ASTRO 1020 Lab

L8: Star Clusters & Supernovae

Grading

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

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

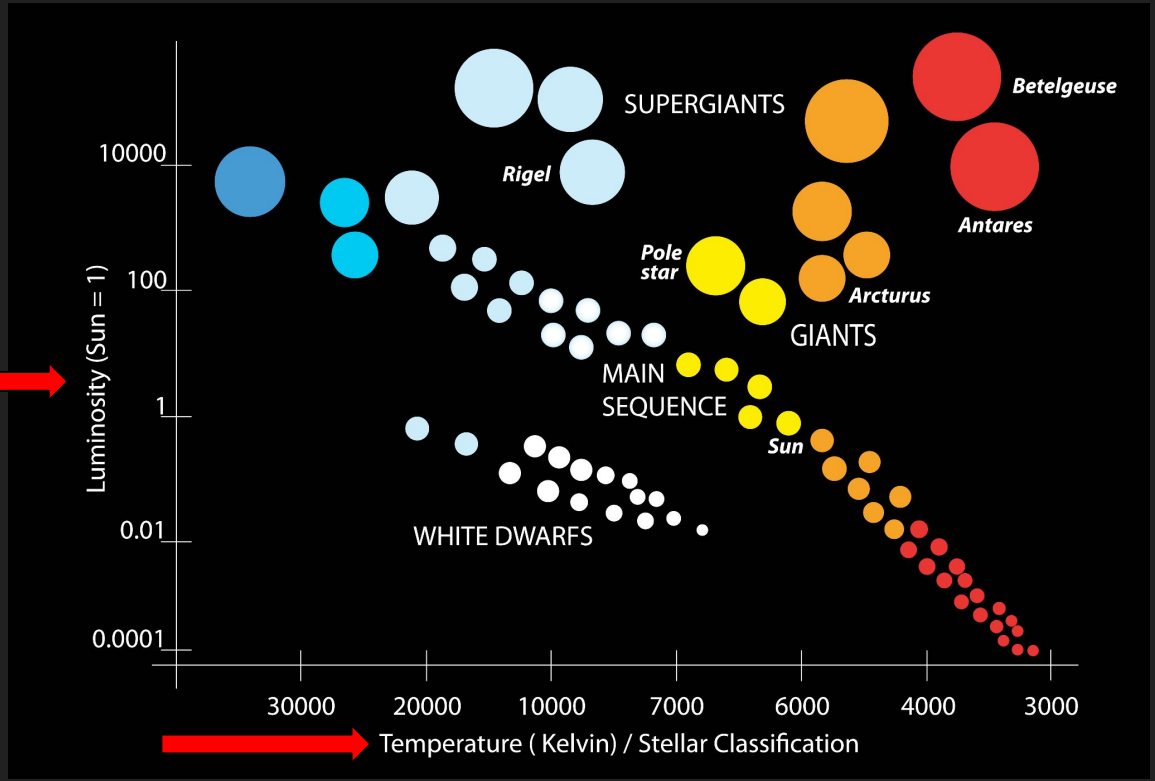
Lab Schedule

Lab	Dates	Topic
~~LAB 1~~	~~Sept 9 – 13~~	~~Sun~~
~~LAB 2~~	~~Sept 16 – 20~~	~~Spectra~~
~~LAB 3~~	~~Sept 23 – 27~~	~~Binary Stars~~
~~LAB 4~~	~~Sept 30 – Oct 4~~	~~Period Luminosity~~
~~LAB 5~~	~~Oct 7 – 11~~	~~Hubble's Law~~
~~LAB 6~~	~~Oct 14 – 18~~	~~Galaxy Classification~~
~~LAB 7~~	~~Oct 21 – 25~~	~~Tully Fisher Relation~~
LAB 8	Oct 28 – Nov 1	Star Clusters & Supernovae
LAB 9	Nov 4 – 8	Black Holes
Semester Project	Nov 18 – 22	

Things you need to know for Lab 8

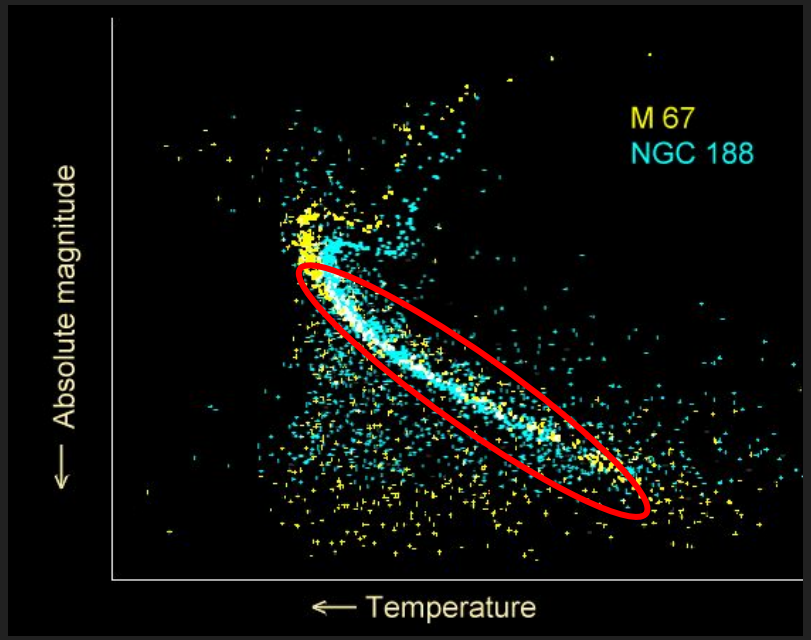
- The Hertzsprung-Russell (HR) Diagram
- Main sequence stellar evolution
- Main sequence turn-off
- Distance modulus
- Supernovae and their light curves

The Hertzsprung-Russell Diagram



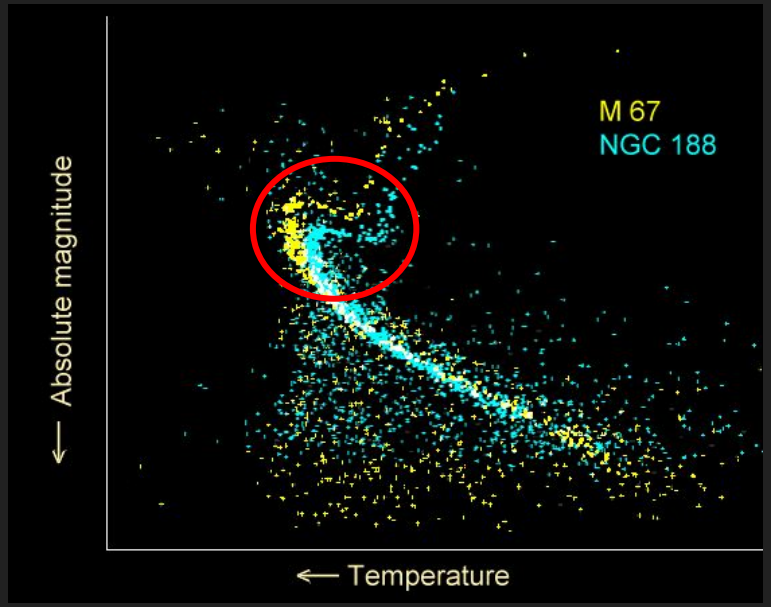
Main Sequence (MS) Stellar Evolution

- Longest part of a star's lifetime
- Long diagonal on HR diagram
- The Sun is on the main sequence
- Can be used to find distance!

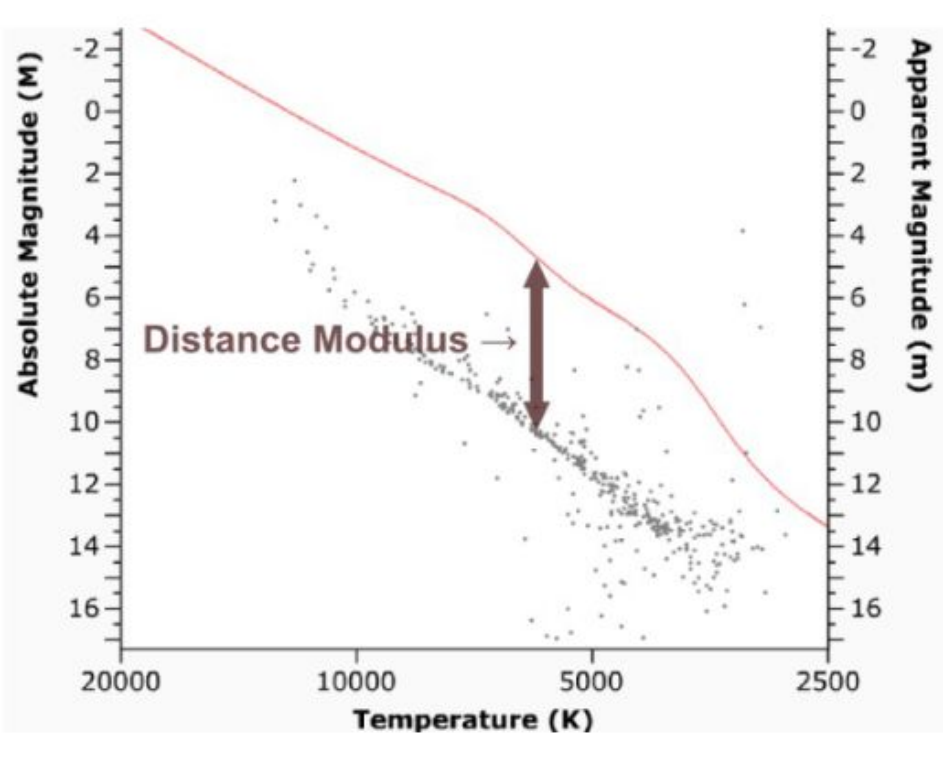


Main Sequence Turn-off

- A star's retirement (gets big and red)
- Seen as a hook on the HR diagram - <u>can determine age!</u>



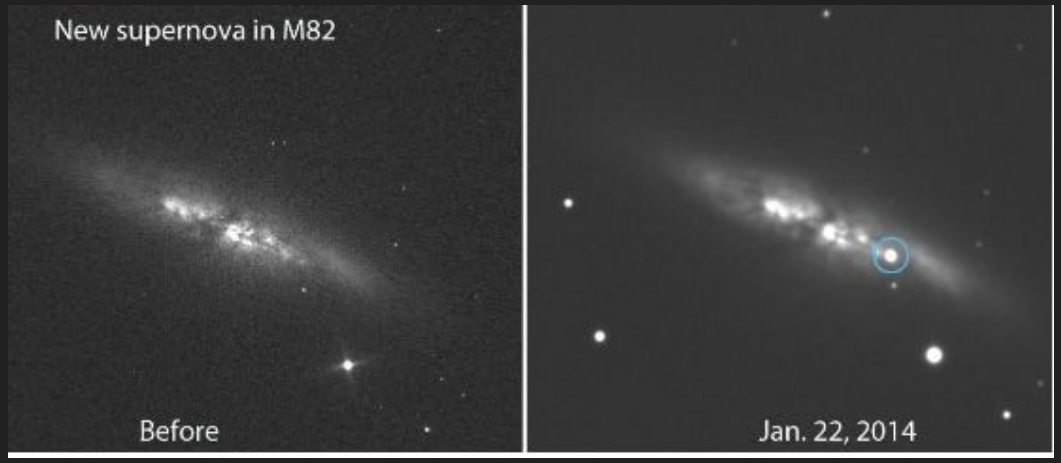
Distance Modulus

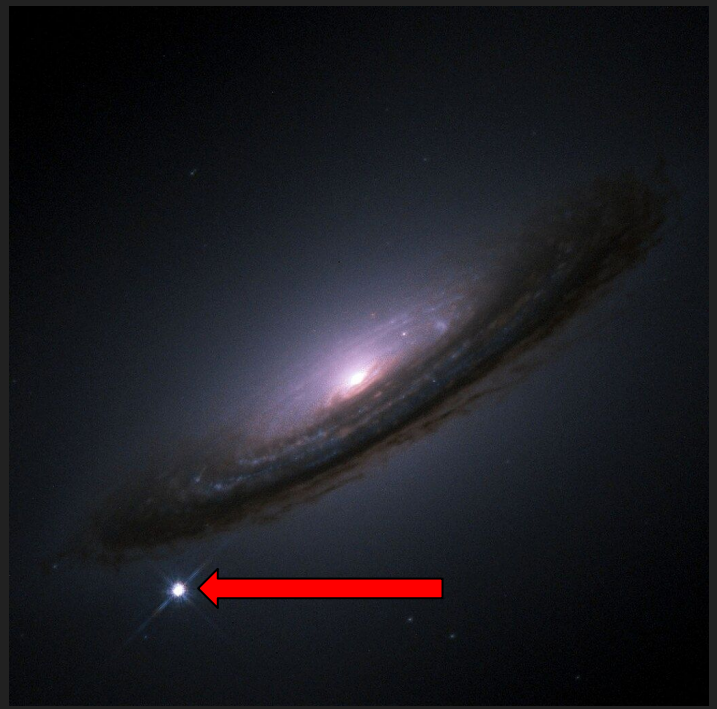


$$m - M = -5 + 5 \log_{10} d$$

Supernovae

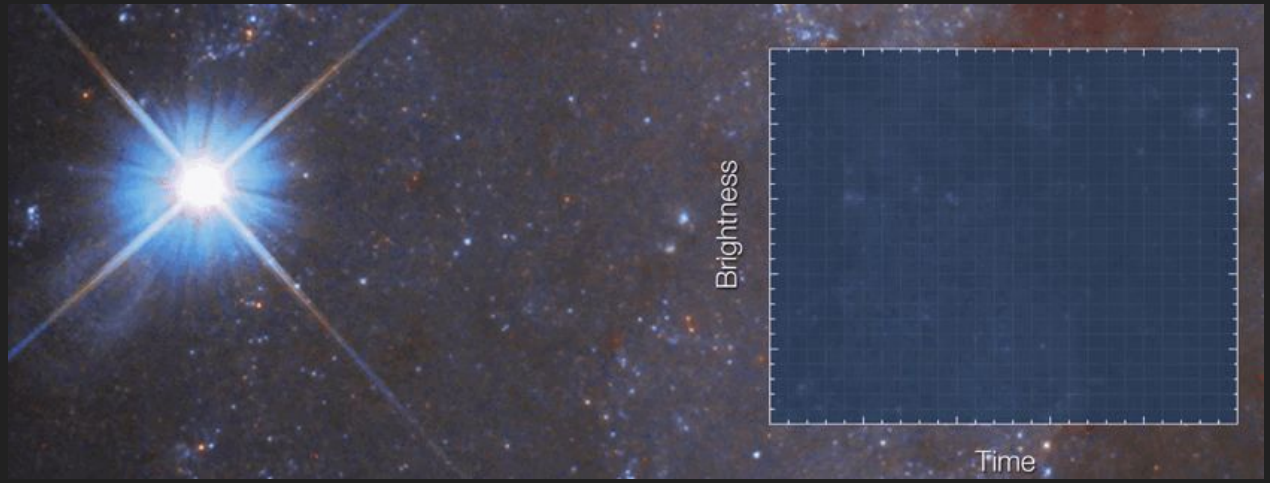
- Explosive end to the lives of massive stars
- Can outshine their host galaxies
- Their brightness tapers off





Supernova Lightcurves

- The light from supernovae eventually dies down
- This “die down time” is predictable
- Can be used to find distances!



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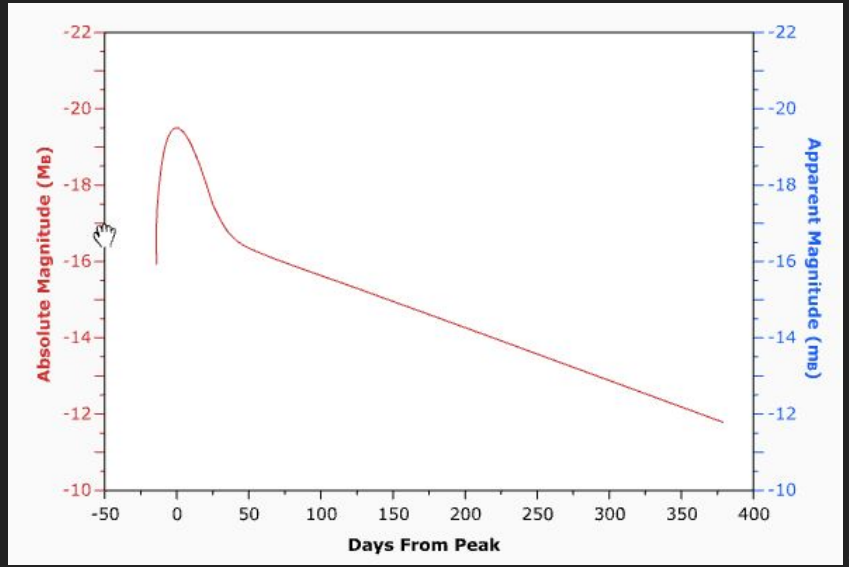

Questions?