

**SYLLABUS**  
**ASTR 203 Stars (Lecture #002H Honors Section)**  
**Fall 2017**

**LECTURES:** Tuesday/Thursday: 12:30 p.m. - 1:45 p.m.  
Steward Observatory, Room 204

**INSTRUCTOR:** Dr. Nathan Smith  
**OFFICE:** Steward Observatory, room N512  
**TELEPHONE:** (520) 621-4513 (*voice messages are not checked regularly*)  
**EMAIL:** [profsmith170@gmail.com](mailto:profsmith170@gmail.com) (*this is the best way to contact Dr. Smith*)  
**OFFICE HOURS:** Tu/Th (2:00 p.m. – 3:00 p.m.) or by appointment

**TEACHING ASSISTANT:** David Ball  
Office: Steward Observatory, room N317 (not 317)  
Email: [davidrball@email.arizona.edu](mailto:davidrball@email.arizona.edu)  
Office Hours: M/W (10:00 a.m. – 11:00 a.m.) or by appointment

**MIDTERM EXAMS:** September 21, October 31 in class  
**FINAL EXAM:** Friday, Dec 8, 1:00 p.m. - 3:00 p.m., Steward Obs. 204

**REQUIRED TEXTBOOK:** *21<sup>st</sup> Century Astronomy*  
by Kay, Palen, Smith, & Blumenthal (Norton & Co)

**COURSE WEBSITES:** <http://D2L.arizona.edu> and <http://smartwork.wwnorton.com>

**COURSE OVERVIEW AND GOALS:** This course will focus on the properties of stars, their role in the universe, and their connection to our existence. We will discuss fundamentals of astronomy, physics, and matter, and then learn about the birth, life cycles, and exotic deaths of various types of stars. This is an introductory level course intended for undergraduates who are not science majors. After completing this course, a student should be able to:

1. Explain the night sky to friends and family. Be familiar with the concepts associated with motions in the sky, the various physical properties of stars, and how they change with time.

2. Develop a clear understanding of the scientific process of making observations of Nature, formulating theories to explain them quantitatively, making predictions, and then making new measurements to test those predictions in order to objectively verify or rule out a theory.

3. Appreciate how we use the scientific method and apply basic laws of physics to understand unfamiliar and exotic phenomena in the universe: stellar evolution, binary stars, exploding stars, pulsars, black holes, etc. One of the coolest facts of astronomy is that we are all stardust. Students should finish this course with a deep understanding of what this means, including the physical processes that connect the atoms in our bodies to previous generations of stars.

**Honors Credit:** To qualify for honors credit, students must complete an Honors Project that goes beyond the normal curriculum of the course and requires initiative and creativity. Parameters of this project will be discussed in lecture early in the semester, but possibilities include an observational project, creative written assignment, or other project. These will require a short presentation to the class. Honors students must also work with physical relationships applied to astronomy in a quantitative way (using basic equations and proportionalities) at a deeper level than required in a standard course, but not at the level required for science majors.

## TOPIC SCHEDULE & READING ASSIGNMENTS:

(Assigned chapters must be read before class on Tuesday of the listed week; HW is due Thursday)

<u>Week</u>	<u>Topic</u>	<u>Chapters</u>	<u>Notes</u>
1. Aug 22/24	Introduction/overview/basics	...	No class 8/22, first day 8/24
2. Aug 29/31	History, Scientific Method, The Sky	1, 2	HW1
3. Sep 5/7	Greeks/Copernicus, Orbits, Gravity	3, 4	HW2 (Writing Quiz Th)
4. Sep 12/14	Light, Matter, Spectroscopy, Telescopes	5, 6	HW3
5. Sep 19/21	Normal Stars	13	Midterm Exam 1 (Th)
6. Sep 26/28	Normal Stars, Binary Stars, HR Diagram	13	HW4
7. Oct 3/5	The Sun, Energy	14	HW5
8. Oct 10/12	ISM, Star Formation	15	HW6 (Writing Quiz Th)
9. Oct 17/19	Evolution of Low-mass Stars	16	HW7
10. Oct 24/26	White Dwarfs, Novae, Supernovae, review	16	no HW (study for MT2)
11. Oct 31/Nov 2	Evolution of High-mass stars	17	Midterm Exam 2 (T)
12. Nov 7/9	Evolution of HMS (cont.), neutron stars	17,18	HW9
13. Nov 14/16	Black Holes, Relativity	18	HW 10
14. Nov 21	Solar System Formation, Exoplanets	7	11/21 Thanksgiving
15. Nov 28/30	Stars in Other Galaxies, The Milky Way	20, 21	Honor's Projects due (Th)
16. Dec 5	Summary/review		
Dec 8	<b>Final Exam 1:00-3:00 pm</b>		

**GRADING:** Your final grade for the course will be based on the midterm/final exams and other assignments in the following proportion (total possible = 800 points):

Homework	160 points (20%)
Participation/Writing	80 points (10%)
Midterm 1	120 points (15%)
Midterm 2	120 points (15%)
Honors Project	120 points (15%)
Final	200 points (25%)
Extra Credit	20 points (maximum - bonus)

The final letter grade that will appear on your transcript will be determined by cumulative points you earn in the class, evaluated on a curve compared to the entire class. Letter grades will not be given for each individual assignment, but in class we will give feedback for large-value items like mid-term exams and the term paper. If you would like feedback on your homework assignments, please come to office hours or schedule an appointment with your TA or Prof. Smith. Mistakes in grading individual assignments sometimes happen. All questions, disputes, or mistakes regarding the grading of exams and assignments must be brought to our attention within 1 week after the assignment is handed back or posted; such checks are encouraged. We reserve the right to change or curve the course grading, but a guideline for percentage vs. grade is as follows:

**A = 720 points (90%) B = 640 points (80%) C = 520 points (65%)**

**D = 400 points (50%) E < 400 points**

**HOMEWORK:** This course requires weekly online homework (details at end of syllabus) that will involve questions from the assigned reading and online activities. You may discuss the concepts with classmates, but you must do your own work. Each will count for 20 points, and we will *drop the two lowest* homework scores. Dropping these two scores is meant to allow flexibility for any unforeseen disasters, illnesses, family emergencies, religious holidays, sporting events, late registration in the course, the bookstore running out of books, computer malfunctions, zombie attacks, etc. For this reason, late homework will not be accepted...ever. Do not request the opportunity to make up homework unless your reason is serious enough (i.e. a prolonged severe illness) to warrant receiving a grade of incomplete in the course with a valid Dean's excuse. Homework assignments are submitted online, and are due before the start of class (i.e. 12:29 pm) on the Thursday of the week each HW is listed in the syllabus. For example, HW1 is due Aug. 31.

**MAKE-UP EXAM POLICY:** We understand that occasional unavoidable absence or unforeseen circumstances may occur, and we do not want you to attend class if you are ill and contagious. For these normal situations (illness, mild injury, called in to work at the last minute, child is sick, oversleeping because your alarm didn't go off, etc.) we do not allow make-up assignments. Instead, the grading of the course has some flexibility built in: i.e. we drop the two lowest homework scores and the two lowest participation scores. If you must miss class because of a recognized religious holiday or other *pre-scheduled event*, turn in your assignment early, and/or consult Prof. Smith BEFORE you miss an exam. In these cases you will most likely take a makeup exam early. Failure to contact Prof. Smith before missing an exam for a scheduled event will yield a score of zero on the exam. There are some severe cases that do justify a makeup opportunity for term papers and exams (or multiple homeworks) after a deadline or exam, such as a death in the family, severe illness or injury requiring medical treatment, etc. For these cases, makeup work can be requested by filling out the Excused Absence form available as a PDF file on the course D2L site. Notify Prof. Smith by email as soon as possible. To be fair to all students, we must restrict makeup work to the most serious and legitimate cases, and these will require written documentation or other verification. If it is determined that the absence was not for the reason claimed, this will be considered a breach of the code of academic integrity.

**FINAL EXAM:** Please note that the final exam is scheduled for Friday December 8. Take this into account when making any holiday travel plans in December. Your desire to go home earlier than Dec. 8 will not be accepted as a valid excuse. You are required to be here on Dec. 8 or you will fail the course, except for the most serious cases as noted above. ALL EXAMS are closed book and closed note. All phones must be packed away and hidden from view, or you will be given a score of zero on that exam and reported to the Dean.

**TERM PAPER / HONORS PROJECT WRITTEN ASSIGNMENT:** All students are required to submit a written project as part of the requirements for this course. The deadline for turning in your finished project is Thursday, Nov 30 (start of class). This deadline is firm; **absolutely no late term papers will be accepted except for a medical emergency.** Detailed instructions and guidelines for the project available on D2L. Submit a *printed hardcopy* in class on the due date, and also upload a PDF file to the course website (D2L) dropbox before the start of class. Failure to do either by the deadline will earn you a score of zero on this assignment. A short in-class presentation is also required as part of the assignment (see assignment instructions).

**LOOKING THROUGH A TELESCOPE:** This is not required, but you are encouraged to attend any of the series of public evening lectures hosted by Steward Observatory. See the listing at: <https://www.as.arizona.edu/public-evening-lecture-series> . Following all public lectures (which are held in this room, N210), the telescope dome outside this lecture hall will be open for viewing objects in the night sky (weather permitting). This telescope is also open for eyepiece observing every MTWTh during the semester. You must sign up in advance near the lobby.

**EXTRA CREDIT:** This course provides the opportunity to earn a maximum of 20 extra-credit points added to your total course points. You can attend any of the series of public evening lectures hosted by Steward Observatory, listed above. These are free and open to the public. You may earn 5 extra credit points for each lecture you attend, up to 20 points (you may attend all lectures, but you can only earn points for four of them). To earn the points, you submit a 1-page written report (PDF files only) on the course D2L website, including a basic summary of the lecture (about half a page), a more detailed discussion of one aspect of the topic that you found interesting (the rest of the page). These write-ups should be submitted within a week after the lecture, or by the last day of regular class at the latest.

**PARTICIPATION IN CLASS:** Attendance may be taken at any lecture (but not every lecture) in the form of in-class exercises and will figure into your final grade. We will also have in-class written assignments/quizzes; dates for the written quizzes are posted on the syllabus, and you must make arrangements with Prof. Smith to take the quiz in advance if you must miss a class for an excused pre-arranged reason. Students are responsible for all information given out in the lecture, including any announced schedule changes, and so attendance is *required*. If you must miss class, talk to another student, your instructors, or consult the D2L page to find out what you missed. We will conduct interactive group exercises in class; this will improve your understanding of the material and will count toward your grade. You will not be allowed to make up any missed participation points. To allow for unavoidable periodic absences, we allow two absences with no penalty. In other words, your two lowest participation scores will be dropped.

**REQUIRED TEXT:** The textbook named above is required for the course. The syllabus lists which chapters in the text correspond to lecture topics each week, and assigned reading. You are required to read those chapters *before* coming to class that week. Most of the homework problems will be taken from this textbook, and in-class exercises will depend on the reading. Note that if you purchase a used copy of the book, you must also purchase access to the online SmartWork material from Norton. This online access is essential for your weekly homework.

**TURNITIN.COM:** If you decide to continue in this course, you are agreeing to submit any papers online as PDF files, when so instructed, which will be examined by 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 now or in the future 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 plagiarism.

**ACADEMIC DISHONESTY:** Presentation of any work other than your own, in whole or in part, is considered academic dishonesty. This includes copying test answers or homework assignments, other persons taking exams or quizzes for you, plagiarism of any material on the Internet or in other publications, fabrication, borrowing another students assignment as an “example” to get started, or reference to any unauthorized materials during the exam. In instances where nearly identical assignments are submitted, all parties will be held in violation of the Code of Academic Integrity, so do not share your assignment with another student. Any other technique that gains unfair advantage over other students is also considered academically dishonest. Making an untrue statement as justification to retake a missed exam is academically dishonest. All students must be prepared to present valid picture identification if requested during any exam period. Any incidents of academic dishonesty will be dealt with harshly according to the University of Arizona's Code of Academic Integrity: <http://deanofstudents.arizona.edu/codeofacademicintegrity> . The consequences can range from loss of credit on an assignment, to full dismissal from the University, depending on the severity of the offense. In our class, the penalty for plagiarism, cheating on an exam, or computer fraud will be automatic failure of the course and, depending on the circumstances, we may seek your suspension or expulsion from the University. It is not worth the risk.

**STUDENTS WITH DISABILITIES:** If you anticipate issues related to the format or requirements of this course, please meet with Prof. Smith. We would like to discuss ways to ensure your full participation in the course. If you determine that formal, disability-related accommodations are necessary, it is very important that you be registered with Disability Resources (621-3268; <http://drc.arizona.edu> ) and notify Prof. Smith of your eligibility for reasonable accommodations well in advance of the first midterm exam. We can then plan how best to coordinate your accommodations.

**BEHAVIOR IN CLASS:** NO smoking, eating, drinking (except water), or pets are allowed in the lecture hall. All cell phones must be turned to silent mode or powered off completely, and must be placed *completely out of sight*. To not interfere with students trying to listen to the lecture, you may not use a laptop in class except to take notes. If you intend to use a laptop in this manner, please sit toward the back or sides of the lecture hall to mitigate your screen from distracting those behind you. You are expected to be courteous and respectful to your classmates and instructors, and we ask that you strive to be inclusive in group exercises. You should also be aware of the University’s policies on disruptive and threatening behavior: <http://deanofstudents.arizona.edu/disruptiveandthreateningstudents>

**LEARNER-CENTERED EDUCATION:** The University of Arizona has designated itself a “Learner-Centered University.” This means that the student is expected to take an active role in his/her learning. Class time will be peppered with “mini-lectures” for qualitative understanding, separated by activities that will require your participation, especially team activities that will constitute part of your grade. Be prepared to interact with your classmates, ask questions, and participate in group discussions. Always read the relevant textbook chapters **BEFORE** coming to class. Students who actively participate in class are more likely to be bumped up if their final grade lands on a border, as compared to those who do not.

**ACCESS TO THE ONLINE MATERIAL:** Access to the Norton SmartWork online material comes with your book if purchased from the UA bookstore. If you have a used copy, you must purchase the online access in order to complete the online homework. To set up your account, follow these instructions:

Digital Product Registration and Purchase

1. Visit your book's digital landing page: <https://digital.wwnorton.com/astro5>
2. Click the green button in the center of the page.
3. Select "No, I need to register, purchase, or sign up for trial access."
4. Enter your name, school email, and create a password.

As you complete registration, you'll have the following access options:

1. If you already have a registration code, enter your registration code and click "Register my Code."
2. If you want to purchase digital product access online, select the "I want to purchase access" option.
3. If you want to try digital products before purchasing, select the "I want to sign up for free trial access" option.

The first time you access an activity from the landing page, you'll be asked to enter a Student Set ID number. **Our Student Set ID is: 35688**

Students can buy standalone access to SmartWork, access Technical Support, and find answers to many FAQ's at <http://books.wwnorton.com/books/buysmartwork/>. There is also a video with instructions on how to register here: <http://bit.ly/nortonregistration>