Syllabus

Astronomy 203 – Lec 001
Stars
Spring 2022

LECTURES: Monday, Wednesday 2:00 – 3:15 p.m., Flandrau Planetarium Theater
(NO CLASS on: Jan. 17, Mar. 7 & 9)

INSTRUCTOR: Dr. Thomas A. Fleming

OFFICE: Steward Observatory, Room 209
TELEPHONE: 621-5049
EMAIL: taf@arizona.edu
OFFICE HOURS: Mondays & Thursdays 10:30 a.m. – 12:00 p.m. (in-person)

TEACHING ASSISTANT: Jane Bright
Steward Observatory Room 214
(520) 621-4934
janebright@arizona.edu
OFFICE HOURS: Wednesdays 11:00 a.m. – 12:00 p.m. (in-person)
Fridays 1:00 – 2:00 p.m. (https://arizona.zoom.us/j/81438029229)

MIDTERM EXAMS: Wednesday, Feb. 16, 2:00 – 3:15 p.m.
Wednesday, Mar. 30, 2:00 – 3:15 p.m.

FINAL EXAM: Friday, May 6, 1:00 – 3:00 p.m., Flandrau Planetarium Theater

REQUIRED SOFTWARE: *Mastering Astronomy* (accessed through D2L)

REQUIRED: TurningPoint® ResponseCard QT, QT2 or NXT (aka clicker)

WEBSITES: http://d2l.arizona.edu (ASTR 203)
http://stars.astro.illinois.edu/sow/sowlist.html (*Stars*)

PARTICIPATION IN CLASS: Beginning on **Jan. 24**, participation points will be earned electronically at each lecture and will figure into your final grade. You must obtain either an NXT or QT clicker. You are responsible to bring it to every lecture. In order to encourage you to do so, we will award you participation points in each class when you use your clicker. Students without a clicker in class will not receive points. You will receive points if you have an official excuse from the Dean of Students Office, you are observing a religious holiday which is associated with an organized religion to which you belong, or you are quarantining due to COVID-19. You are responsible for informing Dr. Fleming if this is the case. You are responsible for all information given out in the lecture, including schedule changes. Assignments will be posted in *Mastering Astronomy*. The average student gets a higher grade when faithfully participating in class.

The UA's policy concerning Class Attendance, Participation & Administrative Drops is available at http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop

REQUIRED SOFTWARE: You are required to purchase *Mastering Astronomy*, which comes with the *Cosmic Perspective* eTextbook by Bennett, et al. You will have access to this textbook and its related software online for the first two weeks of the semester. Should you remain in this course after January 25, 2022, your Bursar's account will be billed $47.99.

GRADES: Your final grade for the course will be based on the following assessments:

Midterm/Final Exams	300 points (37.5%)
Star Report	100 points (12.5%)
On-line Homework	300 points (37.5%)
Participation	50 points (6.25%)
Constellation Quiz	50 points (6.25%)

If you wish to contest a score on one of your assignments, you must contact Dr. Fleming no later than 2 weeks after the score is posted on the D2L course site.

These are the hardest percentages needed to earn a specific grade. We reserve the right to further curve the class later, making the grading slightly easier, BUT under no circumstances will anyone doing less than 50% work pass this class.

A = 720 points (90%)
B = 640 points (80%)
C = 520 points (65%)
D = 400 points (50%)
E < 400 points

STAR REPORT: At the beginning of the semester, you will each be given the name of a star (see the Grades page on our D2L course site.) That will be your identifier for the entire course. You will be expected to learn everything there is to know about that star, including where it is located in the sky. At the end of the semester, you will be required to submit a written report on your star. The report should cover information on your star such as: 1) its position in the HR-Diagram; 2) where it is in its own life cycle; 3) a description of how it will end its life; 4) its location in our Galaxy; 5) how it was named, etc. More details will be given in class and on D2L. First drafts will be due on March 7 at 5:00 p.m. You will receive feedback on your first draft. Final reports will be due on April 22 at 5:00 p.m. MST. You will also be required to submit your first drafts to TurnItIn.com.

ON-LINE HOMEWORK: You will be required to do homework assignments outside of class. They involve computer simulations using the *Mastering Astronomy* and *Stellarium* planetarium software. You will access this software through D2L on the Content page. You will submit your answers through the *Mastering Astronomy* website. You may discuss the astronomy concepts with your classmates, but you are expected to do your own work on these assignments.

CONSTELLATION QUIZ: We will attempt to schedule star parties on two evenings (dates TBA) at Saguaro National Park West. They will last two hours (7 – 9 pm). You are required to attend at least one of them. We will point out the constellations while members of the Tucson Amateur Astronomy Association will set up their telescopes for viewing. During one of these sessions, you must take your constellation quiz. To get full credit (50 pts), you must identify 10 constellations and 5 stars. If the COVID-19 situation makes it impossible to hold star parties, then you will take the constellation quiz using the Quizzes tool on our D2L course site.

DEADLINES*:* You will be given at least one week to complete an assignment. If you choose to wait until a few hours before the deadline to do your assignment, you are taking a calculated risk. Should your printer break, Internet go down, or an emergency arise at the last minute, these will not be valid excuses. However, you will be given extra time IF you miss a deadline because of circumstances related to the COVID-19 pandemic. You will not get an extension if you chose to wait until the last moment to start the assignment. If this worries you, start your assignments early and hand them in early!! You can submit an assignment any time before the deadline.

ACADEMIC DISHONESTY: Presentation of any work other than your own is considered academic dishonesty. This includes copying test answers or homework assignments, other persons taking exams for you, or reference to any unauthorized materials during the exam. Any other technique that gains unfair advantage over other students is also considered academically dishonest. All students must be prepared to present valid picture identification if requested during an exam period. Any incidents of academic dishonesty will be dealt with according to the University of Arizona's Code of Academic Integrity. A copy of this Code can be obtained at the Dean of Students website. The consequences can range from loss of credit on an assignment to dismissal from the University, depending on the severity of the offense. The penalty for plagiarism, cheating on an exam, computer fraud, or using another student's clicker to falsify participation will be automatic failure of the course, and depending on the circumstances, we may seek your suspension or expulsion.

You can find details of the Code at:
http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity

You should also be aware of the University's policies on disruptive and threatening behavior:
http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students

The University is committed to creating and maintaining an environment free of discrimination:
http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy

TURNITIN.COM: If you decide to continue in this course, you are agreeing to submit your Star Report online, when so instructed, to a plagiarism-prevention program called TurnItIn.com. You should note that TurnItIn.com – always without your name and any personal information – will retain your paper as part of their database so that students who plagiarize from it can be detected. Because of this program, the vast majority of you who do your own work and cite your sources of information properly will not have to compete with students who commit undetected plagiarism. Anyone who has questions or problems with TurnItIn.com may talk privately about these with Dr. Fleming.

ACCESSIBILITY & ACCOMODATIONS: At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience barriers based on disability or pregnancy, please contact the Disability Resource Center (520-621-3268, https://drc.arizona.edu) to establish reasonable accommodations and then notify Dr. Fleming of your eligibility for reasonable accommodations. We can plan how best to coordinate your accommodations. Dr. Fleming does not use the DRC Testing Center; Dr. Fleming will administer all testing accomodations.

HONORS CREDIT: This course is available for Honors credit via an Honors contract. To receive Honors credit, you will have to conduct a project that is more challenging than the assignments outlined in this syllabus. More info at:
http://www.honors.arizona.edu/future-students/honors-credit-across-campus

LEARNING OUTCOMES: ASTR 203 is a Natural Sciences Tier 2 course in the University of Arizona General Education program. Upon completion of this course, students will be able to:

- understand the nature and application of physical science
- apply ideas and processes beyond the classroom
- recognize the complexity of many scientific issues
- speak and write about scientific knowledge
- appreciate the relative scale of objects, rates of change, linear and nonlinear growth
- critically analyze and interpret data and results presented in tables, graphs and charts as well as perform appropriate mathematical calculations
- read and understand scientific literature from popular sources such as magazines and newspapers

LEARNING GOALS FOR THIS COURSE: In this course, the student is expected to take an active role in learning. Do not expect us to lecture for the entire class period while you sit, listen, and take notes. Class time will be peppered with "mini-lectures," separated by various activities which will make use of the clickers. Be prepared to interact with your classmates, ask questions, and participate in group discussions. You will also interact with computer-generated animations and exercises outside of class.

Our goals for you in this course are that, after it is over:

- You will have an appreciation for the role that stars have played in the history of humanity.
- You will be able to read and understand the information contained in a basic star catalog.
- You will know how the elements were created.
- You will have exercised your critical thinking and problem-solving skills.

We ask that you participate fully in the course. In return, we promise to make this course as interesting and **fun** for you as we can.

QUESTIONS: Students are encouraged to ask questions in class and to seek help if needed. It is to your advantage to seek help when you encounter problems rather than at the last minute just before an assignment deadline. We are here to help you understand something about the subject of astronomy. Remember, there is no such thing as a stupid question!

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.

LECTURE TOPICS:

Date	Topic	Chapter in *MA* eText
Jan 12	Introduction, Celestial Motions, Coordinates	2, S1
Jan 19	Constellations, Naming of Stars	
Jan 24, 26	Light, Gravity & Motion	5, 4
Jan 31, Feb 2	Star Motions & Distances, Magnitudes & Color	15
Feb 7, 9	Atomic Physics, Spectral Classes, HR-Diagram	15
Feb 14	Binary & Variable Stars	15
Feb 21, 23	The Sun, Nuclear Fusion Reactions	14
Feb 28, Mar 2	Solar Activity, Main Sequence Star Lifetimes	14
	SPRING RECESS	
Mar 14, 16	Evolution of Low-mass Stars, Star Clusters	17
Mar 21, 23	Novae, Supernovae (Type Ia), Evolution of High-mass Stars	17
Mar 28	Supernovae (Type II), Neutron-Capture Processes	
Apr 4, 6	Neutron Stars, Special Theory of Relativity	18, S2
Apr 11, 13	General Theory of Relativity, Black Holes	S3, 18
Apr 18, 20	Black Holes, Interstellar Medium	16
Apr 25, 27	Star Formation, the Milky Way Galaxy	16, 19
May 2, 4	"Star Stuff"	

THEATER ETIQUETTE IN THE AGE OF COVID-19:

Due to the ongoing COVID-19 pandemic, we must all agree to follow certain protocols in order to conduct our class in-person in a safe and responsible environment. The University of Arizona has already instituted protocols, which will probably change throughout the semester. You will find the current protocols under which we will operate at:

http://covid19.arizona.edu

In addition, there are a few protocols that are particular to the Flandrau Science Center. We ask you to observe the following protocols to ensure a safe classroom experience in the Flandrau Science Center Planetarium Theater:

- If you are feeling ill or in any type of quarantine due to the University's COVID -19 protocols on the day of class, please do NOT come to class. The class presentation will be recorded for you to watch on-line.
- There is a sanitizing station located at the entrance to the Planetarium Theater. Please sanitize your hands when you enter the theater and when you exit the theater. Like President Robbins likes to say: "GEL in…GEL out!"
- There is no eating allowed in the Planetarium Theater. You may not bring food or drink, other than water, into the theater. (You may briefly drop your mask to drink water.)
- Please make every effort to arrive in class on time and not leave until class is over. If you must arrive late or leave early, please do not disrupt class or distract your classmates.
- **For safety reasons, when the FULLDOME PROJECTOR is in use, the doors to the planetarium theater will be LOCKED. You will not be able to enter the theater/class while the projector is in use; you must wait until the presentation is over and the doors unlock before entering the classroom.**

Finally, you will *never* be penalized in any way in this course for being in COVID-19 quarantine or for following standard public health practices.