

PHYS328W Syllabus

Analog Electronics

Tuesdays and Thursdays, 10:00 - 11:15 am Pfahler Hall 013

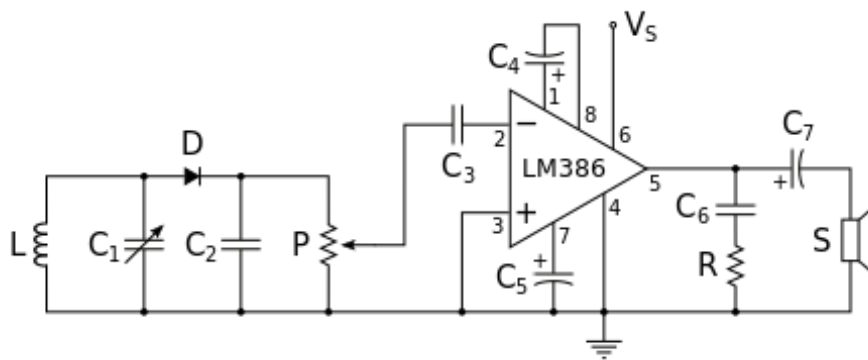


Figure 1: AM Radio Receiver Schematic

Instructor

Dr. Lew Riley, lriley@ursinus.edu, Pfahler Hall 112D, ext. 4307, schedule

Course Description

PHYS328W: *Analog electronics* covers the foundations of analog circuits, including DC and AC circuits, transistors, and operational amplifiers with emphasis on laboratory techniques and the written communication of scientific results. Prerequisite: PHYS-122.

This is a 2 semester hour course. One hour of lecture; an average of three hours of laboratory per week. Two semester hours

Learning Goals

- Use appropriate measuring instruments to determine the properties of a system under observation or experimentation. Use statistical methods to evaluate experimental or observational data. Write a clear paper in journal-article format reporting the methods, observations, analysis, and results.
- Recognize the essential features of a physical system and design a mathematical or numerical model that includes them. Calculate numerical values for the properties of the system.

Notes

Rather than having you buy a text for this course, I provide notes and a quick reference guide.

Lab Assignments

There are six lab assignments. A module in Canvas is dedicated to each lab assignment including a link to a Jupyter notebook which describes the assignment in detail and serves as a template for your log book for the lab. The products of each lab assignment should be uploaded to the corresponding Canvas assignment, usually due the night before we start the next lab assignment.

Lab Reports and the Final Paper

One of the primary goals of this course is to help you develop your scientific writing skills. The final product of each lab assignment will be a brief report. You will also write one paper in journal-article format. Although you may collaborate on experimental work and simulations, you will write your own reports and papers. You will also produce your own figures (diagrams, graphs, e.g.).

You will write your reports and papers using LATEX, a typesetting program commonly used by physicists, astronomers, mathematicians, computer scientists. You may use your preferred LATEX environment. If you don't have one, I recommend the Overleaf online LATEX development environment.

I will use these rubrics for grading reports and papers: [p328_report_rubric.pdf](#) download, [p328_paper_rubric.pdf](#) download.

Log Books (Jupyter Notebooks)

Collaboration, Acknowledgment, and Academic Honesty

I encourage you to collaborate with each other on lab work. Not only can you get help when you need it, but you can help other people as well. Teaching is a very effective way to learn. While I encourage collaboration, it is also important

that you understand your work and articulate your reasoning clearly. All of the writing in your reports and final paper must be your own.

Handing in someone else's writing or other work as your own is plagiarism, while receiving help which you acknowledge is not. Please clear up any questions you have about what constitutes plagiarism right away. Collaboration of any kind or copying someone else's work during an exam is cheating. If I believe that you have cheated, plagiarized, or committed any academic honesty violation, I will discuss the incident with you and consult with the Dean of the College regarding the consequences. (See the Student Handbook ([Links to an external site.](#)) for a detailed description of College policies related to Academic Honesty.)