Syllabus

Classical and Modern Astronomy
3+1 Credit Hours
ASTR 1303.501 and ASTR 1103.501
Spring 2024

Instructor: Carl Ziegler, Ph.D.
Office: Cole STEM Building Room 207L

Office Phone: (936) 468-2409
Office Hours: MW 1-3 pm

I will be available in a Zoom meeting room during office hours. I am also available by appointment outside of these times. The recurring Zoom meeting links for office hours are:

https://sfasu.zoom.us/j/93855284970?pwd=dit0UStrQVllelZEUHBJcDloWGhnQT09
(MW 1-3 pm)

Email: Carl.Ziegler@sfasu.edu

Preferably, use Brightspace D2L to send emails related to the course. If Brightspace is unavailable, send email to Carl.Ziegler@sfasu.edu and include “ASTR 1303” somewhere in the subject line.

Please Note: The syllabus may change at the discretion of the instructor. Notification of changes will be made through Brightspace.

Course Information

Prerequisites

None.

Course Description

Introductory study of planetary astronomy, astrophysics and cosmology. Lecture and laboratory grades are computed into one grade and the same grade is recorded for both lecture and lab.
Co-requisite: ASTR 1103.
This is a survey course that will stress the historical and descriptive aspects of our knowledge of astronomy. The major aim will be to give each student an appreciation and understanding of the scope and content of our universe. The methods of science will be strongly emphasized. Topics will include: star charts, the night sky, light, telescopes, stars, galaxies, and planets.

Course Grade

Each major exam will be graded on a 100-point scale. All exams (including the final) are weighted equally, and the lecture portion of the course accounts for 75% of the total course average. The lecture and lab grades will be combined as shown below and the same letter grade will be recorded for both lecture and lab.

Course Average = 0.60 × (Exam Average) + 0.15 × (Average of Quizzes and Activities) + 0.20 × (Average of Indoor Labs and Night Lab) + 0.05 × (Lab Exam)

Modules

The semester is split into two four modules which consist of several chapters each. Along with the textbook reading for each chapter, additional material may be available on Brightspace. Each chapter also has a short multiple-choice quiz or other activities. The quizzes from each module must be completed by the beginning of the exam for that module.

Exam Format

All exams will be hosted on Brightspace and consist of 50 multiple choice questions from the chapters in each module. The exams will be available for two days beginning at a minute before midnight on the day in the course schedule. Once the exam is begun it must be completed in 90 minutes. After this time, the exam will no longer be available.

Labs

There are 12 labs spaced throughout the semester. A physical lab manual, available in the university bookstore, is required to complete these labs. The first lab starts the Monday of the second week of classes. Subsequent labs will begin each following Monday, except for on spring break. Each lab is due two weeks after the lab becomes available (except for labs leading up to spring break, which are due three weeks after the lab becomes available).

Lab Exam

A final exam on the material in the labs will be available the week before Exam IV in the lecture course. The format and time restrictions of the lab exam is the same as for course exams.

Course Goals

Program Learning Outcomes
The student will demonstrate proficiency in the basic and applied fields of physics and astronomy.

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.

By enrolling in ASTR 1303 you are also enrolling in a Core Curriculum Course that fulfills the Empirical and Quantitative Skills requirement. You will see this course on your D2L list.

At one point during the 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 your standard course dropbox determined by your Instructor and the “Core Curriculum” dropbox. The Core Curriculum dropbox will be identified by the Objective for which work is being collected. (Examples: Critical Thinking, Teamwork, Social Responsibility Empirical & Quantitative Skills, Personal Responsibility, Communication Skills-Written, Communication Skills-Written & Visual, and Communication Skills-Oral & Visual.) Please note that this only applies to the approved assignment. All other assignments should be submitted according to regular class operations. If you have any questions, please see your Instructor or the Office of Student Learning and Institutional Assessment.

When you complete the assignment mentioned above, you will upload the assignment to both the AST105 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 Institutional Effectiveness Office at (936) 468-1130.

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 D2L Empirical and Quantitative Skills dropbox this semester, and the date the assignment(s) should be uploaded to the D2L Empirical and Quantitative Skills dropbox. 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 D2L Empirical and Quantitative Skills dropbox

1. Resource Development: The students will demonstrate the use of appropriate technology and sustainability in the hospitality industry.

2. Professional Behavior: The student will exhibit the professional behaviors (strong communication skills, a professional image, a good work ethic, and adequate preparation for employment in his/her specific discipline) expected in the fields of Human Sciences and Hospitality.

3. Key Competencies: The student will demonstrate competence in his/her specific discipline using oral and written forms. The student will also demonstrate competence in calculating, interpreting, and understanding ratios, financial statements, and budgets related to the hospitality industry.
4. Service Attitude: The student will demonstrate a positive service attitude.

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>Course Assignment Title</th>
<th>Date Due in D2L</th>
</tr>
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<tbody>
<tr>
<td>Critical Thinking Skills</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
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<tr>
<td>Communication Skills</td>
<td>To include effective development, interpretation and expression of ideas though written, oral, and visual communication.</td>
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<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>Measurements Lab (Lab 2)</td>
<td>Please see the lab syllabus for the due date.</td>
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<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>
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<tr>
<td>Personal Responsibility</td>
<td>To include the ability to connect choices, actions and consequences to ethical decision-making.</td>
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<tr>
<td>Social Responsibility</td>
<td>To include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities.</td>
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</table>

**Course Objectives (Student Learning Outcomes)**

By the end of the course, a successful student will be able to:

1. Recognize that the universe can be described by a few natural laws.
2. Describe the characteristics of objects within the solar system including the sun, planets, moons, asteroids, and comets.
3. Demonstrate a basic familiarity with stellar life cycles, galaxies, and extragalactic objects.
4. Demonstrate skills developed in empirical and quantitative analysis.

**Course Materials**
Required Text: Astronomy (Free Textbook: https://openstax.org/details/books/astronomy)
Author: Andrew Fraknoi
ISBN: 978-1-50669-803-8

ASTR 1103, the Astronomy Laboratory, is a co-requisite and a new edition of the lab manual is available in the University Bookstore.

Required Technology: This course will be delivered through the university’s Learning Management System (LMS), Brightspace. Each student is required to have access to a computer with internet capabilities in order to access the course. Each student is also required to have a working, university (sfasu.edu) email account.

As a student of Stephen F. Austin State University, you have free access to this course’s Brightspace site. You will need to access the course regularly throughout the semester. Assignments for this course will be submitted electronically through Brightspace, unless otherwise instructed. Some assignments may require audio files. Students must have a working computer microphone or the ability to add audio to files on their computer to complete these assignments. Files with audio are submitted as PowerPoint files. All other submitted files must be in PDF or Word format.

Technical Support

If at any point during the course you experience technical difficulties in Brightspace, please let your instructor know immediately.

You will also need to contact the SFASU Brightspace Support Team by email (d2l@sfasu.edu) or phone (936.468.1919) for technical help.

Class Attendance and Excused Absence: Policy 6.7

Regular, punctual attendance, documented participation, and, if indicated in the syllabus, submission of completed assignments are expected at all classes, laboratories, and other activities for which the student is registered. Based on university policy, failure of students to adhere to these requirements shall influence the course grade, financial assistance, and/or enrollment status. The instructor shall maintain an accurate record of each student’s attendance and participation as well as note this information in required reports and in determining final grades. Students may be excused from attendance for reasons such as health, family emergencies, or student participation in approved university-sponsored events. However, students are responsible for notifying their instructors in advance, when possible, for excusable absences. Whether absences are excused or unexcused, a student is still responsible for all course content and assignments. Students with accepted excuses may be permitted to make up work for up to three weeks of absences during a semester or one week of a summer term, depending on the nature of the missed work. Make-up work must be completed as soon as possible after returning from an absence.
Academic Integrity

Academic integrity is a responsibility of all university faculty and students. Please ensure that all work you post or submit is your original work, and that any material belonging to others is properly cited according to our discipline’s manual of style (APA).

Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism

Student Academic Dishonesty: Policy 4.1

Abiding by university policy on academic integrity is a responsibility of all university faculty and students.

Academic dishonesty includes both cheating and plagiarism. Cheating includes, but is not limited to:

- using or attempting to use unauthorized materials on any class assignment or exam;
- falsifying or inventing of any information, including citations, on an assignment; and/or;
- 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 one’s own. Examples of plagiarism include, but are not limited to:

- submitting an assignment as one’s own work when it is at least partly the work of another person;
- submitting a work that has been purchased or otherwise obtained from the Internet or another source; and/or,
- incorporating the words or ideas of an author into one’s paper or presentation without giving the author credit.

For additional information about academic dishonesty, please read and abide by the complete university policy at SFASU Academic Dishonesty Policy.

Academic Accommodation for Students with Disabilities: Policy 6.1 and 6.6

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325 (936.468.3004) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to SFASU Disability Services.
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<tr>
<th>Chapter</th>
<th>Topic</th>
<th>Assignments</th>
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<td>1</td>
<td>Science and the Universe: A Brief Tour</td>
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<td>2</td>
<td>Observing the Sky: The Birth of Astronomy</td>
<td>Lab 1 due Chapter 2 due</td>
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<td>3</td>
<td>Orbits and Gravity</td>
<td>Feb. 5 Feb. 6 Feb. 7 Feb. 8 Feb. 9</td>
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<td>5</td>
<td>Radiation and Spectra</td>
<td>Feb. 19 Feb. 20 Feb. 21 Feb. 22 Feb. 23</td>
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<td>6</td>
<td>Astronomical Instruments</td>
<td>Lab 4 due Chapter 6 due</td>
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<td>15</td>
<td>The Sun: A Garden- Variety Star</td>
<td>Mar. 4 Mar. 5 Mar. 6 Mar. 7 Mar. 8</td>
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<td>16</td>
<td>The Sun: A Nuclear Powerhouse</td>
<td>Lab 5 due Chapter 16 due</td>
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<td>17</td>
<td>Analyzing Starlight</td>
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<td>22</td>
<td>Stars from Adolescence to Old Age</td>
<td>Mar. 25 Mar. 26 Mar. 27 Mar. 28 Mar. 29</td>
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<td>23</td>
<td>The Death of Stars</td>
<td>Lab 7 due Chapter 22 due Easter Break Easter Break</td>
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<tr>
<td>25</td>
<td>The Milky Way Galaxy</td>
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<tr>
<td>26</td>
<td>Galaxies</td>
<td>Apr. 1 Apr. 2 Apr. 3 Apr. 4 Apr. 5</td>
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<td>29</td>
<td>The Big Bang</td>
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<td>7</td>
<td>Other Worlds</td>
<td>Apr. 8 Apr. 9 Apr. 10 Apr. 11 Apr. 12</td>
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<tr>
<td>10</td>
<td>Earthlike Planets: Venus and Mars</td>
<td>Lab 10 due Chapter 7 due</td>
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<td>11</td>
<td>The Giant Planets</td>
<td>Apr. 15 Apr. 16 Apr. 17 Apr. 18 Apr. 19</td>
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<td>12</td>
<td>Rings, Moons, and Pluto</td>
<td>Lab 11 due Chapter 10 due</td>
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<td>13</td>
<td>Comets and Asteroids</td>
<td>Apr. 22 Apr. 23 Apr. 24 Apr. 25 Apr. 26</td>
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<td>Apr. 29 Apr. 30 May. 1 May. 2 May. 3</td>
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<td>Lab 12 due Chapter 12 due</td>
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<td>May. 6 May. 7 May. 8 May. 9 May. 10</td>
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<td>Exam 4</td>
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