# PHYSICS

## Area F Learning Outcomes

### 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, particle derivatives and vector - valued functions to solve problems. (Calc III)

### Calculus-based Physics I

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

# Area F Course Guidelines

Area F for Physics majors consists of 18 hours of lower - division (1000 - and 2000- level) courses related to the Physics major and/or prerequisite to courses required in the major:

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|---|---|
| Calculus - based Physics I, II | 8 hours |
| Calculus I (excess from Area A or D)* | 0- 1 hour |
| Calculus II (excess from Area D) | 1- 4 hours |
| Calculus III | 3- 4 hours |
| Additional hour(s) in physics, astronomy, mathematics, computer science or chemistry (for science majors)** | 1- 4 hours |
| Total | 18 hours |

* If Calculus I is not taken in Area A or D, it must be taken in Area F, in which case up to two hours of Calculus III must be included in the 60 hours in the major program and no additional hours would be required in Area F.

** Excess hours from courses must be included in the 60 hours in the major program.