PHYS 3170
Observational Methods in Astronomy

Instructor: Dr. Kenneth Carrell
Email: kenneth.carrell@angelo.edu
Phone: (325) 942-2136
Office: VIN 119
Office Hours: M 1-2pm (in office), TR 11am-noon (in office), in Collaborate by appt.

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 3170, Observational Methods in Astronomy, is a one credit hour laboratory covering modern techniques used by astronomers to collect and analyze data from various sources. Emphasis will be on the use of data to determine physical properties of astronomical objects.

Course Delivery
This course will meet every assigned class time. Social distancing will be observed and masks must be worn at all times.

If you are not able to attend the physical class for COVID-19 related reasons 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.
**Required Materials**
There will be no required text for this course. All material needed to complete assignments will be provided or obtained by the student.

Software and/or programs will be required to complete some assignments, a list of which and where to acquire it will be provided as needed.

**Course Administration**

**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.
- Attendance will be taken for each class meeting.
- If you miss class, get the class notes and information from a fellow student and contact me as soon as possible to complete the work you miss.
- Attendance (or lack thereof) often makes a difference in your success in this class.

**Late Work**
- **Unexcused late work or missed tests will not be accepted.**
- If your assignments are not submitted by the posted deadline or if you miss an in-class test, 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.

**Assessing Outcomes & Grade Determination**

**Method of Assessing Outcomes**
Student learning outcomes will be assessed with:
- Each week we will cover a relevant topic to observational astronomy and/or complete a laboratory type activity related to an astronomical measurement. These will range from researching and writing about various things to hands on activities in class to the manipulation of actual astronomical data.
- Some form of a lab write-up will be required for each lab we do and will be due the following week.

**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.

**Grade Determination**
Your final grade will be determined by your scores on all labs/activities/projects competed throughout the semester.

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 to 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.

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 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.

1 https://angelo.blackboard.com/
## Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Activity/Lab</th>
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<tbody>
<tr>
<td>January 25 – 29</td>
<td>Detectors</td>
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<tr>
<td>February 1 – 5</td>
<td>Observational Instruments</td>
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<tr>
<td>February 8 – 12</td>
<td>CCD Image Processing</td>
</tr>
<tr>
<td>February 15 – 19</td>
<td>Spectral Typing of Stars</td>
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<tr>
<td>February 22 – 26</td>
<td>Orbital Speed of the Earth</td>
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<tr>
<td>March 1 – 5</td>
<td>The Spectrum of Saturn</td>
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<tr>
<td>March 8 – 12</td>
<td>HR Diagram of a Star Cluster</td>
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<tr>
<td>March 15 – 19</td>
<td>Hubble Law</td>
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<tr>
<td>March 22 – 26</td>
<td>Star Formation in Galaxies</td>
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<tr>
<td>March 29 – April 2</td>
<td>Exoplanet Detections</td>
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<tr>
<td>April 5 – 9</td>
<td>Solar Observations</td>
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<tr>
<td>April 12 – 16</td>
<td>Projects*</td>
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<tr>
<td>April 19 – 23</td>
<td>Projects*</td>
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<tr>
<td>April 26 – 30</td>
<td>Projects*</td>
</tr>
<tr>
<td>May 3 – 7</td>
<td>Projects*</td>
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