Classical and Modern Astronomy Laboratory (Online)
ASTR 1103 - Fall 2020

Astronomy Laboratory Coordinator: Robert Friedfeld
Office: Room 207 Ed and Gwen Cole STEM Building or Miller 126 or Zoom,
Student/Office Hours: By Appointment via Zoom
Phone/Email: 936-468-2197/ rfriedfeld@sfasu.edu

CLASS MEETING TIMES AND PLACE
Section 20: M 1:00 – 2:50 pm, STEM 208
Section 21: M 3:00 – 4:50 pm, STEM 208
Section 22: M 5:00 – 6:50 pm, STEM 208
Section 23: T 12:30 – 2:20 pm, STEM 208
Section 24: T 3:30 – 5:20 pm, STEM 208
Section 26: W 1:00 – 2:50 pm, STEM 208
Section 27: W 3:00 – 4:50 pm, STEM 208

LAB CALENDAR

<table>
<thead>
<tr>
<th>Date</th>
<th>Lab Exercise</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug. 24 – Aug. 27</td>
<td>No Labs</td>
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<tr>
<td>1  Aug. 31 – Sep. 03</td>
<td>Sky Familiarization</td>
<td>1</td>
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<tr>
<td>2  Sep. 7 – Sep. 10</td>
<td>Lunar Phases</td>
<td>35</td>
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<tr>
<td>3  Sep. 14 – Sep. 17</td>
<td>Scientific Measurements</td>
<td>11</td>
</tr>
<tr>
<td>4  Sep. 21 – Sep. 24</td>
<td>Mercury’s Orbit</td>
<td>27</td>
</tr>
<tr>
<td>5  Sep. 28 – Oct. 01</td>
<td>Emission Spectra (Not done in the online lab)</td>
<td>41</td>
</tr>
<tr>
<td>6  Oct. 05 – Oct. 08</td>
<td>The Earth’s Orbital Velocity</td>
<td>49</td>
</tr>
<tr>
<td>7  Oct. 12 – Oct. 15</td>
<td>The HR Diagram</td>
<td>55</td>
</tr>
<tr>
<td>8  Oct. 19 – Oct. 22</td>
<td>Stellar Distance</td>
<td>69</td>
</tr>
<tr>
<td>9  Oct. 26 – Oct. 29</td>
<td>Ages and Distances of Clusters</td>
<td>83</td>
</tr>
<tr>
<td>10 Nov. 02 – Nov. 05</td>
<td>Hubble’s Law</td>
<td>89</td>
</tr>
<tr>
<td>11 Nov. 09 – Nov. 12</td>
<td>The Rotation of Saturn / Lab Exam Review</td>
<td>99</td>
</tr>
<tr>
<td>12 TBD</td>
<td>Night Lab</td>
<td></td>
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<tr>
<td>Nov. 16 – Nov. 19</td>
<td>Lab Exam</td>
<td></td>
</tr>
<tr>
<td>Nov. 23 – Nov. 26</td>
<td>Thanksgiving Holidays</td>
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NIGHT LAB SCHEDULE
In addition to the lab exercises shown above, each student is required to attend one night lab session if possible. If a student is not able to physically get to the observatory, then an alternative lab activity will be assigned. The night labs are normally held at the SFA Observatory. Bus transportation to and from the Observatory will be provided. The night lab schedule is shown below. Night labs begin at 8:30 pm with bus pickup at the STEM circle bus stop. If the weather does not permit observing the night sky, the night lab TA will direct students to the classroom for an alternate planetarium lab.

Section 20: Tuesday, September 8, 2020
Section 21: Wednesday, September 9, 2020
Section 22: Tuesday, September 15, 2020
Section 23: Wednesday, September 16, 2020
Section 24: Tuesday, September 22, 2020
Section 26: Wednesday, September 23, 2020
Section 27: Tuesday, September 29, 2020
CLASSROOM POLICIES
Each week’s lab begins with a brief presentation by the teaching assistant (15-30 minutes). Important instructions and procedures for completing the lab exercise are given at that time. At the conclusion of the presentation, students will then complete the lab exercise under the guidance of the lab teaching assistant.

1. It is very important that you arrive on time to your Zoom session!
2. Come prepared! Read over the lab exercise before coming to the Zoom session (see calendar) and have required materials on hand. (see Supplies below).
3. No cell phone use of any kind is allowed during the Zoom session (including texting, games or leaving class to answer phone...).

SUPPLIES
Each student **MUST** bring the following supplies to every lab session.

1. Pencil and eraser
2. Laboratory Manual
3. Star Chart (will be distributed via Brightspace_D2L)
4. Calculator (bring to every Zoom lab!)

If you do not bring the required supplies for a particular lab, you will not be able to complete the lab. Please don’t forget to bring them!

GRADING
Since we will not be doing Lab 5 (Emission Spectra), there will be 11 grades that are used in determining a lab average (10 indoor labs and the night lab). The average of the 11 scores will count 75% and the Lab Exam 25% of the FINAL LAB AVERAGE.

\[ \text{FINAL LAB AVERAGE} = (\text{Average of 11 Labs} \times 0.75) + (\text{Lab Exam} \times 0.25) \]

Astronomy 105 (Lecture) and Astronomy 105L (Lab) are averaged into one grade and **THE SAME GRADE WILL BE RECORDED FOR BOTH LECTURE AND LABORATORY**. The **FINAL COURSE GRADE** is explained in your lecture syllabus.

LAB ABSENCES
We realize that occasionally there are legitimate reasons for missing a lab such as illness, family emergency and participation in certain university-sponsored events. Please read the following absence policy carefully.

1. If you will be missing lab because of an approved university-sponsored event you must inform the astronomy laboratory coordinator at least one week before the absence.
2. Students are responsible for providing timely documentation satisfactory to the astronomy laboratory coordinator for each absence. You have **one week** after missing a lab to present your documentation otherwise the absence cannot be excused.
3. Students will receive a grade of zero for each UNEXCUSED lab absence.
4. Whether an absence is excused or unexcused, a student is still responsible for all course content.
GENERAL EDUCATION CORE CURRICULUM

The Texas Higher Education Coordinating Board has identified six core learning objectives: Critical Thinking Skills, Communication Skills, Empirical and Quantitative Skills, Teamwork, Personal Responsibility, and Social Responsibility. SFA is committed to the improvement of its general education core curriculum by regular assessment of student performance on these six objectives.

Astronomy 1303 is a general education core curriculum course and fulfills the Empirical and Quantitative Skills general education core curriculum requirement. Another, “shell” course has been created to collect student artifacts to meet this state requirement. You will see this course on your Brightspace list. During this semester, you will receive an assignment that fulfills both the requirements of this course and the needs of Stephen F. Austin State University’s Core Curriculum Assessment Plan with the Texas Higher Education Coordinating Board.

When you complete this one assignment, you need to upload the assignment to both the Astronomy 1303 dropbox and the Empirical and Quantitative Skills dropbox.

Please note that this only applies to the specific assignment listed in the matrix below. All other assignments should be submitted according to regular class operations.

If you have any questions, please see your instructor, or contact the University Assessment Specialist at (936) 468-1267.

The chart below indicates the core objectives addressed by this course, the assignment(s) that will be used to assess the objectives in this course and uploaded to the Brightspace Empirical and Quantitative Skills dropbox this semester. The date the assignment(s) should be uploaded to the Brightspace dropbox are also shown in the chart. Not every assignment will be submitted for core assessment every semester. Your instructor will notify you which assignment(s) must be submitted for assessment in the Brightspace Empirical and Quantitative Skills dropbox.
<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>Course Assignment Title</th>
<th>Date Due in LiveText</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking Skills</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
<td>Lunar Phases Lab</td>
<td>Not Assessed this Semester</td>
</tr>
<tr>
<td>Communication Skills</td>
<td>To include effective development, interpretation and expression of ideas though written, oral, and visual communication.</td>
<td>Lunar Phases Lab</td>
<td>Not Assessed this Semester</td>
</tr>
<tr>
<td>Empirical and Quantitative Skills</td>
<td>To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.</td>
<td>Scientific Measurements Lab</td>
<td>Not Assessed this Semester</td>
</tr>
<tr>
<td>Teamwork</td>
<td>To include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.</td>
<td>Lunar Phases Lab</td>
<td>Not Assessed this Semester</td>
</tr>
</tbody>
</table>

**Withheld Grades (A-54)**

At the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future semesters, the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

**Academic Integrity (A-9.1)**

Abiding by university policy on academic integrity is a responsibility of all university faculty and students. Faculty members must promote the components of academic integrity in their instruction, and course syllabi are required to provide information about penalties for cheating and plagiarism as well as the appeal process. (Much of this information will be provided through internet links.)

**Definition of Academic Dishonesty**

Academic dishonesty includes both cheating and plagiarism. Cheating includes, but is not limited to: (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) falsification or invention of any information, including citations, on an assignment; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism include, but are not limited to: (1) submitting an assignment as if it were one’s own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from the Internet or another source; and (3) incorporating the words or ideas of an author into one’s paper or presentation without giving the author due credit.

Please read the complete policy and the appeals process at [http://www.sfasu.edu/policies/academic_integrity.asp](http://www.sfasu.edu/policies/academic_integrity.asp) and [http://www.sfasu.edu/policies/academic_appeals_students.asp](http://www.sfasu.edu/policies/academic_appeals_students.asp)
**Students with Disabilities**
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS) in the Human Services Building (Room 325, 468-3004 or 468-1004) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodations and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/

**Student Counseling Center**
Rusk Building 3rd Floor  
(936) 468 -2401  
Email: counseling@sfasu.edu

The Student Counseling Center is available free of charge to students and is staffed with professional therapists to meet a variety of needs. All interactions with the Student Counseling Center are guaranteed confidential. Licensed Counselors are available from 8:00a.m.-5:00p.m. Monday -Friday. The department is closed on certain holidays, Spring Break and Winter Break when the university is closed. If you are in need of assistance after hours or on the weekend please call: University Police: (936)468-2608 or MHMR Crisis Line: (800)392 –8343. If the situation is life threatening please dial 911.