

PHYS 3310: Guidelines for WAC/Honors paper

To satisfy the WAC/Honors requirement a written paper will be required. It is due on Monday, November 30 and should discuss the biography of one of the scientists involved in the early development of quantum mechanics along with that scientist's main contributions to modern physics and the importance of that contribution. The main text of each paper should be at least 3-4 pages long using single-spacing with font size 12. A front cover page with title and student's name as well as bibliography/references page should also be included in which the sources of the information in the paper is cited.

The paper should be divided into 3 parts with each part 1 – 1 ½ pages long: (1) a brief biography of the scientist including an overview of his/her career and contributions to science (2) a discussion of the circumstances and meaning of a particular contribution to modern physics (a few brief equations may be included here) and the circumstances under which that particular contribution was made (3) a discussion of the impact of that contribution to science and in the modern world.

Some possible topics include:

- Einstein and Special Relativity
- Einstein and the Photoelectric Effect
- Planck and Blackbody Radiation
- Roentgen and the discovery of X-rays
- Bragg and X-ray diffraction
- Laue and X-ray diffraction
- Compton and the Compton effect
- Michelson (or Morley) and the Michelson-Morley experiment
- Anderson and the discovery of the positron
- Louis de Broglie and matter waves
- Davisson (or Germer) and matter waves
- Heisenberg and quantum mechanics
- Schrodinger and quantum mechanics

Alternatively, you can write a paper focusing on just one “technological” aspect of modern physics and its background and applications. In this case you don't need to divide it into parts. Some possible topics related to what we have already covered are:

- Neutron diffraction
- X-ray diffraction
- Positron-emission tomography
- Global positioning
- Doppler effect

I would like each student to write a WAC/Honors paper on a different topic. In order to ensure this, please e-mail me your top 2 choices by Monday, November 2. I will then “re-arrange” if necessary to avoid duplication.