

# Physics

## Physics AS-T

The Associate in Science degree in Physics for Transfer (AS-T) prepares students for transfer to a CSU baccalaureate program in physics by educating them in the fundamental concepts of mathematics and physics, developing analytical and quantitative reasoning skills, gaining comprehension of the integrated nature of mathematics and the sciences and executing experimental methods, assessment and interpretation of scientific phenomena.

### Program Student Learning Outcomes

Upon completion of the program, students will be able to:

- employ sophisticated problem solving techniques to identify the useful information provided, choose a strategy for solving the problem, demonstrate proficiency in arriving at a solution, test the solution, and interpret the results as they relate to appropriate physics concepts.
- design an experimental method, predict results using appropriate scientific and mathematics theory, perform the experiment and collect data while minimizing sources of error, express results with graphical and mathematical support, complete thorough error analysis, and interpret experimental results in comparison with theoretical predictions.
- demonstrate efficient use of computer tools such as graphing programs, spreadsheets and databases, and basic word processing. They will also have fundamental knowledge of computer programming languages, algorithm development, and be able to write, compile, and run programs from scratch for problem solving.
- explain scientific theory verbally through presentation techniques and in writing through formal written reports, using scientific, mathematical, and analytical skills.

### Associate Degree for Transfer requirements (pursuant to SB 1440):

- Complete a minimum of 18 semester units in a major or area of emphasis
- Complete IGETC or CSU General Education – Breadth requirements
- Complete total of 60 CSU transferable semester units
- Complete all required courses for the major or area of emphasis with a “C” or better
- Obtain an overall minimum grade point average of 2.0

Course #	Title	Units
<b>Required Core Courses</b>		
MATH-001A....	Introduction to Calculus.....	
MATH-001B.....	Calculus with Applications.....	
MATH-002A....	Multivariate Calculus.....	
PHYSICS-004A.	Classical Mechanics.....	4
PHYSICS-004B.	Electricity, Magnetism & Waves.....	4
PHYSICS-004C.	Thermodynamics, Optics & Modern Physics.....	4
	Total.....	26
	CSU GE-B or IGETC requirements (allowing double counting).....	34-39
	Electives (must be transferable to CSU).....	0-4
	<b>Total .....</b>	<b>60</b>

*This is a **recommended sequence** of courses for timely completion of this program. Entry in to transfer level English and math is required to follow this recommended sequence. Please see your counselor to formalize your personalized educational plan or for alternative planning. Recommend completion of MATH 015 prior to starting sequence.*

SEMESTER 1	SEMESTER 2	SEMESTER 3	SEMESTER 4
MATH-001A.....	MATH-001B.....	MATH-002A.....	PHYSICS-004C.....
ENG-001A.....	PHYSICS-004A.....	PHYSICS-004B.....	POLSCI-001.....
COM-001/004..... 3	Area A3..... 3	Area D..... 3	HIST-017A or B..... 3
BIO-010.....	Area C1..... 3	Area C2..... 3	Area C1/2..... 3
<b>14</b>	<b>15</b>	<b>15</b>	Area E..... 3
			<b>16</b>