

# PHYS 1303 Summer I 2022

## FUNDAMENTALS OF ASTRONOMY



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**Virtual Office Hours:** By appointment only via Collaborate

## Course Information

### Course Description and Student Learning Outcomes

Physics 1303, Fundamentals of Astronomy, is a three-credit hour introductory study of the current knowledge and techniques of astronomy and astrophysics. Broad topics in the field will be covered, but the emphasis will be on stellar astronomy and cosmology.

At the end of this course, the student will be able to:

1. Recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry used in modern astrophysics and to communicate the findings, analyses, and interpretations in writing.
2. Identify and recognize the differences among competing modern astrophysical scientific theories.
3. Demonstrate the ability to translate, interpret, and extrapolate the most important scientific models governing modern astrophysics, the practices and methodologies used by modern astronomers in constructing astrophysical models, and to be familiar with the astronomical objects studied by astronomers.
4. Further develop critical/logical thinking, scientific reasoning, and problem-solving skills in the area of astrophysics.

### Required Texts and Materials

- Textbook: Astronomy by Fraknoi, Morrison, & Wolff
  - This book is available freely from OpenStax by going to this webpage:
  - <https://openstax.org/details/books/astronomy>
- A calculator is needed for this course; a scientific calculator will work best. It is not necessary to have a graphing calculator.

## Course Delivery

This is an online course that will be delivered via [Blackboard](#).<sup>1</sup>

## Communication

**Written communication via email:** All private communication will be done exclusively through your ASU email address. Check frequently for announcements and policy changes. In your emails, include the course name and section number in your subject line. I will respond to email and/or telephone messages within 24 hours during working hours Monday through Friday. Weekend messages may not be returned until Monday.

## Technology

You will be required to have a computer with internet access for this course. You will be required to turn in assignments on Blackboard using a scanner or camera.

## Grading

### Evaluation and Grades

Course grades will be determined as indicated in the table below.

Assessment	Percent of Total Grade
Worksheets and Quizzes (due Fridays)	30
Activities (due Saturdays)	15
Unit Tests (4 total) (due Sundays)	35
Final Exam (due July 8)	20
Total	100%

- **Quizzes and Worksheets:** These are assigned each week. They will be available Monday morning and due Friday by end of day (11:59 pm). Quizzes will be administered through Blackboard and are timed (they are open book/notes).
- **Activities:** These will be posted in Blackboard on Monday and due Saturday of the same week by end of day. These are listed in the course schedule on the last page of the syllabus.
- **Unit Tests:** These will be posted Thursday morning and due Sunday by end of day, giving you four days to complete each test. These are listed in the course schedule on the last page of the syllabus. Tests are timed.
- **Final Exam:** The final exam is comprehensive and will be timed.

### Grading System

Course grades will be dependent upon completing course requirements and meeting the student learning outcomes. The following grading scale is in use for this course:

- A = 90.00-100%
- B = 80.00-89.99%
- C = 70.00-79.99%
- D = 60.00-69.99%

F = 0-59.99%

### **Attendance and Assignment Policy**

You are expected to keep track of due dates and complete each assignment. Missed assignments, quizzes, and exams cannot be made up. NOTE: You are NOT automatically dropped if you stop completing assignments. The last day to drop this course is June 27, 2022.

## **General Policies Related to This Course**

All students are required to follow the policies and procedures presented in these documents:

- [Angelo State University Student Handbook](#)<sup>2</sup>
- [Angelo State University Catalog](#)<sup>3</sup>

### **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 university's [Statement of Academic Integrity](#).<sup>4</sup>

### **Accommodations for Students with Disabilities**

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.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student's responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at [ADA@angelo.edu](mailto:ADA@angelo.edu). For more information about the application process and requirements, visit the [Student Disability Services website](#).<sup>5</sup> The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford  
Director of Student Disability Services

Office of Student Affairs  
325-942-2047; [dallas.swafford@angelo.edu](mailto:dallas.swafford@angelo.edu)  
Houston Harte University Center, Room 112

### **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](#)<sup>6</sup> for more information.

### **Plagiarism**

Plagiarism is a serious topic covered in ASU's [Academic Integrity policy](#)<sup>7</sup> 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. I encourage you to work together on homework assignments and to study together for exams. However, anything you turn in must be in your own words.

Papers are subject to be evaluated for originality. Resources to help you understand this policy better are available at the [ASU Writing Center](#).<sup>8</sup>

### **Student Absence for Observance of Religious Holy Days**

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](#)<sup>9</sup> for more information.

### **Title IX at Angelo State University**

The University prohibits discrimination based on sex, which includes pregnancy, sexual orientation, gender identity, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination including: sexual assault, sex-based discrimination, sexual exploitation, sexual harassment, public indecency, interpersonal violence (domestic violence and/or dating violence), and stalking. As a faculty member, I am a Responsible Employee meaning that I am obligated by law and ASU policy to report any allegations I am notified of to the Office of Title IX Compliance.

Students are encouraged to report any incidents of sexual misconduct directly to ASU's Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator at:

Michelle Boone, J.D.  
Director of Title IX Compliance/Title IX Coordinator  
Mayer Administration Building, Room 210  
325-942-2022; [michelle.boone@angelo.edu](mailto:michelle.boone@angelo.edu)

**You may also file a report online 24/7 at [www.angelo.edu/incident-form](http://www.angelo.edu/incident-form).**

If you are wishing to speak to someone about an incident in confidence you may contact the University Health Clinic and Counseling Center at 325-942-2173 or the ASU Crisis Helpline at 325-486-6345.

For more information about Title IX in general you may visit [www.angelo.edu/title-ix](http://www.angelo.edu/title-ix).

## Modifications to the Syllabus

This syllabus, including grade evaluation and course schedule, is subject to modification. In particular, the COVID-19 pandemic may require significant changes in course delivery and content on potentially short notice.

## Course Schedule (subject to change)

Week	Topics	Worksheets and Quizzes	Activities and Exams
#1: 6/6 - 6/12	Ch. 1: Science and the Universe: A Brief Tour Ch. 2: Observing the Sky: The Birth of Astronomy Ch. 3: Orbits and Gravity Ch. 5: Radiation and Spectra Ch. 6: Astronomical Instruments	Chs. 1-3, 5-6 worksheets and quizzes due 6/10 at 11:59pm	Activity #1 due 6/11 at 11:59p  Unit Test #1 due 6/12 at 11:59pm
#2: 6/13 - 6/19	Ch. 17: Analyzing Starlight Ch. 18: The Stars: A Celestial Census Ch. 19: Celestial Distances Ch. 15: The Sun: A Garden Variety Star Ch. 16: The Sun: A Nuclear Powerhouse	Chs. 15-19 worksheets and quizzes due 6/17 at 11:59pm	Activity #2 due 6/18 at 11:59p  Unit Test #2 due 6/19 at 11:59pm
#3: 6/20 - 6/26	Ch. 20: Between the Stars: Gas and Dust in Space Ch. 21: The Birth of Stars Ch. 22: Stars from Adolescence to Old Age Ch. 23 The Death of Stars Ch. 24: Black Holes and Curved Spacetime	Chs. 20-24 worksheets and quizzes due 6/24 at 11:59pm	Activity #3 due 6/25 at 11:59p  Unit Test #3 due 6/26 at 11:59pm
#4: 6/27 - 7/3	Ch. 25: The Milky Way Galaxy Ch. 26: Galaxies Ch. 27: Active Galaxies, Quasars, & Supermassive Blackholes Ch. 28: The Evolution and Distribution of Galaxies Ch. 29: The Big Bang	Chs. 25-29 worksheets and quizzes due 7/1 at 11:59pm	Activity #4 due 7/2 at 11:59p  Unit Test #4 due 7/3 at 11:59pm
#5: 7/4 - 7/8	Ch. 30: Life in the Universe	Ch. 30, bonus worksheets and quizzes due 7/7 at 11:59pm	<b>Final Exam due 7/8</b>

<sup>1</sup> <https://blackboard.angelo.edu/>

<sup>2</sup> <https://www.angelo.edu/student-handbook/>

<sup>3</sup> <https://www.angelo.edu/catalogs/>

<sup>4</sup> <https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php>

<sup>5</sup> <https://www.angelo.edu/services/disability-services/>

<sup>6</sup> <https://www.angelo.edu/content/files/14197-op-1011-grading-procedures>

<sup>7</sup> <https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php>

<sup>8</sup> [https://www.angelo.edu/dept/writing\\_center/academic\\_honesty.php](https://www.angelo.edu/dept/writing_center/academic_honesty.php)

<sup>9</sup> <https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of>