Declaring a Major

A Bachelor of Science in Physics is a versatile undergraduate STEM degree that prepares students for a wide variety of careers. The UW Physics program offers four degree options, or “tracks,” depending on a student’s interests and goals: Comprehensive, Applied, Teacher Preparation, and Biological Physics. Students should choose a degree option when they declare, but can change it at anytime before they apply to graduate. The degree options are described briefly below. More information is available on this site regarding degree requirements for the different options, planning your path through the major, and how to declare a physics major. A description of physics email lists and information on how to subscribe is found here.

The American Physical Society and National Society of Physics Students both have excellent career resources and data about careers pursued by physics graduates. See https://www.aps.org/careers/index.cfm and https://www.spsnational.org/career-resources. The American Institute of Physics Statistical Research Center has both historical and current information on education and career statistics for physicists at https://www.aip.org/statistics.

Comprehensive Physics Track

The Comprehensive Track is aimed at students wishing a thorough grounding in physics. If you want to experience the breadth of physics, delve into the mathematics underlying physical theories, and be prepared to participate in a career where you are “doing physics” (with or without an advanced degree), then you should pursue the Comprehensive Track. If you are heading for graduate school in physics, astronomy, or a related field, this is the track for you. To be fully prepared for graduate school you will need to pursue additional experiences beyond the track requirements. In particular, you should take as many courses from the 300-level math and physics menu options as you have room and interest for, as well as a selection of 400-level courses in whichever field you intend to pursue. Graduate schools will also expect you to have taken full advantage of research opportunities, both at UW and beyond.

Applied Physics Track

The Applied Track is aimed at students who plan to enter a technical job with their physics B.S. This is the most common track for students who arrived at UW thinking they were interested in engineering, but who decided to get a broader grounding in the physics underlying engineering before going on the job market. This track has fewer required courses to allow students to broaden their skills and knowledge sets in areas such as climate science, data science, electrical engineering, aerospace or entrepreneurship, and it is relatively straightforward to build a double major in another STEM field. The unique requirements of the Applied Track include a laboratory with a focus on statistics and error analysis, as well as a computer programming class relevant to data analysis. The Applied Track is the only degree option that does not require Phys 228 or Phys 324, although both can meet the elective requirements, and thus can be less mathematically intense than the other tracks. However, Physics 228 is required for several upper division physics classes, including Optics Lab (Phys 331), Classical Mechanics (Phys 329), Quantum Mechanics 2 (Phys 324), and Phys 324 is a prerequisite for Physics 325 as well as the 400-level electives for nuclear, condensed matter, and atomic physics (422, 423 and 421). The Applied Track also allows you to use one of specific introductory science classes and/or a laboratory for your electives.
Teacher Preparation Track

This Teacher Preparation Track is aimed at those who plan to teach physics, math or other technical fields in secondary school. It is also appropriate for students aimed at a science journalism career, or other fields involving the communication of physics to a broader audience. The distinguishing feature of the Teacher Preparation Track is the Physics 407-8-9 sequence, which is aimed at giving you the conceptual understanding and experience required to explain physics without college-level mathematics. The UW has a world-famous Physics Education Research Group, and students in this track have the opportunity to benefit from and contribute to this effort.

Biological Physics Track

The Biological Physics Track is aimed at giving students a thorough grounding in physics, biology and chemistry, preparing them for medical school, graduate school in medical physics, biophysics or bioengineering, or technical careers that combine physical and biological sciences. This is an exciting growth area where students can pursue interdisciplinary research. This degree option has the most required courses of the four, but half of these are available at community college. The Biological Physics Track is thus appropriate for a student who explored biology, chemistry and physics before deciding on a major path, or who wishes to double major in physics and either biology, biochemistry, or chemistry.

Source URL: https://phys.washington.edu/declaring-major