PHYSICS

Jim Lin
509.793.2147
JimL@bigbend.edu

Physics courses may be taken as part of the Associate in Arts and Science DTA degree or as part of the Associate in Science-Transfer (AS-T 2) degree. Within the Associate in Arts and Science DTA degree, these courses may be used toward the Natural Science Breadth requirements or for Specified or General Elective credit. Students seeking Associate in Arts and Science DTA degree should refer to the catalog section "Degrees & Certificates" for a detailed description of the degree, its program outcomes, and courses that will satisfy degree requirements.

Physics is the study of nature at its most fundamental level. It is the science upon whose principles all other sciences and technologies are based. Courses offered are designed to introduce the student to each of the major physical theories — Newtonian mechanics, thermodynamics, waves, sound, optics, electricity, and magnetism. There may also be an exposure to special relativity and quantum theory. The student tests the theories in the laboratory, learning some of the standard experimental techniques needed to work with modern apparatus such as computers and various electronic devices.

The curriculum is designed to prepare students transferring to a four-year college or university with majors in the following: chemistry, mathematics, physics, engineering, computer science, and related physics fields.

Within the Associate in Science-Transfer degree, physics courses satisfy the AS-T 2 Physics or Computer Science pre-major. The Associate in Science-Transfer degree allows students to prepare for upper division study toward a Bachelor of Science degree in physics (as well as other sciences). This degree gives students the opportunity to make substantial progress toward fulfilling major requirements while completing at least half of the Breadth requirements for Humanities and Social Science.

The degree is accepted by many baccalaureate institutions in the state of Washington. Unlike the DTA degree, the AS-T degree does not automatically fulfill the lower division (first and second year) general requirements at a university. Typically the AS-T degree holder's BBCC transcript will be evaluated on a course-by-course basis according to both its general requirements and major requirements.

While BBCC faculty advisors consult with students to help them plan effectively, the ultimate responsibility to plan rests with the student. The college recommends that the student identify one or two potential transfer institutions and then contact qualified program advisors at those institutions as early as possible to obtain specific, course-by-course advice. A BBCC advisor or the office of admissions at the transfer institution can help the student to contact these advisors. Ongoing contact with program advisors at the transfer institution facilitates a smooth and efficient transfer.

Since programs differ at each college, students who intend to transfer should consult program outlines published by the college or university. The following recommended courses prepare students for most baccalaureate institutions. Students should prepare their quarterly schedules with the assistance of an advisor knowledgeable in this transfer area.

AS-T 2 Computer Science or Physics Pre-major (90 credits)

Program Learning Outcomes:

IO1 ***Communication***
Students will be able to communicate clearly and effectively.

IO2 ***Quantitative Reasoning***
Students will be able to reason mathematically.

IO3 ***Human Relations/Workplace Skills***
Students will be able to demonstrate teamwork, ethics, appropriate safety awareness and/or workplace specific skills.

PO4 ***Cultural, Social, Political Aspects***
Students will be able to recognize or articulate personal/interpersonal aspects of, or connections between, diverse cultural, social, or political contexts.

PO5 ***Problem Solving***
Students will be able to solve problems by gathering, interpreting, combining and/or applying information from multiple sources.

The following schedule of courses is the recommended program for completing this degree. See a program advisor for substitute courses.

First Year
Summer Quarter
MATH& 141 Precalculus I if needed* 5
MATH& 142 Precalculus II if needed* 5
* if student's placement is below MATH& 151

Fall Quarter
CHEM& 161 General Chem w/Lab I 5
ENGL& 101 English Composition I..... 5
MATH& 151 Calculus I*..... 5
Activity PEH class..... 1

Winter Quarter
CHEM& 162 General Chem w/Lab II 5
MATH& 152 Calculus II..... 5
Advisor approved HU/SS 5
Activity PEH class..... 1

Spring Quarter
CHEM& 163 General Chem w/Lab III 5
ENGL& 235 Technical Writing or advisor approved HU/SS..... 5
MATH& 163 Calculus 3 or MATH& 146..... 5
Activity PEH class..... 1

Second Year
Fall Quarter
MATH& 254 Calculus IV** 5
PHYS& 221 Engineering Physics I w/Lab 5
Advisor approved HU/SS 5

Winter Quarter
MATH& 163 Calculus 3 or MATH& 146..... 5
PHYS& 222 Engineering Physics II w/Lab 5
MATH 220 Linear Algebra** 5

Spring Quarter
PHYS& 223 Engineering Physics III w/Lab..... 5
MATH 230 Differential Equations** 5
Advisor approved HU/SS..... 5

* If a student has not placed into MATH& 151, additional quarters will be required since this degree requires six sequential math classes to be taken starting with MATH& 151.
** MATH& 254, MATH 220, and MATH 230 are only offered one time per year; plan your schedules well in advance.

PHYSICS	Credits	Summer 2022	Fall 2022	Winter 2023	Spring 2023	Summer 2023	Fall 2023	Winter 2024	Spring 2024	Summer 2024
PHYS& 110 Physics for Non-Science Majors with Lab LS	5				X				X	
PHYS& 114 General Physics I with Lab LS	5						X			
PHYS& 115 General Physics II with Lab LS	5							X		
PHYS& 116 General Physics III with Lab LS	5								X	
PHYS& 221 Engineering Physics I w/Lab LS * required for AS-T 2: Physics/CompSci Pre-major	5		X				X			
PHYS& 222 Engineering Physics II w/Lab LS * required for AS-T 2: Physics/CompSci Pre-major	5			X				X		
PHYS& 223 Engineering Physics III w/Lab LS * required for AS-T 2: Physics/CompSci Pre-major	5				X				X	

SCIENCE	Credits	Summer 2021	Fall 2021	Winter 2022	Spring 2022	Summer 2022	Fall 2022	Winter 2023	Spring 2023	Summer 2023
SCI 101 Survey of Science NS	5									
SCI 104 Math for Science and Engineering SE	5									