

SYLLABUS
Astronomy 170B1, Section 002
Exploring Our Universe
Fall 2022

- LECTURES:** Monday/Wednesday: 2:00 – 3:15 p.m. **(No Class on Sep 5)**
Flandrau Science Center, EOS Planetarium Theater
- INSTRUCTOR:** Dr. Thomas A. Fleming
Steward Observatory Room 209
(520) 621-5049
taf@arizona.edu
- OFFICE HOURS:** Mon 10:30am – 11:30am; Thu 10:30am – 12:00pm
- MIDTERM EXAMS:** Wednesday, September 28, 2:00 p.m.
Monday, October 31, 2:00 p.m.
- FINAL EXAM:** Friday, December 9, 1:00 – 3:00 p.m.
- REQUIRED TEXTBOOK:** *The Cosmic Perspective, 9 ed.* by Bennett, Donahue, Schneider & Voit

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 obtain 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 with your clicker!

REQUIRED TEXT & SOFTWARE: You are required to purchase *The Cosmic Perspective, 9e.* and *Mastering Astronomy*. You can purchase them for \$59.95. You automatically have access to the course materials FREE through September 5, 2019. **The deadline to opt-out for a 15-week course beginning August 22nd is 9:00pm MST, September 4, 2022. 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 (\$59.95) will appear on your October Bursars account. Please refer to the Inclusive Access FAQs at this URL for additional information:

<https://shop.arizona.edu/textbooks/Inclusive.asp>

You will find the instructions for accessing your eBook and *Mastering Astronomy* on Pages 6 & 7 of this syllabus.

You are responsible for the material in the textbook chapters listed on Page 4, whether covered in class or not, unless otherwise noted. On Page 4, you will find which chapters correspond to the lectures given each week. You are required to read those chapters before coming to class that week.

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%)
Star Report	100 points (12.5%)
Participation	50 points (6.2%)

All questions or disputes regarding the grading of exams and assignments must be brought to Dr. Fleming's attention within 1 week after the score for the 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 every week from *Mastering Astronomy*. 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.

SIGNATURE ASSIGNMENT – 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 star will be the subject of your Star Report. 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 on this assignment will be given in class and on D2L. If you would like feedback on your first draft, please submit it before Nov. 4 to give Dr. Fleming enough time to read and comment on it. Final reports will be due by Nov. 18 at 5:00 p.m. MST. You will also be required to submit your report to TurnItIn.com.

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

LEARNING OUTCOMES: ASTR 170B1 is an Exploring Perspectives: Natural Scientist course in the NEW University of Arizona General Education program with the Quantitative Reasoning Attribute. Upon completion of this course, students will be able to:

- identify the approaches and methodologies of Natural Scientists, using evidence to critically analyze questions and arguments, and consider contributions of this perspective to finding solutions to global and/or local challenges. (Exploring Perspectives: Natural Scientist SLO)
- demonstrate competency in working with numerical information by critically analyzing quantitative information, generate ideas that are supported by quantitative evidence, assess the relevance of data and its associated implications in a variety of contexts, and communicate those ideas and/or associated interpretations using various formats (graphs, data tables, equations, oral presentations, or written reflections. (Quantitative Reasoning Attribute SLO)

Please note: This course will also fulfill Tier 1 – NATS General Education requirements for those students completing degree programs in catalogs prior to Fall 2022.

COURSE OBJECTIVES: Here are the objectives for this course:

1. Practice taking the unique perspectives of the astronomer.
2. Apply the perspective of the astronomer to understand and evaluate our current concepts of the structure and scale of our Universe.
3. Demonstrate knowledge of the physical processes (e.g., gravity, nuclear reactions, light) that operate in our Universe and use this knowledge to draw conclusions from data that answer astronomical questions.
4. Communicate ideas in various ways including verbally, with drawings, diagrams, in writing, and in quantitative formats such as graphs, tables and equations.
5. Critically analyze astronomical data presented in various quantitative formats to identify inconsistencies, contradictions & inaccuracies.
6. Collaborate with their peers to analyze, evaluate, and interpret these data.
7. Summarize and evaluate competing arguments that have been made to explain astronomical phenomena.
8. Engage in discourse, develop explanatory models, and make scientific predictions.
9. Discern the meaning of discipline representations and develop discipline fluency.
10. Reflect on the role and importance and contributions of science and astronomy in our society

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

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. You will not get an extension if you merely 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. This Code can be viewed at the Dean of Students website:

<https://deanofstudents.arizona.edu/policies/code-academic-integrity>

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:

<https://deanofstudents.arizona.edu/disruptive-behavior>

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 me. 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. **I do not use the DRC testing center**; all testing accommodations will be administered at the Flandrau Science Center by me.

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 <i>Cosmic Perspective</i></u>
Aug 22/24	Scale of the Universe, Celestial Motions	1, 2
Aug 29/31	History of Astronomy	3
Sep 7	Motion & Gravity	4
Sep 12/14	Light, Matter	5
Sep 19/21	Stars, The H-R Diagram	15
Sep 26	The Sun	14
Oct 3/5	Nebulae, Star Formation	16
Oct 10/12	Stellar Evolution	17
Oct 17/19	Dead Stars, Black Holes	18
Oct 24/26	Einstein's Theories of Relativity	S2, S3
Nov 2	Our Solar System	7
Nov 7/9	Formation of Solar Systems	8
Nov 14/16	Terrestrial Planets, Pluto	9, 10, 12
Nov 21/23	Extrasolar Planets	13
Nov 28/30	The Milky Way Galaxy	19
Dec 5/7	Extraterrestrial Life	24

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 are 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 online.
- There is another class that meets in the Planetarium Theater before our class. Please do not arrive for class before 1:45 p.m. If you must arrive earlier than 1:45 p.m., please wait outside.
- 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.
- 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.

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:

<https://frankehonors.arizona.edu/academics/honors-contracts>

Access MyLab or Mastering in Brightspace through VitalSource

Launch Pearson content

1. Enter your Brightspace by D2L course and locate the VitalSource app.

■ The name and location of the app may vary based on the set up of the course.

2. Under My Courses, your Pearson materials tied to this course will appear.

3. Use the checkbox to confirm whether you are **opted-in** or **opted-out** of the Pearson courseware.



o If you are opted-in, select **Launch Courseware**.

Access your Pearson course materials

Pearson course materials can be accessed via the VitalSource app.

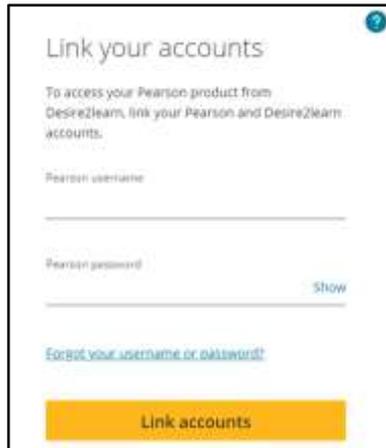
4. Select **Open MyLab & Mastering** to launch your Pearson course.



■ Use Help & Support to find downloadable diagnostics about your course. If you contact [Pearson Support](#), you will be asked for this diagnostics file.

Link User Accounts, if needed

5. If prompted, read and select **I Accept** to agree to Pearson's End User License Agreement.
6. Link your Brightspace account to either:
 - o An existing Pearson account by entering your Pearson username and password.
 - o A new user Pearson account by selecting Create Account.



Link your accounts

To access your Pearson product from Desire2Learn, link your Pearson and Desire2Learn accounts.

Pearson username

Pearson password [Show](#)

[Forgot your username or password?](#)

[Link accounts](#)

7. After linking your accounts, select **Go to My Courses**.



You're done!

Check your email for a registration confirmation.
Print this page as your receipt.

Your Course

Taught by
Course ends Dec 31, 2018

[Go to My Courses](#)