibited, ask me. You are encouraged to work together but please do not hand in identical assignments, they will not be accepted.
8. Please arrive to class on time and wait until class is over to leave. I reserve the right to tell students to leave who are tardy. I will also penalize students who leave class early UNLESS I am forewarned. I will not go back over the lab for students who arrive late.
9. I do not track attendance however I am aware who is and is not coming to class. If you choose not to come to class please do not come to me asking why your grade is suffering.
10. Finally – YOU are responsible for knowing what is due when. I will not make students who miss material aware of what was missed. If you aren't sure of what or when something is due the onus is on you to find out.

### **Important dates:**

<http://www.coloradomesa.edu/registrar/dates.html>

### **Work Load Expectations:**

An undergraduate student should expect to spend on this course a **minimum** of one hour outside the classroom for every two hours in the lab. More details are available from the faculty member or department office and in CMU's Curriculum Policies and Procedures Manual.

Disclaimer: The instructor reserves the right to modify this syllabus and schedule.

## **Guaranteed Transfer**

The Colorado Commission on Higher Education has approved [Phys 132I] for inclusion in the Guaranteed Transfer (GT) Pathways program in the GTSC1 category. For transferring students, successful completion with a minimum C- grade guarantees transfer and application of credit in this GT Pathways category. For more information on the GT Pathways program, go to <http://higher.ed.colorado.gov/Academics/Transfers/gtPathways/curriculum.html>.

### Content Criteria:

This course should provide students with the opportunity to / Students should be able to:

- a) Develop foundational knowledge in specific field(s) of science.
- b) Develop an understanding of the nature and process of science.
- c) Demonstrate the ability to use scientific methodologies.
- d) Examine quantitative approaches to study natural phenomena.

The laboratory (either a combined lecture and laboratory, or a separate laboratory tied to a science lecture course) content of a GT Pathways science course (GT-SC1): Students should be able to:

- a) Perform hands-on activities with demonstration and simulation components playing a secondary role.
- b) Engage in inquiry-based activities.
- c) Demonstrate the ability to use the scientific method.
- d) Obtain and interpret data, and communicate the results of inquiry.
- e) Demonstrate proper technique and safe practices.

### Student Learning Outcomes:

#### ***Inquiry and Analysis Competency***

Inquiry is a systematic process of exploring issues/objects/works through the collection and analysis of evidence that results in informed conclusions.

*Student Learning Outcomes (SLOs): Students should be able to:*

1. Select or Develop a Design Process
  - a. Select or develop elements of the methodology or theoretical framework to solve problems in a given discipline.
2. Analyze or Interpret Evidence
  - a. Examine evidence to identify patterns, differences, similarities, limitations, and/or implications related to the focus.
  - b. Utilize multiple representations to interpret the data.
3. Draw Conclusions
  - a. State a conclusion based on findings.

## ***Quantitative Literacy Competency***

Competency in quantitative literacy represents a student's ability to use quantifiable information and mathematical analysis to make connections and draw conclusions. Students with strong quantitative literacy skills understand and can create sophisticated arguments supported by quantitative evidence and can clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc.).

*Student Learning Outcomes (SLOs): Students should be able to:*

1. Interpret Information
  - a. Explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).
  
2. Represent information
  - a. Convert information into and between various mathematical forms (e.g., equations, graphs, diagrams, tables, words).