

SYLLABUS
Astronomy 170B1, Section 004
The Physical Universe
Fall 2019

LECTURES: Monday/Wednesday: 2:00 – 3:15 p.m. (**No Class on Sep 2**)
Flandrau Science Center, EOS Planetarium Theater

INSTRUCTOR: Dr. Thomas A. Fleming

OFFICE: Steward Observatory Room 209

TELEPHONE: (520) 621-5049

EMAIL: taf@email.arizona.edu

OFFICE HOURS: Mon 10:30am – 11:30am; Thu 10:30am – 12:00pm

MIDTERM EXAMS: Wednesday, October 2, 2:00 p.m.
Wednesday, November 6, 2:00 p.m.

FINAL EXAM: Friday, December 13, 1:00 – 3:00 p.m.

REQUIRED TEXTBOOK: *The Cosmic Perspective, 8 ed.* by Bennett, et al (Pearson)
with *Mastering Astronomy* website

REQUIRED EQUIPMENT: TurningPoint® ResponseCard NXT, QT or QT2 (a.k.a. “clicker”)

WEBSITES: <http://D2L.arizona.edu>

PARTICIPATION IN CLASS: Participation will be measured electronically at each lecture and will figure into your final grade. You are required to purchase an NXT or QT Response Card (clicker) for this course. You are responsible to bring it to *every* class period, *including* exams. In order to encourage you to do so, I will give you participation points for using your clicker in class. **Students without a clicker will not receive participation points.** You will receive points if you have an official excuse from the Dean of Students Office, a note from a health care provider, or you are observing a religious holiday which is associated with an organized religion to which you belong. You are responsible for informing Dr. Fleming if this is the case. Students are responsible for all information given out in the lecture, including schedule changes. We will engage in many interactive learning exercises using your clicker in class (some for credit); this will improve your understanding of the material and lead to a better grade. So be smart, attend class!

REQUIRED TEXT & SOFTWARE: Course materials are being delivered digitally via D2L through the Inclusive Access program. Please access the text & software through D2L on the first day of class to make sure there are no issues in the delivery, and if you are having a problem or question, it can be addressed quickly. You automatically have access to the course materials FREE through September 8, 2019. You must take action (even if you have not accessed the materials) to opt-out if you do not wish to pay for the materials and choose to source the content independently. **The deadline to opt-out for a 15-week course beginning August 26th is 9:00pm MST, September 8, 2019. If you officially withdraw from this course, you will automatically be “opted-out.”** If you do not opt-out and choose to retain your access, the cost of the digital course materials (\$64.22) will appear on your October Bursars account. This is a savings of \$49.11 compared to purchasing a new hardcopy of the textbook. Please refer to the Inclusive Access FAQs at this URL for additional information: <https://shop.arizona.edu/textbooks/Inclusive.asp>

You are responsible for the material in the textbook, whether covered in class or not, unless otherwise noted. Later in this syllabus, we tell you which chapters correspond to the lectures given each week. You are required to read those chapters before coming to class that week. Each week, you will be required to watch a “pre-lecture” video on *Mastering Astronomy* and answer questions for credit before lecture.

MAKE-UP POLICY: I do not give make-up exams. If I deem that your excuse for missing an exam is truly justified, you will be given an oral make-up exam. That means you stand at the whiteboard for 30 minutes and answer questions.

ALL EXAMS are closed book and closed note. All phones & pagers must be packed away and hidden from view!
If you are seen with a phone/WiFi-enabled device in your hand during an exam, you will fail the exam!

GRADES: Your final grade for the course will be based on the midterm and final exams and other assignments in the following proportion:

Midterm Exam #1	100 points (12.5%)
Midterm Exam #2	100 points (12.5%)
Final Exam	100 points (12.5%)
MA Assignments	350 points (43.8%)
Astronomy in the News	100 points (12.5%)
Participation	50 points (6.2%)

All questions, disputes, or mistakes regarding the grading of exams and assignments must be brought to Dr. Fleming’s attention within 1 week after the score for exam or assignment is posted.

These are the hardest percentages needed to earn a specific grade. I reserve the right to curve the class further, making the grading slightly easier. 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

ACTIVITIES/HOMEWORK: I will assign homework on a regular basis from *Mastering Astronomy*. Homework problems will involve using the *Mastering Astronomy* website, which you will access through our D2L course site. You may discuss the astronomy concepts with your classmates, but you are expected to do your own work on these assignments. Late homework will **not** be accepted.

ASTRONOMY IN THE NEWS: Throughout the semester, you will be required to write essays and/or reports based on news stories involving astronomy and space science. You will receive feedback on one of these writing assignments with an opportunity to rewrite and resubmit it for an improved grade.

NO smoking, eating, drinking (except water), or pets are allowed in class. Please **turn off** your cell phones!

LEARNING OUTCOMES: You will be expected to take an active role in your learning. Do not expect me 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 and the full-dome planetarium environment. Be prepared to interact with your classmates, ask questions, and participate in group discussions. You will also interact with computer-generated animations and exercises.

Here are the learning goals for this course:

- 1) You will have an appreciation for what science is and is not.
- 2) You will be familiar with basic astronomical terminology and some of the results of astronomical research.
- 3) You will have a sense of the scale of the Universe and our place in it.
- 4) You will have exercised your critical thinking and problem-solving skills.

I ask that you participate fully in the course. In return, I promise to make this course interesting and **fun**.

DEADLINES: I will accept **no** late assignments. 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, 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 submit them 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. This Code can be viewed at the Dean of Students website:

<http://deanofstudents.arizona.edu/codeofacademicintegrity>

The consequences can range from loss of credit on an assignment to dismissal from the University, depending on the severity of the offense. In our class, the penalty for plagiarism, cheating on an exam, or clicker/computer fraud will be automatic failure of the course and, depending on the circumstances, I may seek your suspension or expulsion from the University.

You should also be aware of the University's policies on disruptive and threatening behavior:

<http://deanofstudents.arizona.edu/disruptiveandthreateningstudents>

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

STUDENTS WITH DISABILITIES: If you anticipate issues related to the format or requirements of this course, please meet with Dr. Fleming. I would like us 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 me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations. **Dr. Fleming does not use the DRC testing center**; all testing accommodations will be administered at the Flandrau Science Center.

QUESTIONS: You 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 before a deadline. I am here to help you understand something about science and the subject of astronomy. Remember, there are no stupid questions!

TOPIC SCHEDULE & READING ASSIGNMENTS:

<u>Week</u>	<u>Topic</u>	<u>Chapters in the Bennett et al. Text</u>
Aug 26/28	Scale of the Universe, Celestial Motions	1, 2
Sep 4	History of Astronomy	3
Sep 9/11	Motion & Gravity, Light	4, 5.1, 5.2
Sep 16/18	Matter, Solar System	5.3, 5.4, 7
Sep 23/25	Formation of Planets, Terrestrial Planets	8, 9, 10
Sep 30	Jovian Planets	11
Oct 7/9	Dwarf Planets, Asteroids, Comets	12
Oct 14/16	The Sun	14
Oct 21/23	Stars, The H-R Diagram	15
Oct 28/30	ISM, Nebulae, Stellar Evolution	16, 17
Nov 4	Relativity, Black Holes	18
Nov 11/13	The Milky Way Galaxy	19
Nov 18/20	Galaxies & their Properties	20
Nov 25/27	Quasars, Galaxy Evolution	21
Dec 2/4	Cosmology, The Big Bang	22, 23
Dec 9/11	Extraterrestrial Life, Exoplanets	24, 13

August 26, 2019

Classroom Etiquette Contract

In order to foster a good learning environment for the ASTR 170B1 course, I agree to obey the following rules of etiquette while attending class:

1. I will not eat food or drink anything other than water in the Flandrau Planetarium Theater.
2. I will not read the *Arizona Daily Wildcat* or any other newspaper while class is in session.
3. I will turn my cell phone or other mobile devices OFF while class is in session.*

*3a. If I am a parent or I am in an emergency situation, I will set my cell phone to VIBRATE.

4. I will not disrupt class by talking to my classmates about non-course-related subjects while the professor is speaking to the class.
5. I will not use my laptop to play movies or games or surf the Internet for non-course-related subjects and sites (e.g., FACEBOOK) while class is in session.
6. I will make every effort to arrive in class on time and not leave until class is over.
If I must arrive late or leave early, I will not disrupt class or distract my classmates.
For safety reasons, when the FULLDOME PROJECTOR is in use, the doors to the planetarium theater will be LOCKED. I understand that I will not be able to enter the theater/class while the projector is in use and I must wait until the presentation is over and the doors unlock before entering the classroom.
7. I will not bring any pets or animals into the classroom (seeing-eye/therapy dogs exempted.)
8. Should I break any of these rules of etiquette which are listed above, I give Dr. Fleming **full authority** to ask me to leave the classroom.

Signed,

Print your name

Your signature

August 26, 2019

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[Please sign this copy of the contract and return it to Dr. Fleming by Wednesday, September 4 or you will be dropped from the class!]