Universal Gravitation

I. Inverse-Square Law

as distance from a source increases, the effect is reduced by the square of the distance

$$Amt = \frac{1}{d^2}$$

II. Historical Developments

Aristotle - all heavenly bodies move in perfect circles.

Copernicus - sun at the center of the solar system

Gallileo - Law of Inertia

Kepler - closer to sun = faster

Newton - law of universal gravitation

III.

$$F_g = G\frac{m_1 m_2}{d^2}$$

d^2 ← distance between the center of the objects.

F_g ↑ attraction between any two particles in the universe