

# Principles of Physics, GS 104 Syllabus

## General Information

### Instructor Information and Availability

Instructor name: Heather Hill

E-mail address: [hillh@linnbenton.edu](mailto:hillh@linnbenton.edu)

Office hours: Tuesday 1 – 2pm and Friday 10am – 12pm; See Calendar Link in Moodle (available by appointment)

Office: <https://linnbenton.zoom.us/my/physics.heather>, Password: Physics

Science Help Desk Hours: Monday 2 – 4pm and Thursday 11 – 1pm

Zoom Link: <https://linnbenton.zoom.us/j/96043929596>, Password: Science

### Course Information

#### Morning Section

CRN: 40331; Section: 01

Scheduled days and time: 8am – 9:20am on Wednesday and Friday (Lecture)

Added Optional Open Lab time: 8am – 9:20am on Monday (Lab)

Number of credits: 4

#### Afternoon Section

CRN: 44752; Section: 02

Scheduled days and time: 12pm – 1:20pm on Wednesday and Friday (Lecture)

Added Optional Open Lab time: 12pm – 1:20pm on Monday (Lab)

Number of credits: 4

Classroom: <https://linnbenton.zoom.us/j/91068947446>; Password: GS104

### Prerequisites:

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

### Course Materials

Optional:

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

## **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 as 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.

## **Plan for the term due to COVID-19:**

I plan to continue to hold class as scheduled remotely. I will use both synchronous and asynchronous teaching utilizing Moodle, Zoom, and Gradescope. Any teaching done synchronously will be recorded in the event you are unable to "attend" class. It is also possible that my style will shift as we work together in this new learning environment. 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.

## **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 Monday, June 7th.

## 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 Gradescope 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).

Each week, labs will provide students with simulations and questions that they will solve/understand using relevant physics. The lab will be written up by each student and submitted to Gradescope. **I will drop your lowest score.**

**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 Friday 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. **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](http://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](mailto: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 term. I have never taught an online course before spring term! 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
<b>1</b>	March 29th	March 31st <b>Intro Chapter 1, pg 1-13 Appendix A</b>	April 2nd <b>Faculty Inservice Day No Classes</b>
<b>2</b>	April 5th <b>Lab 1: Measurement, Scientific Notation, Scientific Method</b>	April 7th <b>Describing Motion Chapter 2, pg 18-34</b>	April 9th <b>Motion Diagrams</b>  HW #1 Due/Journal 1 Due
<b>3</b>	April 12th <b>Lab 2: Pos, Vel, Accel The Moving Man</b>  Lab 1 Due	April 14th <b>Pos, Vel, Accel Intro to Gravity(?)</b>	April 16th <b>Falling Objects Chapter 3, pg 38-48</b>  HW #2 Due/Journal 2 Due
<b>4</b>	April 19th <b>Lab 3: Gravity</b>  Lab 2 Due	April 21st <b>Gravity Intro to Projectile Motion(?)</b>	April 23rd <b>Projectile Motion Chapter 3, pg 48-54</b>  HW #3 Due/Journal 3 Due
<b>5</b>	April 26th <b>Lab 4: Projectile Motion</b>  Lab 3 Due	April 28th <b>Projectile Motion Intro to Forces(?)</b>	April 30th <b>Exam Review Exam 1</b>  HW #4 Due/Journal 4 Due
<b>6</b>	May 3rd <b>Lab 5: Forces and Energy</b>  Lab 4 Due	May 5th <b>Forces and Newton's Laws Chapter 4, pg 60-74</b>	May 7th <b>Energy Chapter 6, pg 103-118</b>  Journal 5 Due
<b>7</b>	May 10th <b>Lab 6: Conservation of Energy</b>  Lab 5 Due	May 12th <b>Energy Chapter 6, pg 103-118</b>	May 14th <b>Work and Energy Chapter 7, pg 125-138</b>  HW #5 Due/ <b>NO Journal Due</b>
<b>8</b>	May 17th <b>Lab 6 Cont...</b>  Lab 6 Task 1 Due	May 19th <b>Work and Energy Exam Review</b>	May 21st <b>Exam Review Exam 2</b>  HW #6 Due/Journal 6 Due
<b>9</b>	May 24th <b>Lab 7: Conservation Laws</b>  Lab 6 Task 2 Due	May 26th <b>Momentum and Impulse Chapter 7, pg 125-138</b>	May 28th <b>Momentum and Impulse</b>  HW #7 Due/Journal 7 Due
<b>10</b>	May 31st <b>Lab 8: Archimedes' Principle [Sink or Swim]</b> Lab 7 Due on Tuesday due to Memorial Day	June 2nd <b>Behavior of Fluids Chapter 9, pg 171-186</b>	June 4th <b>Pressure and Density Exam Review</b>  HW #8 Due/Journal 8 Due
<b>11</b>	June 7th <b>Final Exam</b>  Lab 8 Due/Optional Journal 9 due	March 17th	March 19th