

SYLLABUS
ASTR 170B1, Lecture #005 + 6H
The Physical Universe
Fall 2015

LECTURES: Tuesday/Thursday: 11:00 a.m. - 12:15 p.m.
Steward Observatory, Room N210
(No Class on Nov. 26, Thanksgiving. Last regular lecture Dec. 8)

INSTRUCTOR: Dr. Nathan Smith
OFFICE: Steward Observatory, room 336
TELEPHONE: (520) 621-4513
EMAIL: profsmith170@gmail.com (best way to contact Dr. Smith)
OFFICE HOURS: Tuesday/Thursday 1:00 - 2:00 p.m. (or by appt.)
No office hours held (travel): 10/22

TEACHING ASSISTANT: Ramesh Mainali
Office: Steward Obs., 214
Email: rminali@email.arizona.edu .
Office Hours: Monday/Wednesday 9:00 – 10:00 a.m. (or by appt.)

MIDTERM EXAMS: Thursday, October 1, 11:00 a.m.
Thursday, November 5, 11:00 a.m.

FINAL EXAM: Monday, December 14, 10:30 a.m. - 12:30 p.m., Steward Obs. N210

REQUIRED TEXTBOOK: *The Cosmic Perspective, 7th Ed.*, by Bennett, Donahue, Schneider, & Voit
with *Mastering Astronomy* website

WEBSITES: <http://D2L.arizona.edu>
<http://www.masteringastronomy.com> [Class Code: SMITHFALL2015]

COURSE OVERVIEW AND GOALS: This is an introductory course that will survey a variety of topics in astronomy, intended for undergraduates who are not science majors. We will discuss some fundamentals of astronomy, physics, and matter, and then learn about our Solar System, the birth, life cycles, and deaths of various types of stars, the Milky Way and other galaxies, and the size, structure, and origin of the Universe. After completing this course, you 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. We will not focus on the constellations or the mythology associated with them.

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. Develop a working understanding of the terms in astronomy as well as some of the underlying physical principles that govern their observed properties. Understand what makes planets different from one another, what differentiates various types of stars, different types of galaxies, and the large scale structures and components of the Universe.

TOPIC SCHEDULE & READING ASSIGNMENTS:

<u>Week</u>	<u>Topic</u>	<u>Chapters</u>	<u>Assignments/Exams</u>
Aug 25/27	Scale of the Universe, Celestial Motions	1, 2	MA1, MAintro, planetarium
Sep 1/3	History of Astronomy, What is Science?	3	MA2
Sep 8/10	Gravity and Motion	4	MA3
Sep 15/17	Light, Matter	5	MA4
Sep 22/24	Solar System, Terrestrial Planets	7,9,10	MA5
Sep 29/Oct 1	Jovian Planets	11	MA6, Midterm 1 (Th)
Oct 6/8	Sol. System Formation, Comets, Asteroids	8,12	MA7
Oct 13/15	The Sun, Normal Stars, H-R Diagram	14, 15	MA8
Oct 20/22	Star Formation, Stellar Evolution	16, 17	MA9, draft 1 (Th)
Oct 27/29	Low- vs. High-mass Stars, Stellar Death	17, 18	MA10
Nov 3/5	Degenerate Stars, Black Holes	18	MA11, Midterm 2 (Th)
Nov 10/12	The Milky Way Galaxy	19	MA12
Nov 17/19	Other Galaxies	20	MA13
Nov 24	Quasars, Galaxy Evolution	21	final draft (T)
Dec 1/3	Cosmology, Dark Matter, The Big Bang	22, 23	MA14
Dec 8	Extraterrestrial Life, Exoplanets	24, 13	MA15
Dec 14	Final Exam 10:30 a.m. - 12:30 p.m.		

GRADES: Your final grade for the course will be based on the cumulative points you earn on the midterm and final exams, plus other assignments in the following proportion:

Midterm #1	120 points (15%)
Midterm #2	120 points (15%)
Final	200 points (25%)
MA Assignments	160 points (20%)
Astronomy in the News	120 points (15%)
Participation	80 points (10%)
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	

PLANETARIUM VISIT: On Thursday Aug 27, report directly to the Flandrau Planetarium (other side of Cherry Ave.). Do not come to the normal lecture hall first.

PARTICIPATION IN CLASS: Lectures will include in-class group exercises that will count toward your final “participation” grade. Students are responsible for all information given out in lecture, including any announced schedule changes. If you must miss class, talk to another student or consult the D2L page to find out what you missed. You will not be allowed to make up any missed participation points, although we drop the two lowest participation scores to accommodate unavoidable absence due to illness or other unforeseen event. Students who miss class due to an organized University event (such as athletics) must notify Prof. Smith *in advance* to make up work.

HOMEWORK: This course requires weekly homework problem sets that will involve using the www.masteringastronomy.com website, the access codes to which come with your textbook. You will submit your answers through the *MA* website. You may discuss the astronomy concepts with classmates, but you must do your own work on these assignments. You will need the access codes that come with your textbook to establish an account on Mastering Astronomy. We do not accept late homework assignments. Instead, the course policy is to drop the 2 lowest 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, etc. For this reason, late homework will **not** be accepted, and access to the electronic assignments will disappear at the due date/time. Do not request the opportunity to make up homework unless your reason is serious enough to miss more than 2 weeks of class (see below for severe cases). The breakdown for homework points is 4 pts for the intro assignment (full credit for completion), + 156 pts (12 pts x 13 best assignments). Homework for each week is due the following Tuesday *before class begins*. For example, homework MA1 which covers material in week 1 of the class must be completed before 11:00 a.m. on the following Tuesday, Sept. 1. No exceptions. Waiting until 10:59 am on Tuesday to submit your homework, only to find out that your watch is 1 minute slow, will not be a valid excuse.

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 we drop 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 a regular lecture or an exam. Failure to contact Prof. Smith before missing an exam for a scheduled event will result in a score of zero on that exam.

There are some severe cases that do justify a makeup opportunity for term papers and exams (or multiple homeworks), 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. If you miss a midterm exam because of serious illness, please notify Prof. Smith by email **BEFORE** the exam starts. 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 December 14. Take this into account when making any holiday travel plans in December. Your desire to go home earlier than Dec. 14 *will absolutely not* be accepted as a valid excuse. You are required to be here on Dec. 14 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.

WRITTEN ASSIGNMENT: To satisfy the general education requirement of this course, all students must submit a 10-page written term paper. You will submit a first draft (required for 50% of the points), on which you will receive feedback, before submitting the final edited version. The deadline for the first draft is Thursday Oct. 22, and the final report is due Nov. 24. Both deadlines are at 11:00 am (start of class). More detailed instructions for this assignment are available on D2L.

DEADLINES: We will accept **no** late assignments. MA homework assignments and written reports (Term Paper and extra credit, in PDF format only) are submitted online, and the electronic servers will not accept submission after the deadline. 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 arises, these will not be valid excuses. You will not get an extension because 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.

TUTORING: The University of Arizona offers free tutoring through the THINK TANK. See www.thinktank.arizona.edu.

STUDENTS WITH DISABILITIES: If you anticipate issues related to the format or requirements of this course, please meet with Dr. 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 Dr. Smith of your eligibility for reasonable accommodations well in advance of the first midterm. We can then plan how best to coordinate your accommodations.

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 http://enterprise.as.arizona.edu/~taf/pubeve/pub_lect.html. 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, and by Thursday Dec. 3, 2015 at the latest. Following all public lectures (which are held in the same room as our lecture), the telescope dome outside this lecture hall will be open for viewing objects in the night sky (weather permitting). You should also participate in this activity and include a description of what you saw in the write-up.

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 student's 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.

TURNITIN.COM: If you decide to continue in this course, you are agreeing to submit your 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.

REQUIRED TEXT: The textbook named above is required for the course. You also have the option of purchasing the eText of this book (see page 6 for instructions). The syllabus lists which chapters in the text correspond to the lectures given each week. You are required to read those chapters *before* coming to class that week. Throughout the semester, we may give unannounced **pop quizzes** in class to test whether you have done the assigned reading.

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," separated by various activities that will require your participation. Be prepared to interact with your classmates, ask questions, and participate in group discussions. You will also interact with computer animations and exercises.

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, airplane mode, or be powered off completely, and must be placed *completely out of sight*. Many students find open laptops in a lecture hall to be very distracting. To not interfere with other students trying to listen to the lecture, you may not use a laptop in class except to take notes. If you do use a laptop, please sit in the back rows and outside aisle seats near the side walls. For violating the cell phone or laptop rules, we adopt a "3 strikes and you're out" policy; on the third infringement you will be dropped from the class. You should also be aware of the University's policies on disruptive and threatening behavior: <http://deanofstudents.arizona.edu/disruptiveandthreateningstudents>

INSTRUCTIONS FOR OPENING AN ACCOUNT ON *MASTERING ASTRONOMY*

1. Go to <http://www.masteringastronomy.com>
2. Click on the “Students” button in the box labeled “Register”.
3. Answer “YES, I have an access code.” if you received one with your textbook. (Go to step 5.)
4. Answer “NO” if you must purchase a code on-line.
 - a. Select the textbook at the far right (Cosmic Perspective 6e).
 - b. You have the option to purchase the eText (eBook) for \$92.70. If you already bought a used book, a Mastering Astronomy account alone without the eText will cost \$35.00.
 - c. Continue with instructions to establish your account. Then go to Step 6.
5. Use the access code that is included in your textbook to set up your unique Login ID/Password.
6. Return to the login page and enter the site with your new Login ID and password.
7. During this next stage of registering, there are two additional fields:
 - a. Enter your University of Arizona Net ID number.
 - b. Course ID. Enter the following ID: **SMITHFALL2015**
 - c. Click the home page link and you are now in the system!

If you have REGISTRATION questions: contact <http://247pearsoned.custhelp.com/> and fill out the request form for help.

If you have Mastering Astronomy questions: contact support@masteringastronomy.com or refer to the online help documents.

Honors Students (section 6H): If you registered for the Honors component of this course (section 6H), you are required to complete an additional project that covers material outside the normal scope of the course. A more detailed description of the honors project can be obtained from the PDF file on the course D2L site.

ASTR 170 B1 – The Physical Universe

Fall 2015 - STUDENT INFORMATION AND AGREEMENT SHEET

Name _____

Student ID Number _____

Local Telephone Number _____

Email Address _____

By signing below, I hereby acknowledge that I understand that:

- (a) I have read the syllabus.
- (b) The policies, rules, regulations, dates and deadlines outlined within this course syllabus apply in all ways directly to me and my conduct in the course.
- (b) This course has scheduled midterm examinations and a final examination as shown in the syllabus and listed in the University course/examination schedule, and I will not make plans that interfere with these scheduled examinations. In addition, I will bring my photo-student ID and a pencil to each examination and show my photo-student ID to a test administrator if asked.

Signature

Date

