Principles of Physics, GS 104 Syllabus

General Information

Instructor Information and Availability

Instructor name: Heather Hill
E-mail address: hillh@linnbenton.edu
Monday 11 – 1pm and Thursday 11 – 1pm; See Calendar Link in Moodle
(available by appointment)
Office: https://linnbenton.zoom.us/my/physics.heather, Password: Physics

Science Help Desk Hours: Monday 1 – 3pm and Thursday 1 – 3pm
Zoom Link: https://linnbenton.zoom.us/j/96043929596, Password: Science

Course Information

CRN: 33728; Section: 01
Scheduled Lecture days and time: 8:30am – 9:50am on Monday and Wednesday (Lecture)
Scheduled on campus Lab time: 8am – 9:50am on Friday (Lab)
Number of credits: 4
Classroom: https://linnbenton.zoom.us/j/98551549268; Password: GS104

Prerequisites:

MTH 075 Variables and Linear Equations or equivalent with a grade of "C" or better.

Course Materials

Required:

- GS104 Lab Packet
- Computational Lab Notebook (**Blueline** or **Composition**)

Optional:

- Textbook: *The Physics of Everyday Phenomena*, 7th ed., by W. Thomas Griffith

Plan for the term due to COVID-19:

I plan to hold class remotely for lectures and in-person/on-campus for labs. I will use synchronous teaching utilizing Moodle and Zoom. Any teaching done synchronously will be recorded in the event you are unable to “attend” class. I do hope to connect with each of you at least once per week throughout the term. I understand that it may look different for different individuals.

Course Description

A survey course that will introduce you to concepts in physics, without diving deep into the mathematics. The purpose of this course is to give you a general understanding of physics, as well is encouraging further interest in physics.

My favorite topics within physics are acoustics, biophysics (breast cancer cell research), physics education research (PER) and historical physics. You can ask me about Schrödinger's cat, the Michelson Interferometer and the luminiferous æther, marimba resonator and bar construction, microtumors or spheroids, single photon confocal microscopy and multiphoton microscopy.

Student Learning Outcomes

1. Describe and apply the process of scientific inquiry.
2. Solve problems using quantitative methods.
3. Use a variety of tools to collect data related to physical phenomena.
4. Analyze data and present conclusions from experiments related to physical phenomena.
5. Describe motion and forces using appropriate language and diagrams.
6. Describe and use the concept of conserved quantities to solve problems.
7. Solve conceptual problems related to two additional topics in physics from such areas as: waves and oscillations, thermodynamics, electricity and magnetism, and special relativity.

Class Policies

Class Format

The class will be highly interactive. Traditional lecture, where the instructor will introduce physical laws, ideas, and problem-solving techniques, will be combined with 'studio,' where the students will work on a given problem in groups using a shared whiteboard.

Behavior and Expectations

You are held accountable to the Student Code of Conduct, which outlines expectations pertaining to academic honesty (including cheating and plagiarism), classroom conduct, and general conduct.

Use of Cell Phones

Phones are expected to be silenced and put away during class.

Testing

- Tests are taken individually and are closed book unless told otherwise.
- If you know you will be absent on a test day please contact me ahead of time to schedule a make-up in the Student Assessment Center in RCH-111.
- Once tests are returned to the class they cannot be made up.
- The final exam is currently scheduled for Wednesday, March 16th.

Grading:

Midterms:	30%
Final:	20%
Homework:	20%
Lab/Activities:	20%
Journal:	5%
Participation:	5%

Grades:

A	100 – 90%
B	89 – 80%
C	79 – 70%
D	69 – 60%
F	59 – 0%

Exams: Due to the nature of physics, all exams are cumulative. There will be two midterm exams given and one final exam. You are permitted to create a reference sheet to be used during each exam. Details will be explained in lecture.

Homework: There will be a weekly homework assignment posted. Homework must be written up and submitted to Moodle each week. Do not attempt to do all the homework the night before it is due as you will likely not be able to finish. **I will drop your lowest score.**

Labs: Laboratory work is important in any science class. The best way to get to know the Universe is to go up and poke and prod it to see how it reacts back (within reason). You will need to purchase a lab notebook from the bookstore in which to keep track of your experimental work. Lab notebooks will be handed in to be graded the class period following the lab. The lab will be written up by each student and submitted to Moodle. **Labs cannot be made up but I will drop your lowest score.**

Since labs are in-person this term, we have a mask requirement while on campus. From Temporary Administrative Rule No. 5095-07:

Wear a mask or face covering indoors at all times while on campus. Your mask or face covering must be properly worn (fully covering nose and mouth and tight-fitting). Mesh masks, face shields, or face covering that incorporates a valve designed to facilitate easy exhalation are not acceptable. If you have a medical condition or a disability that prevents you from wearing a mask or cloth face covering, you must obtain an accommodation from CFAR (Center for Accessibility Resources) to be exempt from this requirement. State guidelines do not limit class size. Physical distancing accommodations can be made upon request and cleaning supplies are also available.

Journals: At the end of each week, I would like you to reflect upon the concepts we have discussed in class, the labs we performed, and the activities you engaged in. Journals will be submitted in Moodle and will be due on Monday by midnight. Attachments can be uploaded through the journal feature on Moodle. **100 word minimum.**

In whatever way suits your artistic or methodological mind, keep a journal of how the physics relates to **your** life. You can draw a picture (and upload it), write a traditional journal entry, share a science/physics YouTube video and describe what you learned from it, find a quote and tell me how it relates to the aspect you learned, etc… Make this **yours**.

The goal of the journal is to help bridge the time between class meetings and keep the conversation between you and me going. You can even tell me what is going well and what is going terribly.

Participation: I would like to encourage you all to be present and participate for this class. To hold you accountable, I am requiring attendance to a live Zoom session **once per week**. I would absolutely love it and highly recommend that you attend more, but at the bare minimum, I stand at once per week. For success, I believe more meetings and contact with instructor and peers is necessary, which is why I have scheduled the two additional meeting times.

If you are absolutely not able to make a live session throughout the week, please make an individual appointment with me via Office Hours. This will serve as a weekly check-in to make sure everything is going alright and you are staying on track.
You are responsible for double checking my attendance input on Moodle to make sure we both have you down for your weekly attendance. **I will drop one week of attendance.**

Calculator Policy: Students may use **any calculator** (that is not a cell phone). However, a calculator is not required for this course.

Incomplete grades (IN) will only be considered if a student has talked to me in advance, and a signed agreement between the student and myself is completed. IN grade are assigned only if the student has a good reason for making the request, has only the minority of coursework to complete, and has scored a C or better on work that has been submitted.

Late Assignment Policy

No work can be made up after it is returned to the class. Late homework is not accepted (once the assignment solutions have been posted or grades returned to all students). **One lab and one homework will be dropped.**

College Policies

LBCC Email and Course Communications

You are responsible for all communications sent via Moodle and to your LBCC email account. You are required to use your LBCC provided email account for all email communications at the College.

Disability and Access Statement

LBCC is committed to inclusiveness and equal access to higher education. If you have approved accommodations through the Center for Accessibility Resources (CFAR) and would like to use your accommodations in this class, please talk to your instructor as soon as possible to discuss your needs. If you believe you may need accommodation but are not yet registered with CFAR, please visit the CFAR website at www.linnbenton.edu/cfar for steps on how to apply for services or call 541-917-4789.

Statement of Inclusion

To promote academic excellence and learning environments that encourage multiple perspectives and the free exchange of ideas, all courses at LBCC will provide students the opportunity to interact with values, opinions, and/or beliefs different than their own in safe, positive and nurturing learning environments. LBCC is committed to producing culturally literate individuals capable of interacting, collaborating and problem-solving in an ever-changing community and diverse workforce.

Title IX Reporting Policy

If you or another student are the victim of any form of sexual misconduct (including dating/domestic violence, stalking, sexual harassment), or any form of gender discrimination, LBCC can assist you. You can report a violation of our sexual misconduct policy directly to our Title IX Coordinator. You may also report the issue to a faculty member, who is required to notify the Coordinator, or you may make an appointment to speak confidentially to our Advising and Career Center by calling 541-917-4780.

Campus Police/Emergency Resources

You may review emergency services and resources at the LBCC Public Safety website. Campus Safety can be reached using the 'Code 2' button on any campus phone or by dialing x411 on campus or (541) 917-4440 off campus. Dial 911 for off campus emergencies.

Campus Resources

Learning Center

The Learning Center provides academic support and a comfortable place to study. It is located on the second floor above the Library. It also provides free tutoring services for all classes. Discord: https://discord.gg/geMqSqV

Library

Computers and printing available.

Science Help Desk

The Science Help Desk is located in the atrium on the first floor of Madrone Hall and is manned 20 hours per week. (https://www.linnbenton.edu/student-services/library-tutoring-testing/learning-center/science-support.php)

Roadrunner Resource Center

Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact the Roadrunner Resource Center for support (Resources@linnbenton.edu, 541-917-4877, or visit the website https://www.linnbenton.edu/student-services/other-resources/roadrunner-resource-center.php). The office can help students get connected to resources to help. Furthermore, please notify me if you are comfortable in doing so. This will enable me to provide any resources, knowledge or connections that I may possess to help aid.

Linn-Benton Lunch Box

The LB Lunch Box provides an emergency supply of food for students in need. https://www.linnbenton.edu/student-services/other-resources/lunchbox.php

Other Help & Resources

Students with Young Children; Housing Information; Transportation options
https://www.linnbenton.edu/student-services/other-resources/index.php

Other due to COVID-19:

The college has an amazing FAQ page about how the term will work (and how to access basic needs resources, such as food and rent if you need them).

If you do not have access to a computer, call the LBCC library at 541-917-4630. If you do not have internet access, there are some options listed under the category of "Staying Successful in Your Classes."

I understand that many of you have not taken an online course before or have limited experience since spring 2020. I have never taught an online course before spring 2020! I will be extremely flexible and willing to help you in any way I can. My goal is to find a way for all students to succeed!

A note on Zoom: I know not everyone will be able to participate, but I hope many of you will. (It is okay if you have kids at home or pets!) Zoom uses your computer (or phone) camera and audio, so you can see me and other students. In this time of isolation, Zoom can really connect us and help to develop a class community. To get started with Zoom, all you need to do is go here, and sign in with your LBCC email and password. This will create your Zoom account automatically. Your first use of Zoom will require a one-time download. The Zoom mobile app works similarly.

Changes to the Syllabus

I reserve the right to change the contents of this syllabus due to unforeseen circumstances. You will be given notice of relevant changes in class, through a Moodle Announcement, or through LBCC e-mail.

Note: Changes are much more likely to occur this term due to troubleshooting new solutions for labs and activities in a science classroom. I will do my best to not change things around too much, but please be warned and flexible if things do need to change. My expectations for you are highly relaxed due to the many changes and I ask for the same in return.

GS 104 Tentative Schedule

Week	Monday	Wednesday	Friday
1	Jan 3rd **Intro** **Chapter 1, pg 1-13** **Appendix A**	Jan 5th **Describing Motion** **Chapter 2, pg 18-34**	Jan 7th **Lab 1: Measurement, Scientific Notation, Scientific Method** **HW #1 Due**
2	Jan 10th **Motion Diagrams** **Lab 1 Due/Journal 1 Due**	Jan 12th **Pos, Vel, Accel**	Jan 14th **Lab 2: Pos, Vel, Accel** **HW #2 Due**
3	Jan 17th **MLK Day** **No Class**	Jan 19th **Intro to Gravity** **Falling Objects** **Chapter 3, pg 38-48** **Lab 2 Due/Journal 2 Due**	Jan 21st **Lab 3: Gravity** **HW #3 Due**
4	Jan 24th **Falling Objects** **Chapter 3, pg 38-48** **Lab 3 Due/Journal 3 Due**	Jan 26th **Intro to Projectile Motion** **Projectile Motion** **Chapter 3, pg 48-54**	Jan 28th **Lab 4: Projectile Motion PhET** **HW #4 Due**
5	Jan 31st **Intro to Forces** **Exam Review** **Lab 4 Due/Journal 4 Due**	Feb 2nd **Exam Review** **Exam 1**	Feb 4th **Lab 5: Projectile Motion**
6	Feb 7th **Forces and Newton's Laws** **Chapter 4, pg 60-74** **Lab 5 Due/Journal 5 Due**	Feb 9th **Forces and Newton's Laws** **Intro to Energy** **Chapter 6, pg 103-118**	Feb 11th **Lab 6: Forces and Energy** **HW #5 Due**
7	Feb 14th **Work and Energy** **Chapter 6, pg 103-118** **Lab 6 Due/Journal 6 Due**	Feb 16th **Work and Energy**	Feb 18th **Lab 7: Conservation of Energy** **HW #6 Due**
8	Feb 21st **Presidents Day** **No Class**	Feb 23rd **Intro to Momentum and Impulse** **Momentum and Impulse** **Chapter 7, pg 125-138** **Lab 7 Due/Journal 7 Due**	Feb 25th ****Lab will be Remote**** **Exam Review** **Exam 2** ****No In-Person Lab!****
9	Feb 28th **Momentum and Impulse** **Chapter 7, pg 125-138** **Journal 8 Due**	March 2nd **Momentum and Impulse** **Intro to Pressure and Density(?)**	March 4th **Lab 8: Conservation Laws** **HW #7 Due**
10	March 7th **Behavior of Fluids** **Chapter 9, pg 171-186** **Lab 8 Due/Journal 9 Due**	March 9th **Pressure and Density**	March 11th **Lab 9: Pressure and Density** **HW #8 Due**
11	March 14th **(Exam Review?)**	March 16th **Final Exam** **8am - 9:50am** **Lab 9 Due/Optional Journal 10 due**	March 18th