PHYSICS 103: Lecture 18

Agenda for Today:

- Archimedes Principle
- Example Problems

Archimedes Principle

An object immersed in a fluid experiences an upward buoyant force equal to the weight of fluid it displaces.

An Object in a Fluid:

The density of anything is:

\[ \rho = \frac{m}{V} \]

This means that the mass can be written as:

\[ m = \rho V \]

Since an object displaces the same volume of fluid, this means that if an object is less dense than the fluid it is submerged in, the buoyancy force is greater than its weight. The object will rise until it floats.
Main Points from Today’s Lecture

- Archimedes Principle
  You should understand that the density of an object determines the buoyancy force on it if it is submerged in a fluid. If it is less dense than the fluid, it will rise and float to a height where the water displaced is equal to the weight of the object.

- You should understand the example problems we reviewed.