

Homework Assignment #4, Explaining Physics Concepts to Nonscientists—Draft

The purpose of this assignment is to give you practice both in collaborative writing and in explaining scientific concepts in a way that is clear, concise, and meaningful for **nonscientists**. (You'll spend most of your career explaining your science to people who know less about it than you do.)

First, read this article from *Science* that explains why this form of communication is so important: "[We need better and more PopSci by scientists.](#)"

For this assignment, you will be paired with another student, and you will work collaboratively to produce a short (maximum three pages, single-spaced, including figures) article that explains a physics concept in a way that will be understandable and meaningful to a nonscientist.

We've provided a list below of contemporary physics topics or concepts for you to write about. For this assignment, your audience is **nonscientists** who have a general interest in physics and *may* have taken an introductory physics class in college but have no specific knowledge of physics research. Your job is to choose a topic and write a brief web-friendly article about it, explaining it in terms that an ordinary person could understand. **DO NOT** use jargon or equations. **DO** use pertinent analogies and engaging images to tell your story. This assignment consists of several parts (enumerated below). Be sure to complete all parts!

First, with your partner, select one of the topics shown below. You should choose a topic where you have a solid grasp of the physics; the point of this assignment is to communicate that understanding to a general audience, not to learn some new physics. Read the [great advice](#) from Professor Mason before you start writing.

Topics:

exoplanets
gravitational waves
metamaterials
nanopore DNA sequencing
superconductivity
black holes

dark matter
surface tension
carbon nanotubes
quark-gluon plasma
quantum sensors
quantum dots

Answer a journalist's questions in writing your story—what? when? why? how? who? where?

1. Based on our class lecture, write a five-sentence synopsis and full-sentence outline for your story. Remember that each sentence in your outline will equal about one paragraph in your story, and you are limited to three pages total in the final paper, including the figures. Thus, you should have no more than six to nine sentences in your outline.
2. Find at least two figures to illustrate your story. You might get these figures from online sources or even create them yourself to help the reader visualize and understand your story. If you use someone else's figure, be sure to credit the source by providing a reference in the caption. Keep in mind what your target audience would understand and find visually appealing. (Complicated plots and equations are not good choices for a general audience.) Insert the figures in your document and provide a brief caption for each. Write your own caption; don't just copy the caption from the original source—that's plagiarism!
3. Identify four sources of supplemental information on the Internet that would help a reader understand your story or that provides additional information for your audience. (Do not use Wikipedia or encyclopedia articles or scientific research papers.) Be sure these sources are written at an appropriate level for your target audience. Provide the URLs for these sources.

What is due on Friday, February 21: **your synopsis, your outline, (at least) two figures and captions, and (at least) four URLs**. Do not write the full paper yet.

You will receive feedback on this assignment to help you strengthen your final paper for Homework #6.

Due: **Friday, February 21, 9:00 p.m.** Upload your copy to the my.physics portal. Assignments submitted after the deadline will have points deducted. Late assignments may be uploaded to my.physics until 8:59 p.m. on Sunday, February 23. To submit an assignment after the late deadline, [email it to Celia](#). This assignment is not eligible for rewrite points.

Total—100 points