PHYS 1303
Fundamentals of Astronomy

Instructor: Dr. Kenneth Carrell
Email: kenneth.carrell@angelo.edu
Phone: (325) 942-2136
Office: VIN 119
Office Hours: MW 2-3pm, TR 11am-noon, (or by appointment)

Communication
Faculty 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. 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 to faculty, include the course name and section number in your subject line. Virtual communication: Office hours and/or advising may be done with the assistance of the telephone, Collaborate, Skype, etc.

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.

Course Delivery
This is a face-to-face course with online components that students are expected to access in Blackboard.¹

Required Text

Astronomy by Fraknoi, Morrison, & Wolff
Print:
Digital:
iBooks:
ISBN-10: 0-9986257-3-6
Assessing Outcomes & Grade Determination

Method of Assessing Outcomes

Student learning outcomes will be assessed with:

- Worksheets/Quizzes (20%) for material are assigned each week. Worksheets will normally be posted on Mondays and ALL quizzes AND worksheets will be completed/submitted through Blackboard and due on Fridays.
- Conceptual Activities (20%) will be posted on Blackboard and due as given below.
- Four midterm exams (40%) completed using Respondus LockDown Browser and due as given below.
- A comprehensive Final Exam (20%) on Wednesday December 8th at 8am completed in person in the planetarium.
- Extra credit will be given for attending public planetarium shows. You will receive 1% on your overall semester grade for every show you attend, up to a possible 5% total. Public shows are Monday & Thursday nights at 7 PM.

NOTE: Blackboard assignments are due “at the end of the day” which means 11:59PM. However, tests are timed and WILL NOT be available all the way until the end of the day (e.g. tests with 1-hour time limits will not be available starting at 11:00PM). Blackboard issues will arise, if you wait until the last minute to complete assignments you run the risk of missing them. I can fix problems such as browser crashes and internet outages, but NOT the hour before it is due. You have multiple days to complete work, so due dates are firm.

Late Work

Unexcused late work or missed tests will not be accepted. If your assignments are not submitted by the posted deadline you will receive a zero for that assignment. You must contact your professor before the assignment is due if you believe it will be late or as soon as possible after the due date in the case of an unexpected emergency.

Planetarium Class Etiquette

- No food, drinks, or tobacco products are allowed in the planetarium or the outer lobby area.
- Please do not leave trash in the planetarium or lobby.
- Please do not disturb fellow students during class time.
- Please do not put your feet up on the chair in front of you.
- Silence cell phones and other electronic devices.
- No texting/messaging during class.
- Please let me know if you will be using any electronic device during class.
Grade Determination

Your final grade will be determined by your scores on all tests and exams.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percent of Total Grade</th>
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</thead>
<tbody>
<tr>
<td>Worksheets/Quizzes</td>
<td>20</td>
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<tr>
<td>Conceptual Activities</td>
<td>20</td>
</tr>
<tr>
<td>Midterm Exams</td>
<td>40</td>
</tr>
<tr>
<td>Final Exam (Dec 8)</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

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

Class Attendance

- Class attendance is both an ASU and course requirement.
- You are expected to attend all scheduled class meetings.
- You are responsible for all course material and information that is presented in class.
- If you miss class, get the class notes and information from a fellow student.
- Attendance (or lack thereof) often makes a difference in your success in this class.

Final course grades will also be determined in part based on attendance as follows:

<table>
<thead>
<tr>
<th>Number of Absences</th>
<th>Highest Grade Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6 (&gt;85% attendance)</td>
<td>A</td>
</tr>
<tr>
<td>7-10 (75-85% attendance)</td>
<td>B</td>
</tr>
<tr>
<td>11-14 (65-75% attendance)</td>
<td>C</td>
</tr>
<tr>
<td>15-19 (55-65% attendance)</td>
<td>D</td>
</tr>
<tr>
<td>20+ (&lt;55% attendance)</td>
<td>F</td>
</tr>
</tbody>
</table>

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
- Angelo State University Catalog

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.
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. For more information about the application process and requirements, visit the Student Disability Services website. The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dr. Dallas Swafford
Director of Student Disability Services
Office of Student Affairs
325-942-2047
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 for more information.

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. Resources to help you understand this policy better are available at the ASU Writing Center.

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 for more information.

Title IX at Angelo State University
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 Miller, J.D. You may submit reports in the following manner:

Online: Incident Reporting Form
Face to Face: Mayer Administration Building, Room 210
Phone: 325-942-2022
Email: michelle.miller@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 (325-942-2371), the 24-Hour Crisis Helpline (325-486-6345), or the University Health Clinic (325-942-2171).

For more information about resources related to sexual misconduct, Title IX, or Angelo State’s policy please visit the Title IX website.

Information About COVID-19
Please refer to ASU’s COVID-19 (Coronavirus) Updates web page for current information about campus guidelines and safety standards as they relate to the COVID-19 pandemic.

Modifications to the Syllabus
This syllabus, including grade evaluation and course schedule, is subject to modification on potentially short notice based on developing circumstances.

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1 [https://blackboard.angelo.edu/](https://blackboard.angelo.edu/)
2 [https://www.angelo.edu/current-students/student-handbook/](https://www.angelo.edu/current-students/student-handbook/)
3 [https://www.angelo.edu/academics/catalog/](https://www.angelo.edu/academics/catalog/)
5 [https://www.angelo.edu/current-students/disability-services/](https://www.angelo.edu/current-students/disability-services/)
6 [https://www.angelo.edu/content/files/14197-op-1011-grading-procedures](https://www.angelo.edu/content/files/14197-op-1011-grading-procedures)
8 [https://www.angelo.edu/current-students/writing-center/academic_honesty.php](https://www.angelo.edu/current-students/writing-center/academic_honesty.php)
9 [https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of](https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of)
10 [https://www.angelo.edu/incident-form](https://www.angelo.edu/incident-form)
11 [https://www.angelo.edu/title-ix](https://www.angelo.edu/title-ix)
12 [https://www.angelo.edu/covid-19/](https://www.angelo.edu/covid-19/)
<table>
<thead>
<tr>
<th>Week</th>
<th>Reading</th>
<th>Work Due</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit #1: Background Science</strong></td>
<td></td>
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<tr>
<td>Aug 23 – 27</td>
<td>Chapter 1: Science &amp; the Universe: A Brief Tour</td>
<td>Ch 1 Quiz</td>
</tr>
<tr>
<td>Aug 30 – Sep 3</td>
<td>Chapter 2: Observing the Sky: The Birth of Astronomy</td>
<td>Ch 2 Quiz&lt;br&gt;<strong>Astrology vs Astronomy Activity</strong></td>
</tr>
<tr>
<td>Sep 6 – 10</td>
<td>Chapter 3: Orbits &amp; Gravity</td>
<td>Ch 3 Quiz</td>
</tr>
<tr>
<td>Sep 13 – 17</td>
<td>Chapter 5: Radiation &amp; Spectra&lt;br&gt;Chapter 6: Astronomical Instruments</td>
<td>Ch 5 &amp; 6 Quiz&lt;br&gt;&lt;strong&gt;Midterm Exam #1&lt;/strong&gt;</td>
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<tr>
<td><strong>Unit #2: Stellar Properties</strong></td>
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<tr>
<td>Sep 20 – 24</td>
<td>Chapter 17: Analyzing Starlight&lt;br&gt;Chapter 18: The Stars: A Celestial Census</td>
<td>Ch 17 Quiz</td>
</tr>
<tr>
<td>Sep 27 – Oct 1</td>
<td>Chapter 18: The Stars: A Celestial Census&lt;br&gt;Chapter 19: Celestial Distances</td>
<td>Ch 18 &amp; 19 Quiz&lt;br&gt;&lt;strong&gt;HR Diagram Activity&lt;/strong&gt;</td>
</tr>
<tr>
<td>Oct 4 – 8</td>
<td>Chapter 15: The Sun: A Garden Variety Star&lt;br&gt;Chapter 16: The Sun: A Nuclear Powerhouse</td>
<td>Ch 15 &amp; 16 Quiz&lt;br&gt;&lt;strong&gt;Midterm Exam #2&lt;/strong&gt;</td>
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<tr>
<td><strong>Unit #3: Life Cycle of Stars</strong></td>
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<tr>
<td>Oct 11 – 15</td>
<td>Chapter 20: Between the Stars: Gas &amp; Dust in Space&lt;br&gt;Chapter 21: The Birth of Stars</td>
<td>Ch 20 &amp; 21 Quiz</td>
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<tr>
<td>Oct 18 – 22</td>
<td>Chapter 22: Stars from Adolescence to Old Age</td>
<td>Ch 22 Quiz&lt;br&gt;&lt;strong&gt;Low-Mass Stellar Evolution Activity&lt;/strong&gt;</td>
</tr>
<tr>
<td>Oct 25 – 29</td>
<td>Chapter 23: The Death of Stars&lt;br&gt;Chapter 24: Black Holes and Curved Spacetime</td>
<td>Ch 23 &amp; 24 Quiz&lt;br&gt;&lt;strong&gt;Midterm Exam #3&lt;/strong&gt;</td>
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<tr>
<td><strong>Unit #4: Galaxies</strong></td>
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<tr>
<td>Nov 1 – 5</td>
<td>Chapter 25: The Milky Way Galaxy</td>
<td>Ch 25 Quiz&lt;br&gt;&lt;strong&gt;Galaxy Classification Activity&lt;/strong&gt;</td>
</tr>
<tr>
<td>Nov 8 – 12</td>
<td>Chapter 26: Galaxies</td>
<td>Ch 26 Quiz</td>
</tr>
<tr>
<td>Nov 15 – 19</td>
<td>Chapter 27: Active Galaxies, Quasars, and Supermassive Black Holes</td>
<td>Ch 27 Quiz</td>
</tr>
<tr>
<td>Nov 22 – 23</td>
<td>Chapter 28: The Evolution and Distribution of Galaxies</td>
<td>Ch 28 Quiz&lt;br&gt;&lt;strong&gt;Midterm Exam #4&lt;/strong&gt;</td>
</tr>
<tr>
<td>Nov 29 – Dec 3</td>
<td>Chapter 29: The Big Bang&lt;br&gt;Chapter 30: Life in the Universe</td>
<td>Ch 29 &amp; 30 Quiz</td>
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<tr>
<td>December 8</td>
<td></td>
<td><strong>FINAL EXAM</strong></td>
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