

Program SLOs

Physics/Physical Science/Astronomy

A.S. Degree – Physics

A.S. -T – Physics for Transfer

A.S. Degree – General Science

Physics Program Student Learning Outcomes From the 2015 PrOF (Program Review) Update

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| 1 | Program Student Learning Outcome (P-SLO) | Successfully complete and transfer to a four-year university | Successfully complete and transfer all core and general education requirements in physics or astronomy to a four-year university to satisfy lower-division program requirements. Students will have the skills and knowledge to successfully complete future courses for which CRC physics and astronomy courses are prerequisites. Students should be able to meet all their lower-division physics/astronomy needs at CRC. |
| 2 | Program Student Learning Outcome (P-SLO) | Demonstrate understanding of the principle areas of physics and astronomy | Demonstrate understanding of the principle areas of physics and/or astronomy including concepts and methods of inquiry at an appropriate level. Subjects include, but are not limited to, the scientific method, Newtonian Mechanics, Electricity and magnetism, thermodynamics, mechanical and electromagnetic waves, modern physics, and introduction to astronomy. |
| 3 | Program Student Learning Outcome (P-SLO) | Successfully solve conceptual and numerical problems of a physical nature | Successfully solve conceptual and numerical problems of a physical nature through the recognition of type of problem, analysis of relevant information, proper application of concepts and techniques applying math through prealgebra, trigonometry, and/or calculus-levels as appropriate. Students will show improvement in problem solving skills as they progress through a course or the program. |
| 4 | Program Student Learning Outcome (P-SLO) | Effectively communicate the fundamental concepts and techniques | Effectively communicate the fundamental concepts and techniques of physics and/or astronomy at an appropriate level. |
| 5 | Program Student Learning Outcome (P-SLO) | Demonstrate appropriate lab skills | Demonstrate appropriate lab skills including the proper use of basic measuring devices. Students will read and accurately interpret lab directions and analyze data for relevance and adherence to theory. |
| 6 | Program Student Learning Outcome (P-SLO) | Use appropriate tabular and/or graphical methods | Students will choose and use appropriate tabular and/or graphical methods to present data and use this effectively to determine trends, physical constants, etc. |

A.S. – Physics – Student Learning Outcomes*

SLO 1: Explain the scientific method and its application to the fundamental concepts of physics including mechanics, electricity and magnetism, thermodynamics, mechanical and electromagnetic waves, optics, modern physics and general chemistry.

SLO 2: Solve conceptual, numeric and symbolic problems in physics (mechanics, electricity and magnetism, thermodynamics, mechanical and electromagnetic waves, optics and modern physics) and general chemistry using mathematics through calculus.

A.S. – Physics – Student Learning Outcomes*

SLO 3: Demonstrate the proper use of basic laboratory devices including metersticks, balances, digital multimeters, and oscilloscopes.

SLO 4: Apply mathematical concepts including algebra, single and multivariable calculus, vector calculus, and basic differential equations in order to model physical systems and solve physical problems.

SLO 5: Create graphical representations of data and analyze those graphs to determine the results of laboratory activities.

SLO 6: Write a clear, coherent and thorough lab report.

A.S. for Transfer – Physics – Student Learning Outcomes*

SLO 1: Explain the scientific method and its application to the fundamental concepts of physics including mechanics, electricity and magnetism, thermodynamics, mechanical and electromagnetic waves, optics, modern physics and general chemistry.

SLO 2: Solve conceptual, numeric and symbolic problems in physics (mechanics, electricity and magnetism, thermodynamics, mechanical and electromagnetic waves, optics and modern physics) and general chemistry using mathematics through calculus.

SLO 3: Demonstrate the proper use of basic laboratory devices including meter sticks, balances, digital multimeters, and oscilloscopes.

SLO 4: Apply mathematical concepts including algebra, single and multivariable calculus, vector calculus, and basic differential equations in order to model physical systems and solve physical problems.

SLO 5: Create graphical representations of data and analyze those graphs to determine the results of laboratory activities.

SLO 6: Write a clear, coherent and thorough lab report.

* Developed through the Curriculum Committee approval process.