

Principles of Physics, GS104 Syllabus

General Information

Instructor Information and Availability

Instructor name: Heather Hill

E-mail address: hillh@linnbenton.edu

Office hours: Monday 1 – 3pm (Help Desk), Thursday 1 – 3pm (Help Desk), and
Friday 10 – 12pm (or available by appointment)

Office number: MH 111

Course Information

CRN: 33728; Section: 02

Scheduled time and days: 8:30am – 9:50am on M/W, 8am – 9:50am on F

Number of credits: 4

Classroom: MH 106

Prerequisites:

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

Course Materials

Required:

- Textbook: *The Physics of Everyday Phenomena*, 7th ed., by W. Thomas Griffith
- GS104 Lab Packet
- Computational Lab Notebook (**Blueline** or **Composition**)

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.

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 Wednesday, March 18, from 8am – 9:50am in MH 106.

Grading:

Midterms:	30%
Final:	20%
Homework:	20%
Lab:	25%
Journal:	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. The first midterm will be individual, written exam for 60 minutes. The second midterm will be part written exam (30 minutes) and part lab practical.

Homework: There will be a weekly homework assignment posted. Homework must be written up and brought to class 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. **Labs cannot be made up but 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. 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, write a traditional journal entry, find a quote and tell me how it relates to the aspect you learned, etc..... Make this **yours**. Journals will be submitted for a quick review on Mondays. You are welcome to split your lab notebook in half to have your journal in the second half.

Calculator Policy: Students may **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. Labs cannot be made up. 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 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.

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.

Single Stop

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 Single Stop Office for support (singlestopatLBCC@linnbenton.edu, 541-917-4877, or visit the website <https://www.linnbenton.edu/current-students/student-support/Single-Stop-at-LBCC/>). 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/current-students/involvement/institutional-equity-and-student-engagement/student-resources/lb-lunch-box.php>

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.

Science Help Desk Schedule for Winter 2020
 (First Floor of Madrone Hall in the Atrium Area)

January 7 – March 13

TIME	MON.	TUE.	WED.	THUR.
9:00 AM	Russell Chemistry, Physics, Astronomy, Geology (9 – 12)	Hannah Chemistry, Physics (9 – 11)	Russell Chemistry, Physics, Astronomy, Geology (9 – 12)	
10:00 AM				
11:00 AM				
12:00 PM		Russell Chemistry, Physics, Astronomy, Geology (12 – 3)		Russell Chemistry, Physics, Astronomy, Geology (12 – 1)
1:00 PM	Heather Physics (1 – 3)			Heather Physics (1 – 3)
2:00 PM			Shawn Chemistry, Physics (2 – 4)	
3:00 PM				
4:00 PM				

GS 104 Tentative Schedule

Week	Monday	Wednesday	Friday
1	Jan 6th Intro Chapter 1, pg 1-13 Appendix A	Jan 8th Describing Motion Chapter 2, pg 18-34	Jan 10th Lab 1: Pos, Vel, Accel HW #1 Due
2	Jan 13th Motion Diagrams Lab Notebooks Due/Journal 1 Due	Jan 15th Falling Objects Chapter 3, pg 38-48	Jan 17th Lab 2: Gravity HW #2 Due
3	Jan 20th MLK Day No Class	Jan 22nd Projectile Motion Chapter 3, pg 48-54 Lab Notebooks Due/Journal 2 Due	Jan 24th Projectile Motion Projectile Motion PhET HW #3 Due
4	Jan 27th Newton's Laws Chapter 4, pg 60-74 Journal 3 Due	Jan 29th Forces Forces PhET	Jan 31st Lab 3: Projectile Motion HW #4 Due
5	Feb 3rd Forces Lab Notebooks Due/Journal 4 Due	Feb 5th Exam Review	Feb 7th Exam 1 Energy Conservation PhET
6	Feb 10th Energy and Oscillations Chapter 6, pg 103-118	Feb 12th Energy and Oscillations Work	Feb 14th Lab 5: Conservation of Energy HW #5 Due
7	Feb 17th Presidents' Day No Class	Feb 19th Momentum, Impulse, Rot Motion* Chapter 7, pg 125-138 Chapter 8, pg 146-163 Lab Notebooks Due/Journal 5 Due	Feb 21st Momentum and Impulse HW #6 Due
8	Feb 24th Lab 6: Conservation Laws	Feb 26th Exam Review Exam 2	Feb 28th Lab Exam Lab Notebooks Due/Journal 6 Due
9	March 2nd Behavior of Fluids Chapter 9, pg 171-186	March 4th Pressure and Density	March 6th Lab 7: Pressure and Density HW #7 Due
10	March 9th Electrostatic Phenomena Chapter 12, pg 237-253 Lab Notebooks Due/Journal 7 Due	March 11th Lab 8: Electrostatics	March 13th Exam Review HW #8 Due/Lab Notebooks Due/Journal 8 Due
11	March 16th	March 18th Final Exam 8am - 9:50am MH 106 Optional Journal 9 due	March 20th