Principles of Physics, GS104 Syllabus, Winter 2018

General Information

Instructor Information and Availability

Instructor name: Robert Duffin, Ph.D.
E-mail address: duffinr@linnbenton.edu
Office hours: MW 12 to 1pm, and Thursday 12:45 to 1:45 pm (or by appointment)
Science Help Desk hours: Friday 10 am – 12noon
Office: MH 111, (541) 917-4368 (prefer email)

My favorite topics within physics are in the multi-wavelength studies of the Sun and the lower solar corona, in long-duration solar activity and space weather.

Course Information

CRN: 31754
Scheduled time and days: 10:00am – 12:20pm Tuesday/Thursday
Number of credits: 4
Classroom: MH 108

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 is encouraging further interest in physics.

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 note and book.
- 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 Tuesday, March 20, from 9:30-11:20am in MH 108.

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 50 minute exams given and one final exam. The second midterm will be part written exam 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 Tuesdays. You are welcome to split your lab notebook in half to have your journal in the second half.

Calculator Policy: Students may use a non-graphing/non-programmable scientific calculator for exams. Approved calculators are: TI 30xa, TI 30X IIs, Casio fx-260, or HP 10s. 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 2nd floor above the Library. It also provides free tutoring services for all classes.

Library

Computers and printing available.

Science Help Desk

Is located in the atrium on the first floor of Madrone Hall and is manned 20 hours per week.

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.

GS 104 Tentative Schedule

Week	Tuesday	Thursday
1	Jan 9 **Intro Chapter 1, pg 1-13** **Appendix A**	Jan 11 **Describing Motion** **Ch. 2, pg 18-34.** **Lab 1: Pos, Vel, Accel.** **HW #1 Due**
2	Jan 16 **Motion Diagrams** **Lab Notebooks Due**	Jan 18 **Falling Objects Ch. 3, pg 38-48.** **Lab 2: Gravity** **HW #2 Due**
3	Jan 23 **Projectile Motion** **Ch. 3, pg 48-54** **Lab Notebooks Due**	Jan 25 **Lab 3: Projectile Motion** **HW #3 Due**
4	Jan 30 **Newton's Laws Ch. 4, pg 60-74** **Lab Notebooks Due**	Feb 1 **Lab 4: Forces** **HW #4 Due**
5	Feb 6 **Circular Motion** **Ch. 5, pg 81-97** **Exam Review** **Lab Notebooks Due**	Feb 8 **Exam 1** **PhET Energy Conservation**
6	Feb 13 **Energy and Oscillations** **Chapter 6, pg 103-118**	Feb 15 **Lab 5: Conservation of Energy** **HW #5 Due**

Week	Tuesday	Thursday
7	**Feb 20** **Momentum, Impulse, Rotational Motion** **Ch. 7, pg 125-138;** **Ch. 8, pg 146-163** **Lab Notebooks Due**	**Feb 22** **Lab 6: Conservation Laws** **HW #6 Due**
8	**Feb 27** **Exam Review** **Lab Notebooks Due**	**Mar 1** **Exam-2 Lab Exam**
9	**Mar 6** **Behavior of Fluids** **Ch. 9, pg 171-186**	**Mar 8** **Lab 7: Pressure and Density** **HW #7 Due**
10	**Mar 13** **Electrostatic Phenomena** **Ch. 12, pg 237-253** **Lab Notebooks Due**	**Mar 15** **Lab 8: Electrostatics Review** **HW #8 Due**
11	**March 20** **Final Exam 9:30am - 11:20am** **MH 108**	