

Course Number: PHYS 1303

Course Title: Fundamentals of Astronomy

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Office Hours: M-F 2-4 PM (or virtual)

Please feel free to contact me if you have any problems whatsoever in this course—or if you're doing well, and just want to talk about the wonders and mysteries of the universe. It's in all our interests, and I care, that you do well! The best way to contact me is by personal in-office visit, or by e mail. Telephone is often less useful because the visual aspect is missing and it is often important if I am to respond properly to you.

Course Description/Overview

This course is a three hour introduction to stellar astronomy. A separate laboratory course can be taken. The sequence of astronomy courses (PHYS 1303 and PHYS 1304) plus labs (PHYS 1103 and PHYS 1104) satisfy the eight-hour physical science with lab requirement for most degree programs. This course can be used for elective credits in most degree programs. PHYS 1303, Fundamentals of Astronomy, is an introduction to astronomy covering night sky observations, the techniques and methods of modern astronomy, and basic concepts related to the Sun, stars, our galaxy, other galaxies, the large scale structure of the universe, and cosmology, the study of the origin and evolution of the universe. This is an eight-week, online course that begins on first week of the semester and runs for 8 weeks.

Course Bibliography and Required Readings:

Understanding Our Universe, 3rd edition, by Palen, Kay, Smith, Blumenthal. Publisher: Norton. I use this book for both 1303 and 1304 (beware: other instructors may use a different text.)

It is essential that you obtain a recent version of the text. You are expected to read, review and practice all of the content in this course. If you choose, you may download a free book, *Astronomy* from Download for free at [OpenStax, Astronomy](https://openstax.org/r/astronomy).

A new book has come onto the market, and I will be using it in the future. I highly recommend it if you want the most current text on Astronomy. It is

Pasachoff, Jay M. (2019) and Alex Filippenko. *The Cosmos: Astronomy in the New Millennium*, 5th ed. New York: Cambridge University Press [1042212954].

The 5th edition of *The Cosmos* is simply the best-written, introductory astronomy textbook on the market. The instructor will use all of this book. It is comprehensive but brief enough that students' can be reasonably expected to read the entire text in the course of a semester. The text is expertly written in an easy-to-understand manner with many helpful diagrams and beautiful images throughout. This latest edition is a real tour de force with thoroughly updated discussions of cutting-edge research topics ranging from exoplanets to gravitational waves. The authors strike a right balance between qualitative and quantitative aspects of astronomy which is required for students interested to learn the subject for the first time. This book contains material that is useful for both beginner and advanced students of astronomy.

Prerequisites

There are no prerequisites for this course.

Technical skills required for this course

As with all online courses, students must be able to operate a computer and have the necessary technical skills to navigate around a web page. Additional technical skills are not a prerequisite for this course, however your computer must meet [minimum requirements to operate Blackboard](#). ***NOTE: You will NOT be able to do this course using a phone only. You will find it difficult if not impossible using only a pad as well.***

Time spent on this course

Students can expect to spend a minimum of 6 hours per week to complete all the readings and assignments. The lessons themselves take as long as the student will require to read the materials and watch or listen to media presentations. Assignments are due throughout the week, so it is not possible to do the course successfully by doing it only on weekends.

Note: This course cannot be done successfully by attempting to do a week's work on the weekend. Binge studying is counterproductive and seldom gives decent results. Each week's material opens on Monday just after 12 AM and closes the following Sunday at 11:59 PM. If you forget to do your work during the week and the lesson closes you won't be able to access it late.

Goals, Objectives, and Outcomes

Course Goals

Apart from the utility of Astronomy in the ordinary sense of the word, the study of the science is of the highest value as an intellectual training. No other science so operates to give us on the one hand just views of our real insignificance in the universe of space, matter, and time, or to

teach us on the other hand the dignity of the human intellect as the offspring, and measurably the counterpart, of the Divine; able in a sense to “comprehend” the universe, and know its plan and meaning. The study of the science cultivates nearly every faculty of the mind; the memory, the reasoning power, and the imagination all receive from it special exercise and development. By the precise and mathematical character of many of its discussions it enforces exactness of thought and expression, and corrects that vague indefiniteness which is apt to be the result of pure literary training. On the other hand, by the beauty and grandeur of the subjects it presents, it stimulates the imagination and gratifies the poetic sense. In every way it well deserves the place which has long been assigned to it in education.

Course Objectives:

The following two objectives are the major performance goals for the course.

Objective One: After completing this course you should comprehend the most important scientific models governing modern astrophysics and be familiar with the astronomical objects studied by astronomers.

Objective Two: After completing this course you should comprehend the practices and methodologies used by modern astronomers in constructing astrophysical models.

In addition, there are multiple learning objectives for each of the 8 weeks of the course. I won't burden you with listing them all, but if you are so inclined to know the nitty-gritty details, feel free to ask.

Learning Outcomes

When you finish this course you should be able to:

1. Apply scientific reasoning to future astronomical discoveries to understand their validity as well as to everyday situations.
2. Demonstrate an understanding that science is based upon observations of the universe and how that is used to understand some basic phenomenon of our world.
3. Discuss how gravity is related to the formation, interaction, and evolution of the solar system.

Student learning outcomes will be assessed through a combination of assignments submitted each week online. Every question is underwritten by a specific learning objective *and* a reference to Bloom's taxonomy. (I doubt most of you will care much about this.)

READING ASSIGNMENTS, TESTS, & IMPORTANT DATES

All reading assignments are in the text, *Understanding Our Universe*, 2nd ed., by Palen, Kay, Smith, Blumenthal. Each week the reading assignments will be posted. Also the corresponding reading from OpenStax *Astronomy* will be specified. I recommend (but do not require) the Pasachoff and Filippenko as well.

This is an 8 week course (8/26—10/20). Each “ module ” covers one week of the course. Each week’s work is available Monday morning at 12:01 AM. Each week’s work closes at midnight Sunday. [Even though a holiday may occur during the 8 weeks , the course will be open at 12:01 AM on Monday, and all work is due by Sunday night at midnight .] **ONE EXCEPTION:** The Discussion Board for week 8 requires all threads and comments be posted **by midnight Thursday of the last week (10/17/19)** so final grades may be determined by the University deadline.

There is a Discussion Board topic every week. Your thread must be posted by Thursday midnight each week. You must also respond to at least two other students’ threads by midnight Sunday. The maximum points for each week’s post is 23.

There are three astronomy papers, described in Blackboard. Projects require very little time. They are due at the end of the 3rd , 5th , and 7th weeks (Sunday, Midnight). Each project is worth 24 points, total points for Research Projects is 72.

Extra credit is also available for attending Planetarium shows. An optional final will also be available for extra credit. Other extra credit may be earned as described in the Extra Credit tab on Blackboard.

This is an 8-weeks course, and things become due awfully fast. **NO MAKEUPS** unless you can justify (to my satisfaction) dire circumstances, **beyond your control**. You just have to keep up with the course. Getting a late start for whatever reason is not, in itself, justification for makeup work.

Since this is an ONLINE COURSE, it is really important that you feel part of a group instead of a lone wanderer trying to navigate astronomy. To that end there is a **Discussion Board**. There are non-graded forums where you may ask questions, and offer suggestions for the course. In week 1 you are to **introduce yourself**. The forum explains what you are to do. This can be significant in your grade, since you may earn up to 25.5 points for a set of posts each week (your thread and responses to at least two other students’ threads). **For every graded forum to get full credit you must create a thread and post at least two responses to threads created by other students** Threads must be set by Thursday midnight, and responses by midnight, Sunday.

Grading Policies

Your grade is determined by the percentage of available points you earn by the end of the 8 weeks. The available points for the base requirement is 1000 points. Any extra credit earned will be added to your accumulated points, but the base remains at 1000 points. For example, you may earn a total of 816 points total in the course. Your grade would then be a “B” (81.6%).

Grades

Angelo State University employs a letter grade system. Grades in this course are determined on a percentage scale:

A = 90 – 100 % (900 or more points).

B = 80 – 89 % (800—899 points)

C = 70 – 79 % (700-799 points)

D = 60 - 69 % (600-699 points)

F = 59 % and below (below 600 points).

Actually there is a 2% gray area about each grade level. Depending on your overall performance, you may, in my judgment, although having a 78% score, actually deserve a B. There is no guarantee of this happening, but will depend on my view of your overall performance.

Assessment Items

This is an 8-weeks' course, and things become due awfully fast. **NO MAKEUPS FOR ANY REASON EXCEPT IN DIRE CIRCUMSTANCES**, beyond your control. If such circumstances arise, you must contact me as soon as possible, and we will work out a plan, if warranted. You just have to keep up with the course.

There are extra credit opportunities available, explained below.

Discussion Board. A topic for discussion will be posted each week, available on Monday morning. You must set a thread, responding meaningfully to the topic, by **THURSDAY** midnight. For full credit, you must also comment on at least two threads posted by other students. The deadline for making comments and completing the Discussion Board topic each week is Sunday, midnight.

Chapter Quizzes have a variable number of questions, and each covers a limited amount of assigned material. Each question is worth 4 points. You may take a quiz 2 times. The **last grade received** will be the one recorded. Quizzes open Monday morning each week, and close at midnight the following Sunday.

Projects. Three basic research projects are required, one due at the end of week 3, one at the end of week 5, and the last at the end of week 7. These require very little work, but the requirements must be fully met in order to get a satisfactory grade. The projects are explained fully in Blackboard.

Extra Credit

Attend Planetarium shows. For each *unique* show you attend (and attendance is verified to me) you may receive 5 course points. The schedule is online. The calendar will be fill in as shows are planned. If you want extra credit, you must sign in at the desk in the foyer of the Planetarium. Since there are multiple class that may sign in you must clearly indicate that you are in PHYS1303 ONLINE. Otherwise, I won't get your name.

If you live away from the ASU campus and cannot attend Planetarium shows, contact me. I can arrange for alternative viewing opportunities for you in place of Planetarium shows. If you local address is in the San Angelo area you will probably not be eligible for this alternative.

An optional final exam will be available for extra credit. It will add points, and cannot count against you in any way.

Final Exam

This course *does not require* a final exam as you are evaluated on a weekly basis. However all work must be completed by the dates specified in assignments. ***However, before you can submit the last quiz (Quiz 8) you MUST take the posttest. Blackboard will not allow you to do Quiz 8 until you have submitted the post test. This test will NOT count as part of your grade unless you score above 75% in which case 2 points will be added to your final average.***

Administration

Communication

In this class, we will communicate primarily by writing, mostly in e mail. In any form of communication, you are expected to treat your fellow students and your instructor with courtesy and respect. In this class, the following rules of etiquette apply:

- Spelling and grammar count. Don't use slang terms or shorthand "text-speak" abbreviations.
- It's okay to disagree, but it's not okay to insult. Flame-wars and [ad-hominem](#) attacks are not acceptable.
- No profanity. Offensive language will not be tolerated.
- No racial, ethnic, or cultural slurs. This may result in your removal from the class.

Feedback

As the instructor of this course, it is my goal to respond to all communication within one working day. At a minimum, you can expect me to be actively engaged in this course during the stated office hours, and will strive to be responsive at other times as well. In addition, I will do my best to grade all writing assignments and provide feedback within 2 days of the due date for the assignment.

Attendance

This is an online course and attendance is not taken. However, failure to communicate or respond to e-mails from the professor, is an indication something is wrong. I will note when open Blackboard. If I see you are not keeping up-to-date viewing of Blackboard, it will be my responsibility to inform your advisor.

Late Work

You must contact your professor before the assignment is due if you believe it will be late. In general it will not be possible to do a posted assignment late. No make ups of any kind are allowed after the fact except in dire circumstances. Don't ask.

Add/Drop dates

Students may add or drop this course within the dates assigned by Angelo State University. For exact dates see the Academic Calendar for ASU

See [Add Drop online](#).

University Policies

Accommodations for Disability

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA), and subsequent legislation.

The Office of Student Affairs is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability, and it is the student's responsibility to initiate such a request by contacting:

Ms. Dallas A. Swafford
Director of Student Disability Services
325-942-2047
dallas.swafford@angelo.edu
[Houston Harte University Center](#)

Title IX at Angelo State University: (Administration Provided Statement Required for all Syllabi.)

Angelo State University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex discrimination of any kind. In accordance with Title VII, Title IX, the Violence Against Women Act (VAWA), the Campus Sexual Violence Elimination Act (SaVE), and other federal and state laws, the University prohibits discrimination based on sex, which includes pregnancy, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination and unwelcome behavior of a sexual nature. The term includes sexual harassment, nonconsensual sexual contact, nonconsensual sexual intercourse, sexual assault, sexual exploitation, stalking, public indecency, interpersonal violence (domestic violence or dating violence), sexual violence, and any other misconduct based on sex.

You are encouraged to report any incidents involving sexual misconduct to the Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator, Michelle Boone, J.D. You may submit reports in the following manner:

Online: www.angelo.edu/incident-form
Face to Face: Mayer Administration Building,
Room 210
Phone: 325-942-2022
E-Mail: michelle.boone@angelo.edu

Note, as a faculty member at Angelo State, I am a mandatory reporter and must report incidents involving sexual misconduct to the Title IX Coordinator. Should you wish to speak to someone in confidence about an issue, you may contact the University Counseling Center (325942-2371), the 24-Hour Crisis Helpline (325-486-6345), or the University Health Clinic (325-9422171).

For more information about resources related to sexual misconduct, Title IX, or Angelo State's policy please visit: www.angelo.edu/title-ix.

Student absence for religious holidays

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for [Observance of Religious Holy Day](#) for more information.

Incomplete Grade Policy

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 [Grading Procedures](#) for more information.

Academic Integrity

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the Statement of [Academic Integrity](#).

Plagiarism

Plagiarism is a serious topic covered in ASU's [Academic Integrity policy](#) in the Student Handbook. Plagiarism is the action or practice of taking someone else's work, idea, etc., and passing it off as one's own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality via SafeAssign. Resources to help you understand this policy better are available at the [ASU Writing Center](#).

Copyright Policy

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