

PHYS 203 Proposal

In Consideration for the Natural Sciences Core

Specifically PHYS 203 meets the General criteria:

Courses that satisfy ACU's University Requirements (General Education) will normally:

1) have lower-level numbering.

PHYS 203 uses lower level numbering.

2) be free of prerequisite and co-requisites.

PHYS 203 has no prerequisites or co-requisites.

3) appeal to more than one or two majors, and “not narrowly focus on those skills, techniques, and procedures specific to a particular occupation or profession” (SACS 2.7.3).

Point 1:

Specifically, the content of PHYS 203 is much broader in approach than the typical ACU general education science course. Unlike astronomy, for example, which is content specific to astronomy, PHYS 203 incorporates conceptual physics, astronomy, earth science (including geology), and chemistry topics. The typical class involves a more hands-on approach and appeals to the student who wants a broad science course with typically fewer lectures and more inquiry based learning. Students who desire to learn by doing will find this course more to their liking as a general science option.

Point 2:

PHYS 203 models the standard state curriculum in Texas for a general science course for use in the core. When PHYS 203 is used in combination with ACU's CHEM 203, the content of the two classes would mirror the state curriculum of PHYS 1415 and PHYS 1417. PHYS 1415 and 1417 are not only required for all elementary education majors in the state curriculum, but also used heavily by many students as a general science credit for every general education core in the state of Texas. PHYS 203, just like PHYS 1415 and 1417 at the state level, specifically addresses the content required for certification exams that elementary education students will have to pass to now gain certification; but also

applies for any other major on campus needing a general science credit for core requirements. For example, PHYS 203 would be quite useful for someone who plans to home-school children in the future or someone who would like a more complete physical science picture than say just astronomy or geology, but yet the inclusion of both.

PHYS 203 meets the Natural Science courses criteria:

PHYS 203 “exposes students to the particular critical thinking methods that are characteristic of scientific reasoning and discovery, and to the disciplines of natural science.” PHYS 203 also requires a research project and presentation that goes beyond exposure to synthesis and application. PHYS 203 goes beyond mere exposure of content to modeling current physics education techniques and procedures for retention of knowledge (such as National Science Foundation approved curriculum).

PHYS 203 covers sections of all of the natural sciences in depth except biology. The natural sciences are astronomy, biology, chemistry, earth science, and physics. PHYS 203 also includes geology as a subset of earth science.

PHYS 203 meets all of the 3 of the additional specific requirements.

1. PHYS 203 uses experimentation as a vital aspect of class each week. The students use quantitative and qualitative (conceptual concepts) experimentation techniques to analyze the world around them. They use graphs, data sets, statistical analysis, error analysis, etc. to determine the impact of the data that they analyze. While PHYS 203 does not have a formal lab setting, class is taught using hands-on lab interactions each week.
2. PHYS 203 constantly requires the students to apply knowledge gains and experimental findings into applications for science and society. Critical thinking skills learned are applicable through out all findings for all disciplines.
3. PHYS 203 expects critical thinking applications in all phases of coursework. One of the major foundations of PHYS 203 is the progression of scientific thinking including the process and historical arguments. For example: “Why were Newton's Laws viewed as revolutionary and new science?” To answer this question completely, the student must have a historical scientific framework to include in the discussion as well as knowledge of the laws themselves.