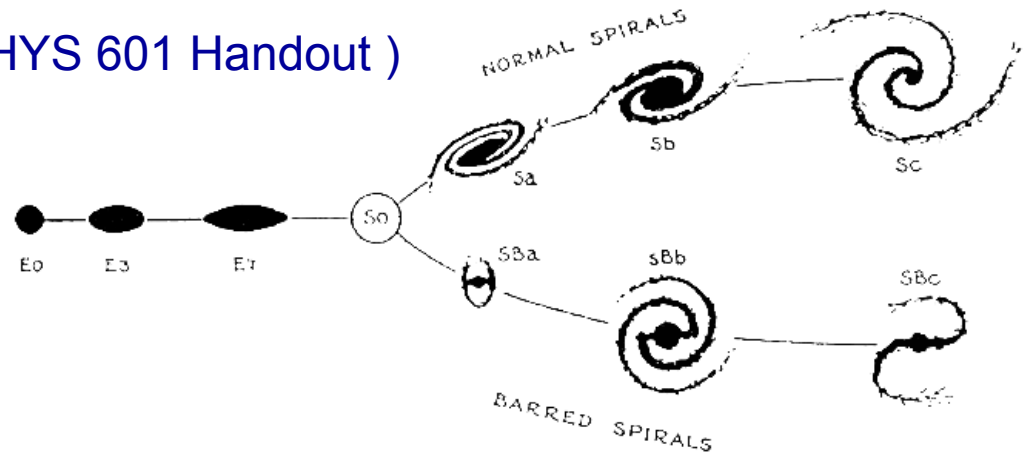


# Galaxies

(PHYS 601 Handout )

3 Types of Galaxies:

- \*Spirals
- \*Ellipticals
- \*Irregulars

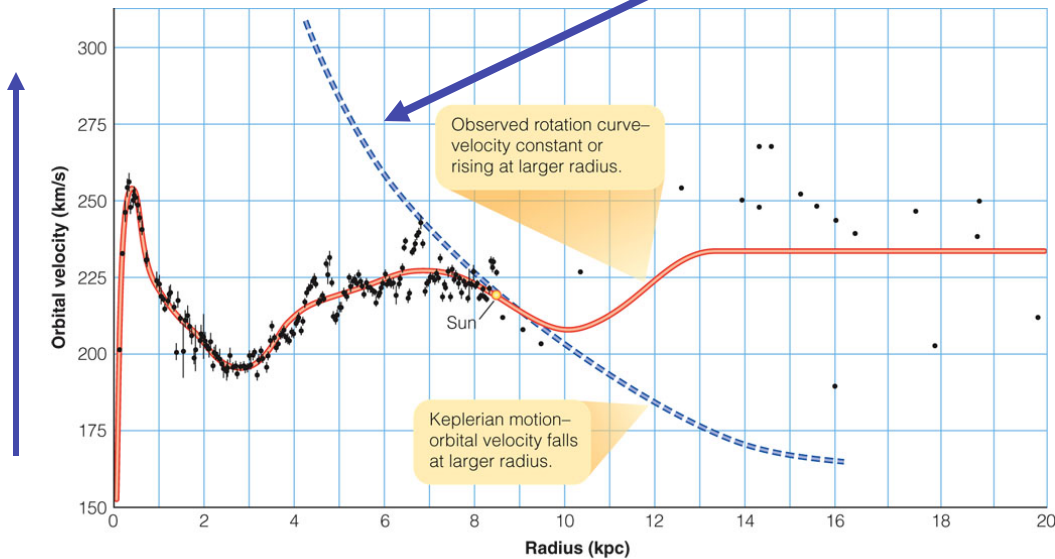


Distant galaxies are moving away from our Milky Way, with a recession velocity,  $v_r$ , proportional to their distance  $d$ :

$$v_r = H * d$$

Hubble's law

rotation curve for Kepler's 3rd law



$$M = R^3/P^2 \text{ and}$$

$$V \sim 1/R^{1/2}$$

# Model Universes

## Big Bang: 2 Key Pieces of Evidence

- Galaxies Red Shifts
- 3K Microwave Background

## Cosmological Principle

- Homogeneity
- Isotropy
- Universality

Universe's geometry depends on density,  $\rho$

