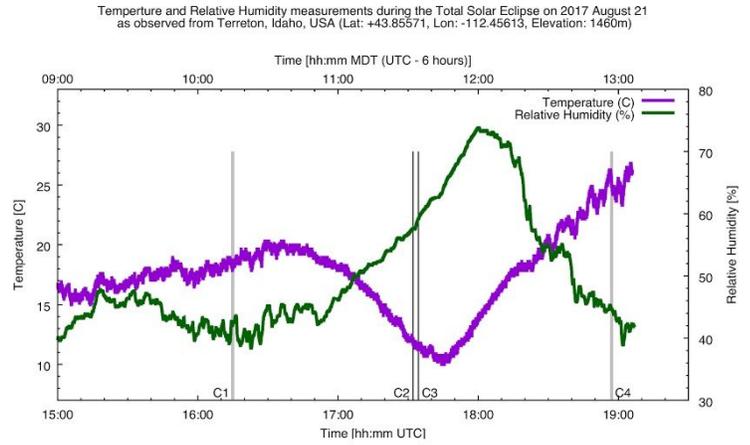
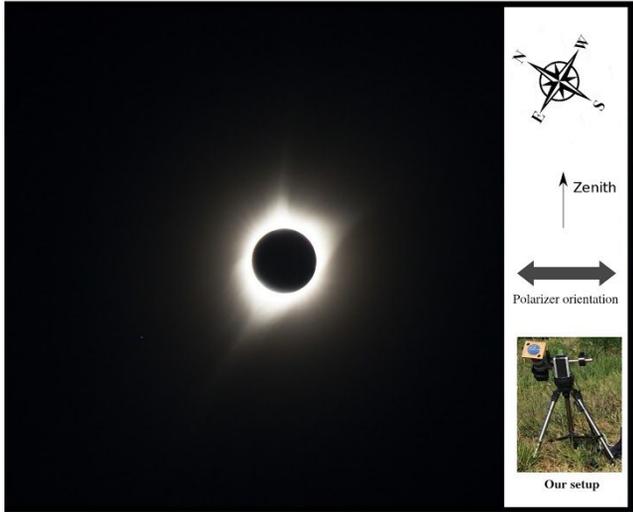


Astronomy 272, Fall 2017: *Introduction to Astrophysics*

**Total Solar Eclipse on 2017 August 21
as observed from Terreton, Idaho**



Meets: MW 12:30-1:50 pm

@ SC B334

Office Hours: Tues 10am - 12noon, Wed 3-5pm, or email

@ SC 1330

Course Goals: In this class we will start exploring the physics behind astronomical phenomena. Why and how do stars shine? How do we find out compositions of stars? What is the life cycle of stars? What powers supernovae, quasars, and blazars?

Course Book: *Astronomy: A Physical Perspective*, by Marc L. Kutner 2nd edition, and additional handouts or online readings. The bookstore should have copies of the text. Please keep in mind that the textbook will be a general guide only. We will cover certain aspects in more detail than the book. Exam/HW problems will be based on topics discussed in the class.

Website: An onCourse site has been established for the course; DM will post HWs etc. there.

Attendance Policy: Class attendance and participation is expected. Absences for school-sanctioned events will be excused. Please know that it is your responsibility to inform me in case of absence due to serious or prolonged illness.

Grading scheme:

- Exams (three, 20%+20%+20%) 60%
- Homeworks: 30%
- Data or Computational or Observational Project on a topic of your choice: 10%

Exams: There will be 3 exams over the course of the semester. See the course calendar below for the dates. There will be no make-up exams under ordinary circumstances, so please plan accordingly.

Homework: Weekly HW will include questions and problems covering class topics, and will represent 30% of your grade.

Research Project on a topic of your choice: In consultation with DM pick a topic that interests you most, no later than late September. It could be an Observational, Computational, or Data-related project. You will present your results to the class on the Poster Presentation day (see course calendar below for the date). Needless to say, you will need to make a poster.

Extra-credit challenges: We want you to get inspired and have new experiences, and to learn science and astronomy through trying new things. So, throughout the term, we will issue special challenges to the class. These challenges will include solving challenging problems, sometimes analytically or sometimes numerically.

You are also strongly encouraged to attend **Physics/Astronomy Seminars** held during the semester. Submitting a 1-page write-up of what you learned during the seminar will earn you 2% extra credit.

Grading Scale: You will not be graded on a curve. Your test grades will be scaled according to the table on the right. This absolute scale is designed, in part, to encourage you to work together. Please help one another inside and outside of class!

Grade	+		-
A	>96	92-96	88-92
B	85-88	81-85	77-81
C	72-77	67-72	63-67
D	60-63	56-60	52-56
F	<52		

Late Work Policy: Except in case of lateness due to illness or school-sanctioned events, homework and labs must be turned in by the stated deadline to get full credit. Every week's worth of delay will cost 10% of the maximum score. E.g. if you turn in a HW (that is originally worth, say, 10 points) 3 weeks late, then you can get only 7 points max for that HW.

Academic Integrity and Honor Code: I encourage you to work together on homework assignments, but straight copying of someone else's work is a violation. When in doubt, please acknowledge the work of the students that you studied with. Signing another person's name on an attendance sheet is an Honor Code violation. Tests are closed-book, and you will be asked to sign the Wheaton College Honor Code statement.

Accommodations: Wheaton is committed to ensuring equitable access to programs and services and to prohibit discrimination in the recruitment, admission, and education of students with disabilities. Individuals with disabilities requiring accommodations or information on accessibility should contact Abigail Cohen, Assistant Dean for Accessibility and Assistive Technology at the Filene Center for Academic Advising and Career Services. ~ cohen_abigail@wheatoncollege.edu or (508) 286-8215.

Class Schedule		
	Topics	Read chapter
	Class logistics; Measuring brightness: Brightness scale and Physical fluxes	2
	Colors of stars; Thermal/blackbody radiation; Planck's law and derivation of Wien's law and Stefan-Boltzmann laws;	2
	Stellar spectra: Origin and formation of spectral lines, spectral types, the HR diagram	3
	Binary Stars and what we can learn from them	5
	Sun; introduction to radiative processes	6
	Special relativity and astrophysical applications	7
	Elements of General relativity and astrophysical applications	8
	Stellar structure and evolution I: On the Main Sequence	9
	Stellar structure and evolution II: After the Main Sequence	10
	Stellar structure and evolution II: Stellar Remnants	11
	Galaxies	17-18
Some special dates		
<i>09/04</i>	<i>Labor day --- No classes!</i>	
<i>10/02 M</i>	Mid-term I – 2 hrs. Take it anytime during the day	
<i>10/09 M</i>	<i>October break --- No classes!</i>	
<i>11/06 M</i>	Mid-term II – 2 hrs. Take it anytime during the day	
<i>11/22 W</i>	<i>Thanksgiving --- No classes</i>	
<i>12/04 M</i>	Poster Presentations	
<i>12/11 M</i>	Final Exam @ 2-4pm	