

Area F Student Learning Outcomes for Physics

Learning Outcomes for Area F for Physics Majors
Calculus Sequence
1. Students will apply methods of integration and differentiation in one variable to solve problems. (Calc I)
2. Students will apply advanced integration techniques, Taylor's theorem, the general binomial theorem to solve problems. (Calc II)
3. Students will use double and triple integration, partial derivatives and vector-valued functions to solve problems. (Calc III)
PHYS 2211
1. Analyze and solve kinematical problems for systems moving in one and two dimensions using pictorial, graphical, physical, or mathematical representations (including calculus and vectors) of the system, and other representations as appropriate.
2. Analyze and solve statics and dynamics problems using Newton's laws in one and two dimensions using multiple representations including free-body diagrams and mathematical descriptions (including calculus and vectors) of the system.
3. Analyze and apply the conservation laws (energy and momentum) for linear and rotational systems, and develop solutions using multiple representations, including pictorial, graphical, or mathematical (including calculus and vectors) descriptions as appropriate.
PHYS 2212
1. Analyze and solve electrostatic problems for discrete and continuous charge distributions using pictorial, graphical, physical, or mathematical representations (including calculus and vectors), and other representations as appropriate.
2. Analyze and solve magnetostatics and induction problems using pictorial, graphical, physical, or mathematical representations (including calculus and vectors), and other representations as appropriate.
3. Analyze and solve DC and AC circuit problems using pictorial, graphical, physical, or mathematical representations (including calculus and phasors), and other representations as appropriate.
Laboratory
1. Students will collect appropriate data using available technologies (including lab equipment and computer interfaces, as well as simulations) to draw logical and physically reasonable conclusions.

Reviewed by the Council on General Education, October 24, 2014

Approved by the Regents Administrative Committee on Academic Affairs, February 18, 2015