

PHYS 1303: Fundamentals of Astronomy

1: Instructor

David Bixler, PhD
Office: VIN 115

Phone: 325-942-2242
Office Hours: MTWR 11:00-12:00 in Blackboard Collaborate

Email: David.Bixler@angelo.edu

2: Required materials

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.

3: Course Description

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.

4: Student Learning Outcomes

Upon completion of the Fundamentals of Astronomy course, you should 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

5: Graded Material

5.1: *Class Attendance and Timeliness*

Daily quizzes and activities will appear regularly in Blackboard, according to the schedule below. These assignments will be due at the time listed in the schedule. Daily assignments will be turned in via Blackboard. After each assignment is due, there will be a one-day grace period during which the assignment will still be accepted. After the assignment disappears from Blackboard, it will no longer be accepted. Things go fast in the summer – **do not fall behind!**

5.2: *Exams*

This course will have four mid-term exams, and a comprehensive final exam. Exams will open weekly in Blackboard. You will have three days to take the exam. Exams will not be accepted late.

5.3 Grades: Weighting and Letter Grades

The weighting system shown in the table will be used in determining final grade for the course

Grade Weighting

Item	Percent
Quizzes/Worksheets (due on Fridays)	30%
Activities (due on Saturdays)	15%
Midterm exams (4) (due on Sundays)	35%
Final Exam (due August 5)	20%
Total	100%

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

A = 90-100% B = 80-89% C = 70-79% D = 60-69% F = 59% and below

6: Classroom and University Policies and Student Support

6.1: General Policies

All students are required to follow the policies and procedures presented in the Angelo State University Student Handbook¹ and Angelo State University Catalog².

6.2: Student Disability Services

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 Swafford, Director of Student Disability Services, at 325-942-2047 or Dallas.Swafford@angelo.edu, or visit the Student Disabilities Services website³.

6.3: Title IX Statement

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, Ph. 325-942-2022, Email: michelle.boone@angelo.edu

You may also file a report online 24/7 at 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.

6.4: *Observance of Religious Holy Day*

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 Day⁴ for more information.

6.5: *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 Procedures⁵ for more information.

6.6: *Student Conduct Policies*

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 Integrity⁶

Plagiarism

Plagiarism is a serious topic covered in ASU's Academic Integrity policy⁶ 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. It is expected that you will summarize or paraphrase ideas and give appropriate credit to the source.

Copyright Policy

Students officially enrolled in this course should make only one printed copy of the given articles and/or chapters. You are expressly prohibited from distributing or reproducing any portion of course readings in printed or electronic form without written permission from the copyright holders or publishers.

7: Course Outline

Dates	Topics	Assignments
July 6	Chapter 1: Science and the Universe: A Brief Tour	Chapter 1 Worksheet and Quiz.
July 7	Chapter 2: Observing the Sky: The Birth of Astronomy	Chapter 2 Worksheet and Quiz.
July 8	Chapter 3: Orbits and Gravity	Chapter 3 Worksheet and Quiz.
July 9	Chapter 5: Radiation and Spectra	Chapter 5 Worksheet and Quiz.
July 10	Chapter 6: Astronomical Instruments Worksheets and Quizzes for the week due by 11:59pm.	Chapter 6 Worksheet and Quiz.
July 11	Activity 1 due by 11:59 pm.	----
July 12	Unit Test 1 due by 11:59pm.	----
July 13	Chapter 17: Analyzing Starlight	Chapter 17 Worksheet and Quiz.
July 14	Chapter 18: The Stars: A Celestial Census	Chapter 18 Worksheet and Quiz.
July 15	Chapter 19: Celestial Distances	Chapter 19 Worksheet and Quiz.
July 16	Chapter 15: The Sun: A Garden Variety Star	Chapter 15 Worksheet and Quiz.
July 17	Chapter 16: The Sun: A Nuclear Powerhouse Worksheets and Quizzes for the week due by 11:59pm.	Chapter 16 Worksheet and Quiz.
July 18	Activity 2 due by 11:59 pm.	----
July 19	Unit Test 2 due by 11:59pm.	----
July 20	Chapter 20: Between the Stars: Gas and Dust in Space	Chapter 20 Worksheet and Quiz.
July 21	Chapter 21: The Birth of Stars	Chapter 21 Worksheet and Quiz.
July 22	Chapter 22: Stars from Adolescence to Old Age	Chapter 22 Worksheet and Quiz.
July 23	Chapter 23: The Death of Stars	Chapter 23 Worksheet and Quiz.
July 24	Chapter 24: Black Holes and Curved Spacetime Worksheets and Quizzes for the week due by 11:59pm.	Chapter 24 Worksheet and Quiz.

Dates	Topics	Assignments
July 25	Activity 3 due by 11:59 pm.	----
July 26	Unit Test 3 due by 11:59pm.	----
July 27	Chapter 25: The Milky Way Galaxy	Chapter 25 Worksheet and Quiz.
July 28	Chapter 26: Galaxies	Chapter 26 Worksheet and Quiz.
July 29	Chapter 27: Active Galaxies, Quasars, and Supermassive Black Holes	Chapter 27 Worksheet and Quiz.
July 30	Chapter 28: The Evolution and Distribution of Galaxies	Chapter 28 Worksheet and Quiz.
July 31	Chapter 29: The Big Bang Worksheets and Quizzes for the week due by 11:59pm.	Chapter 29 Worksheet and Quiz.
August 1	Activity 4 due by 11:59 pm.	----
August 2	Unit Test 4 due by 11:59pm.	----
August 3	Chapter 30: Life in the Universe	Chapter 30 Worksheet and Quiz (bonus)
August 4	Review Day Bonus Worksheet and Quiz due by 11:59pm.	----
August 5	Final Exam Day Final Exam due by 11:59pm	----

8: End Notes

¹ <http://www.angelo.edu/student-handbook/>

² <http://www.angelo.edu/catalogs/>

³ <http://www.angelo.edu/services/disability-services/>

⁴ <http://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of>

⁵ <http://www.angelo.edu/content/files/14197-op-1011-grading-procedures>

⁶ <http://www.angelo.edu/student-handbook/community-policies/academic-integrity.php>