

Density of Universe? diameter. $2 \times 3 \times 10^{26}$ met.

$$2 \times \left(\frac{2 \times 10^{11} \times 17 \times 1.99 \times 10^{30} \text{ kg}}{12.56 \times (3 \times 10^{26})^3 \text{ m}^3} \right)$$

$$= \left(\frac{2 \times 34 \times 1.99}{12.56 \times 27} \right) \times \frac{10^{22} \times 10^{30}}{10^{78}} (10^{-3}) \frac{\text{g}}{\text{cc}}$$

$$= 2 \times 1.995 \times 10^{-30} \frac{\text{g}}{\text{cc}}$$

Universe: $\underline{= 3.99 \times 10^{-30} \frac{\text{g}}{\text{cc}}}$

Considering each Galaxy has 2×10^{11} stars (on average) and there are 2×10^{11} Galaxies.

So this is an Upper bound since only a few of the galaxies are large, there are a lot that are quite smaller.

One quote for the density of Universe (see where) is $5 \times 10^{-30} \frac{\text{g}}{\text{cc}}$.