PHYS 1303
Fundamentals of Astronomy

Instructor: Dr. Kenneth Carrell
Email: kenneth.carrell@angelo.edu
Phone: (325) 942-2136
Office: VIN 119
Office Hours: MW 10am-noon (in office) & 2-3pm (in Collaborate), R 2-3pm (in office)

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
To maintain academic quality while accommodating social distancing needs this semester, this course will use a split delivery model that combines face-to-face teaching with remote instruction.

How Does It Work?
Your class will be divided and you will be placed into a smaller group of students to maintain physical distancing requirements in our assigned classroom space.

Your assigned group will receive a schedule of in-person class meetings. This schedule is not flexible. For instance, if you are supposed to attend class on a Monday, you cannot elect to go on Wednesday with another class group instead.

When you are not in the physical class, you will be responsible for completing assigned coursework in Blackboard®. This work can be completed any time before the posted deadline.

Please refer to this Health and Safety web page for updated information about campus guidelines as they relate to the COVID-19 pandemic.
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 Monday November 23rd completed using **Respondus LockDown Browser**.
- (MAYBE??) 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 Thursday nights at 7 & 8 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.
- **Face masks MUST be worn inside the planetarium.**

**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 (Nov 23rd)</td>
<td>20</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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</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

**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:

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**

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
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.11

**Required Use of Masks/Facial Coverings by Students**

As a member of the Texas Tech University System, Angelo State University has adopted the mandatory [Facial Covering Policy](http://www.texastech.edu/downloads/ttus-policy-face-coverings.pdf) to ensure a safe and healthy classroom experience. Current research on the COVID-19 virus suggests there is a significant reduction in the potential for transmission of the virus from person to person by wearing a mask/facial covering that covers the nose and mouth areas. Therefore, in compliance with the university policy students in this class are required to wear a mask/facial covering before, during, and after class. Faculty members may also ask you to display your daily screening badge as a prerequisite to enter the classroom. You are also asked to maintain safe distancing practices to the best of your ability. For the safety of everyone, any student not appropriately wearing a mask/facial covering will be asked to leave the classroom immediately. The student will be responsible to make up any missed class content or work. Continued non-compliance with the Texas Tech University System Policy may result in disciplinary action through the Office of Student Conduct.

**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.

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1. [https://blackboard.angelo.edu/](https://blackboard.angelo.edu/)
3. [https://www.angelo.edu/student-handbook/](https://www.angelo.edu/student-handbook/)
4. [https://www.angelo.edu/catalogs/](https://www.angelo.edu/catalogs/)
6. [https://www.angelo.edu/services/disability-services/](https://www.angelo.edu/services/disability-services/)
7. [https://www.angelo.edu/content/files/14197-op-1011-grading-procedures](https://www.angelo.edu/content/files/14197-op-1011-grading-procedures)
9. [https://www.angelo.edu/dept/writing_center/academic_honesty.php](https://www.angelo.edu/dept/writing_center/academic_honesty.php)
10. [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)
11. [https://www.angelo.edu/services/title-ix/](https://www.angelo.edu/services/title-ix/)
## Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Reading</th>
<th>Work Due</th>
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<tbody>
<tr>
<td><strong>Unit #1: Background Science</strong></td>
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<tr>
<td>August 17 – 21</td>
<td>Chapter 1: Science &amp; the Universe: A Brief Tour</td>
<td>Ch 1 Quiz</td>
</tr>
<tr>
<td>August 24 – 28</td>
<td>Chapter 2: Observing the Sky: The Birth of Astronomy</td>
<td>Ch 2 Quiz</td>
</tr>
<tr>
<td>August 31 – September 4</td>
<td>Chapter 3: Orbits &amp; Gravity</td>
<td>Ch 3 Quiz&lt;br&gt;&lt;em&gt;Astrology vs Astronomy Activity&lt;/em&gt;</td>
</tr>
<tr>
<td>September 8 – 11</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;em&gt;Activity&lt;/em&gt;</td>
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<tr>
<td><strong>Unit #2: Stellar Properties</strong></td>
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<tr>
<td>September 14 – 18</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>September 21 – 25</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;em&gt;HR Diagram Activity&lt;/em&gt;</td>
</tr>
<tr>
<td>September 28 – October 2</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;em&gt;Activity&lt;/em&gt;</td>
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<tr>
<td><strong>Unit #3: Life Cycle of Stars</strong></td>
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<tr>
<td>October 5 – 9</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>
</tr>
<tr>
<td>October 12 – 16</td>
<td>Chapter 22: Stars from Adolescence to Old Age</td>
<td>Ch 22 Quiz&lt;br&gt;&lt;em&gt;Low-Mass Stellar Evolution Activity&lt;/em&gt;</td>
</tr>
<tr>
<td>October 19 – 23</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;em&gt;Activity&lt;/em&gt;</td>
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<tr>
<td><strong>Unit #4: Galaxies</strong></td>
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<tr>
<td>October 26 – 30</td>
<td>Chapter 25: The Milky Way Galaxy</td>
<td>Ch 25 Quiz&lt;br&gt;&lt;em&gt;Galaxy Classification Activity&lt;/em&gt;</td>
</tr>
<tr>
<td>November 2 – 6</td>
<td>Chapter 26: Galaxies&lt;br&gt;Chapter 27: Active Galaxies, Quasars, and Supermassive Black Holes</td>
<td>Ch 26 &amp; 27 Quiz</td>
</tr>
<tr>
<td>November 9 – 13</td>
<td>Chapter 28: The Evolution and Distribution of Galaxies</td>
<td>Ch 28 Quiz&lt;br&gt;&lt;em&gt;Midterm Exam #4&lt;/em&gt;</td>
</tr>
<tr>
<td>November 16 – 20</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>November 23</td>
<td><strong>FINAL EXAM</strong></td>
<td></td>
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