Astro 1200-002 - Stars and Galaxies (Fall 2018)

Instructor:	Teaching Assistant:
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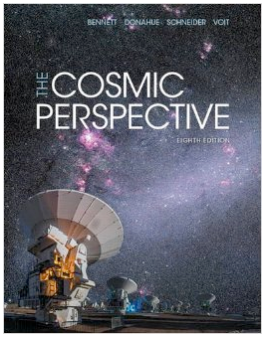
office: Duane D321	
hours: Wed 10-11 am, 2-3 pm	
and by appointment	

Lecture: Mon/Wed/Fri 11:00-11:50 am Duane G130

Overview: In this course we will examine the lives of stars, the structure of galaxies, and the evolution of the universe. We will discuss what astronomers know today about each, how they know it, and what we don't yet know or may be wrong about. More broadly, I will show you how, via a combination of careful observation and detailed theory, science allows us to confidently answer at least some questions that lie far outside the realm of what we experience in everyday life.

Who should take this class: ASTR1200 is designed as a stand-alone, single-semester course with no assumed prior astronomical knowledge. **Astro1200 does not count as part of the astronomy core sequence nor does it count in the ASTR major.** If you have already taken ASTR1000 or 1010, please enroll in ASTR1020 instead which is the continuation of the sequence and covers all of the same material as this class. If you have already taken ASTR1020 or 1040, you cannot receive credit for this class. If you are a physical sciences or engineering major, you are strongly encouraged to take the calculus-based ASTR1030/1040 sequence instead.

REQUIRED MATERIALS:



Textbook: *The Cosmic Perspective*, 8th Ed. by Bennett et al. (required). I will assign regular readings from this book (approximately one chapter per week). This is the same text we use in all 1000-level astronomy classes. If you already have one from a previous course, that is fine. Older versions of this text (5th-7th) are also acceptable or most other college-level intro astronomy texts. The important thing is that you read whatever textbook you have. However, it is your responsibility to make sure assigned reading chapters are the same as in the 8th edition of TCP. Many students choose to purchase the e-text from www.masteringastronomy.com.

Mastering Astronomy: Access to the online material (tutorials, homework, quizzes, study material, etc.) at www.masteringastronomy.com is required for this class. New textbooks come bundled with an access code for the website. You can also buy a MasteringAstronomy account a la carte if you bought a used or electronic copy of the text. Register with our class on that site to receive credit using the class ID of

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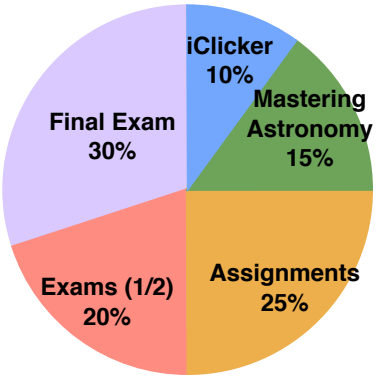
When you register for MasteringAstronomy, you must use your **D2L login name (Identikey)** when it asks for your Student ID (NOT your CU Student number). You can use whatever name you want for your MasteringAstronomy login name.

Desire2Learn (D2L): The course web page is the place to find assignments, announcements, solutions, and more. Log on to D2L with your student Identikey and password. Lecture notes, video recordings of lecture, homework and exam solutions, and many other items will be posted in a timely fashion. Grades will be posted here and certain assignments may be submitted via an electronic drop box.

iClicker: Each of you will need a wireless student response system ("iClicker"). Several times during each class I will ask questions to get you to think carefully about some of the concepts we have covered. Often I will have you talk to your neighbors after you answer on your own, so you can help each other figure out the correct answer. For questions with right/wrong answers, correct answers get 2 points while incorrect answers get 1 point each. Class will usually start with a straight-forward question from the assigned reading. Students generally report that the reading clicker questions are easy if they've done the reading but hard if they haven't. ***Do your reading before class!!***

YOUR GRADE:



Assignments (25%): There will be 4-6 written homework assignments (problem sets) over the course of the semester. These will be more quantitative and mathematical than any other aspect of the course and you are encouraged to work with classmates and attend help sessions and office hours as needed (of course, all work must be your own; please read the statements about Honor Code below). Written homework is due at the ***beginning*** of class on the day it is scheduled due. Solutions will be posted on D2L within a week of each due date. Homework turned between the beginning of class and when solutions are posted will receive up to 50% credit. Once the solutions are posted late homework will not be accepted.

In addition, students are required to complete either of the following:

- Attend an observing session at the Sommers Bausch Observatory (SBO) on campus. Observe three (or more) different types of objects, sketch and/or photograph them, and write a brief report. SBO dates are weather permitting and will be announced during class. Details are given on the *SBO Observations* assignment document on D2L.
- Attend a public faculty lecture at the Fiske Planetarium (or similar) and write a 1-2 page essay on the subjects covered. Essay will be turned in on D2L and graded as a writing assignment. I'm looking for a summary of what was discussed and your honest reaction to the presentation. Public talks will be announced in class as I hear about them; if you hear of another public talk (at Fiske or another venue) you think would fit this assignment, please let me know and I will announce that as well.

The lowest Assignment (whether written homework or SBO/Fiske event) will be dropped.

Mastering Astronomy (15%): Online homework will typically be assigned each week and is due by 11:59 pm on Sunday unless otherwise specified. Partial credit (up to 50%) will be given to online homework submitted after this time up until the start of the final exam. Don't abandon online homework just because it is late; half-credit is better than none and you will be much better prepared for the exams.

Participation/iClicker (10%): see above. Your worst five days of clicker scores will be dropped. This will cover missed classes (for *any* reason), technical problems with your clicker, etc.

Exams (20%): There will be three in-class exams (dates: **Sept. 28, Oct. 26, and Nov. 30)** during the semester and your best two of the three exams will each count for 10% of your final grade. Each exam will focus primarily on material covered during the preceding 4-5 weeks of class, but may require understanding of material covered during the semester so far. Some students will have to miss an exam during the semester and I accommodate this by **dropping the lower of your two exam scores.** For this reason **there are no makeup exams for any reason** including excused absences.

Final Exam (30%): A comprehensive final exam at the end of the semester will make up 25% of your grade. This does not count in your dropped exams and is mandatory.

FREQUENTLY ANSWERED QUESTIONS:

How can I succeed in this class?

I will do everything I can to help you learn, but your education is ultimately up to you and you alone.

- Participate in class - sit near the front and ask questions. Attend regularly.
- Put away your phone and laptop.
- Don't settle for being confused. There are no "dumb" questions; if you are confused, I guarantee that there are at least ten others in class who are just as confused but are not brave enough to speak up.
- Buy and read your textbook.
- Turn in every assignment; partial credit is a lot better than no credit.

People who do poorly in class are the ones who miss class, miss homeworks, or are "multi-tasking" in the back of the room.

You will receive the grade you work for.

Is this going to be an easy-A? No. Who told you that?

Can I get a make-up exam? No. See above.

Do I need to tell you if I'm missing class? No. I do not take attendance in my class and I understand that attending lecture can't always be your first priority. If you're sick or stuck in traffic and are going to miss a class or two, I do not need to know about it. Take care of yourself, get well, and come back when you are ready. I don't need doctors notes. However, if you are hospitalized or will miss more than a week of class, please let me know and we will work something out.

How can I get help? The most important part of getting help is to ask for it. There are many resources from office hours, TA help sessions, the Astronomy Help Room, and many others. Office hours (listed at the top of page 1) should be your first choice, but if those don't work in your schedule, the TA and professor are both available by email for specific questions or to set up in-person meetings. Our job is to help you learn. Just ask for help when you need it.

Where the $#&@! is your office? The Duane building is very confusing. To find my office (D321), walk west (toward the mountains) down the hall from our classroom through two sets of double doors. Immediately on your right you'll see an elevator and a door to a stairway. Go up two floors. My office is the first door on the right and is labeled as such.

Will there be math? Yes, however nothing beyond the level of math you learned in high school (algebra and basic geometry) and needed to be accepted at CU in the first place. However, we will often approach math in a less rigorous, more abstract way than you may be used to. We will use ratios extensively and make approximations and "back of the envelope" calculations a lot. You will rarely need a calculator in this class and never on an exam. Astronomy requires proficiency with very large and very small numbers, so there will be an emphasis on scientific notation, powers of ten, and scaling. If you need help with the math, just ask.

Is there a curve? Yes. Do not expect the usual percentage-letter grade conversions you may be used to from high school to apply here. My exams are challenging and your numerical grades may be surprisingly low. Median exam scores are typically about 65%... and that usually corresponds to a low-B grade. If you get 80% or better on something, that's good. 50% or worse... not so good, but not as bad as you may think.

> ***So how does the curve work?*** Your overall course grade (at the end of the semester) is the only thing which is curved. Individual items are not curved and the grade you see on D2L for any item represents a raw (uncurved) score. Individual course components will not be curved, but I will publish approximate letter-grade equivalents after each exam and give you at least one curved mid-semester assessment based on the work graded to date.

What is dropped? The lowest of your midterm grades is dropped. Your lowest "assignment" score is dropped (written homeworks, observing, public lecture). Everyone gets three days of clicker forgiveness which should cover absences and technical problems; additional absences will be counted against you.

CLASS POLICIES:

My overlying principle is that **I will treat you as an adult**. Specifically, this means the following:

★ You are expected to be proactive about your education. Make the effort to know what is required for the class and do it in a mature manner.

★ Do not leave class early and don't start packing up before class is dismissed. Both are rude to me and disruptive to your fellow students. I will never lecture beyond our allotted class time and will occasionally end class a few minutes early. If you *need* to leave early, please let me know at the beginning of class, sit near the rear of the room, and leave as quietly as possible.

★ **Laptops and tablets** may be used in class (though it is discouraged), and **only** for taking class notes. Everyone using a laptop must sit on the **west (left) side** of the classroom in the **front three rows**. Even if you yourself are not using a screen, having one in your field of vision is extremely distracting. Know this and plan accordingly.

★ **Phones** must not be used during class for any reason. Even "just texting" is very rude and will not be tolerated. Participation points will be docked from violators without notice.

★ Know what is and isn't allowed in completing problem sets and exams (see below).

OTHER POLICIES:

(please see electronic version of this syllabus on D2L for active hyperlinks to relevant information)

Inconsistencies: There may be occasional inconsistencies between this syllabus and other class materials. Unless I specifically say otherwise, the policies laid out in this syllabus take precedence over all others. If you notice an inconsistency, please bring it to my attention.

What constitutes plagiarism / cheating?

While I encourage you to work together to solve homework problems and during recitation, each student's answers must be his/her own. Use the mantra ***"work together, write separately"*** *to guide your actions. Every semester, I receive a number of homeworks with nearly-identical answers.* ***If I do not see any signs of independent thought in a response, both students will receive zero credit for the entire assignment and may be reported to the honors council.*** *Don't be that person!*

In written work (essays), it is expected that you utilize outside sources in your research. Quoting sources is acceptable with proper attribution, however cut/pasting text from another source as your own is plagiarism and constitutes serious academic misconduct.

Honor Code: All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu); 303-492-5550). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the Honor Code Office website.

Classroom Behavior: Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the policies on classroom behavior and the Student Code of Conduct.

Accommodation for Disabilities: If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website. Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition or injury, see Temporary Medical Conditions under the Students tab on the Disability Services website.

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

The University of Colorado Boulder (CU Boulder) is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (including sexual assault, exploitation, harassment, dating or domestic violence, and stalking), discrimination, and harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or cureport@colorado.edu. Information about the OIEC, university policies, anonymous reporting, and the campus resources can be found on the OIEC website.

Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.

Religious Holidays

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, I make allowances for students to drop one midterm exam and other items as well (see above). If this is insufficient to meet your religious obligations, please see me and we can discuss additional accommodations.

See the campus policy regarding religious observances for full details.