

# ASTRO 1020 Lab

## L3: Binary Stars

# Grading

- All labs are scaled to be graded out of 10 points\*

Points per question	Description
1.0	A correct answer <b>with</b> units <b>and</b> work shown. Answers that don't require work will be <b>graded on completion</b>
0.8	A correct answer <b>without</b> units or work shown
0.6	An incorrect answer <b>with</b> units <b>and</b> work shown
0.4	An incorrect answer <b>without</b> units or work shown
0.2	Some work shown <b>without</b> an answer
0.0	Not Attempted

# Things you need to know for Lab 3

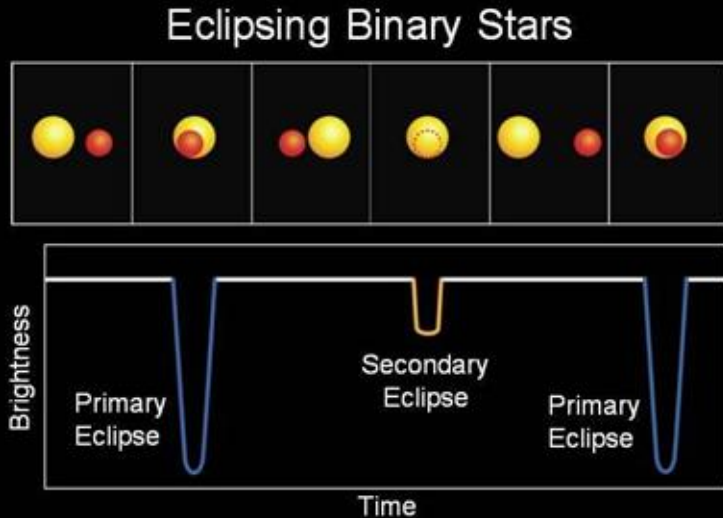
- Eclipsing binary stars
- Eclipse contacts
- Reading light curves
- Reading radial velocity curves
- Relative and absolute radii & masses
- Solving systems of equations

# Eclipsing Binary Stars

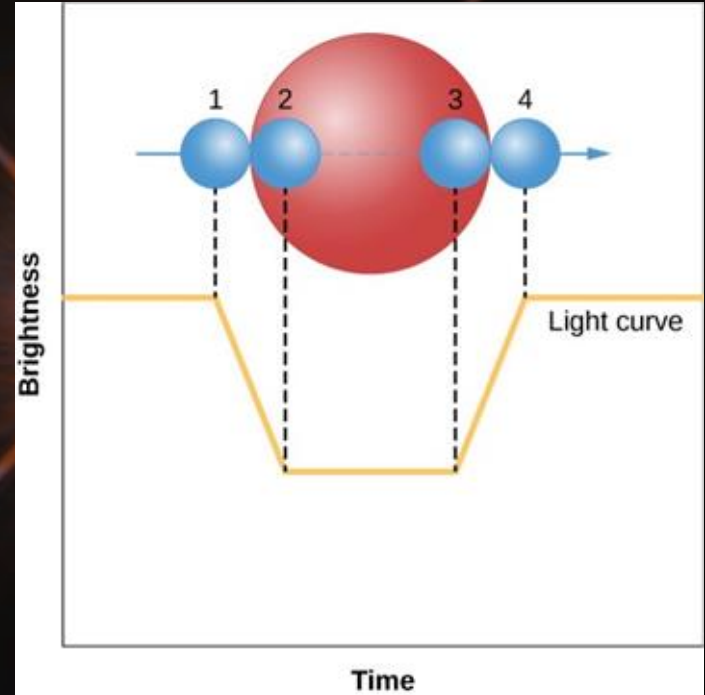


Credit: ESO/L. Calçada

# Eclipse Contacts & Light Curves

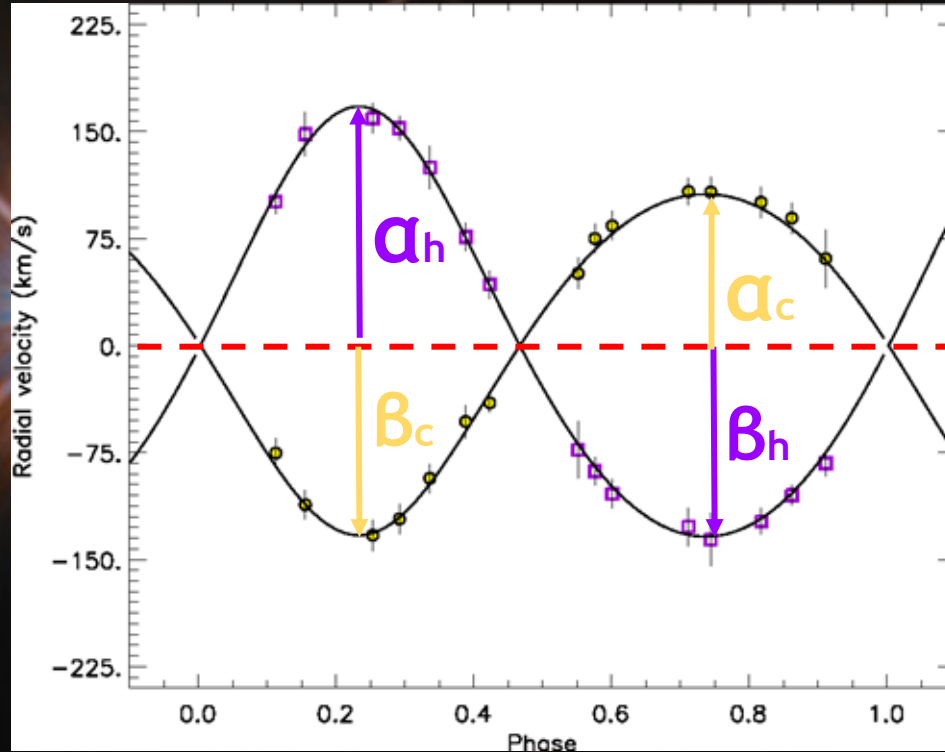


Credit: NASA



Credit: Physics LibreTexts

# Reading radial velocity curves



# Radii and Masses

$$\text{Mass Ratio} = \frac{M_h}{M_c} = \frac{\alpha_c + \beta_c}{\alpha_h + \beta_h}$$

$$M_h + M_c = \frac{a^3}{(P/365.25)^2}$$

# Solving systems of equations

$$A + B = 5 \quad A/B = 4$$

$$\Rightarrow A = 4B \Rightarrow 4B + B = 5 \Rightarrow B = 1$$

$$A = 4, B = 1$$



# Questions?