

## **Weird Stars**

### **Astronomy 3Y03 Winter 2017**

The stars listed below are unusual or interesting in some way. Pick a star from this list, and write a research proposal explaining an observation or theoretical calculation you would do to understand more about the star (or the class of stars that it represents).

Sign up for the star of your choice on Avenue to Learn (under Course Information) by Monday January 23. At most two students can sign up for each kind of star.

Follow the modified instructions for writing an NSERC Discovery Grant research proposal (posted on Avenue).

Submit a draft of your proposal to Avenue by February 27, 2017 at 9:30 am. This submission is worth 2% of your final grade in the course (and will be marked on a simple scale: 2% if you submit on time, and 0% if you don't).

Two of your classmates will read your proposal and provide a short referee report by March 13, 2017. You will read and provide two reports on your classmates' grants. Each referee report is worth 5% of your final grade, and will be marked by me as well as submitted to your classmates. Further instructions about writing referee reports will be posted on Avenue to Learn.

Based on their feedback, you will revise your proposal and submit a final version on Avenue on April 6, 2017 at 9:30 am. The final report is worth 18% of your final mark.

## THE STARS

1. BSS-19 47 Tuc – a blue straggler
2. HD 209548 – a star with a transiting planet
3. PSR 1257+12 – a pulsar with a planetary system
4. Sk -69° 202 – the progenitor to SN 1987A
5. Gliese 229B – a methane brown dwarf
6. W UMa – a contact binary
7. A0620-00 – an X-ray transient black hole
8.  $\gamma$  Cass – a Be star
9. AM Her – a cataclysmic variable
10. V4334 Sgr (Sakurai's object) – a star in the final He shell flash stage
11. HD 32257 – a Wolf-Rayet star
12. V410 Tau – a T Tauri star
13.  $\eta$  Carinae – a luminous blue variable
14. V1309 Sco – a stellar merger
15. SDSS J1114+1828 – a CEMP star
16.  $\zeta$  Capricorni – a barium star
17. HD 101065 – an Ap star
18. SDSS J090745.0+024507 – a hypervelocity star
19. FU Ori – a variable pre-main sequence star
20. CW Leonis – a carbon star