PHYS 1403 Stars and Galaxies Syllabus
Eastfield College

Instructor Information
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Course Information
Course Title: Star and Galaxies
Course Number: PHYS 1403
Section Number: 45451
Semester/Year: SUMMER – I
Credit Hours: 4
Class Meeting Time/Location: INET -- M T W R F S U
Certification Date: June 08 (Monday), 2020
Last Day to Withdraw: June 24 (Monday), 2020

Course Prerequisites
College level ready in Reading.

Course Description
The study of stars, galaxies, and the universe outside our solar system. Introduces the properties of stars, stellar evolution, black holes, galaxies and current cosmological ideas. Emphasis is on the application of scientific principles and explanation of phenomena in the universe. The laboratory includes outdoor viewing sessions and the use of spectra. (3 Lec., 3 Lab.)
Student Learning Outcomes
Upon successful completion of the course, the students will:

- Explain the daily and annual motions that occur in the sky.
- Relate the contributions of astronomers through the centuries and describe the methods used by them to explain their observations.
- Apply the principles of science to describe and explain various astronomical phenomena.
- Describe the basic features of the Sun and explain how it produces energy.
- List the different stages of stellar evolution and the properties of stars during their life cycles.
- Distinguish between different types of galaxies and explain current views on their formation.
- Discuss current cosmological ideas regarding the structure and formation of the universe.
- Perform lab experiments and exercises which illustrate the concepts listed above.
- View the night sky, identify the brightest stars and constellations, and observe various objects through the telescope, to personally experience the marvels of the universe.

Texas Core Objectives
The College defines essential knowledge and skills that students need to develop during their college experience. These general education competencies parallel the Texas Core Objectives for Student Learning. In this course, the activities you engage in will give you the opportunity to practice two or more of the following core competencies:

1. **Critical Thinking Skills** - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. **Communication Skills** - to include effective development, interpretation, and expression of ideas through written, oral, and visual communication
3. **Empirical and Quantitative Skills** - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
4. **Teamwork** - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
5. **Personal Responsibility** - to include the ability to connect choices, actions, and consequences to ethical decision-making
6. **Social Responsibility** - to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities

**Required Course Materials**

Title: The Cosmic Perspective  
Edition: 8th Edition  
Authors: Jeffrey Bennett, Megan Donahue, Nicholas Schneider and Mark Voit  
Publisher: Pearson Copyright year: 2017  

See the **Getting Started** section of the class website for more details on how you can obtain these materials.

Computer with internet access and ability to submit assignments online through eCampus. Some work may need to be photographed or scanned for submission. In addition, you must download the free planetarium software “Stellarium” to complete several labs. Instructions on how to download and use these programs are included in the lab handouts. The free software for all the labs is compatible with both Mac and Windows based PC computers.

Note: A student of this institution is not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

**Course Outline**

This course is divided into twelve lessons:

Lesson 1: The Big Picture  
Lesson 2: Clocks and Calendars  
Lesson 3: Analyzing Starlight  
Lesson 4: The Sun  
Lesson 5: Stellar Measurements  
Lesson 6: The HR Diagram  
Lesson 7: Stellar Birth  
Lesson 8: Stellar Maturity  
Lesson 9: Stellar Death  
Lesson 10: The Milky Way Galaxy  
Lesson 11: Other Galaxies  
Lesson 12: Cosmology
Graded Work
The tables below provide a summary of the graded work in this course and an explanation of how your final course grade will be calculated.

Summary of Graded Work

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Approx. %</th>
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</thead>
<tbody>
<tr>
<td>Orientation Quiz</td>
<td>1 %</td>
</tr>
<tr>
<td>Lesson Quizzes</td>
<td>30 %</td>
</tr>
<tr>
<td>Discussion Boards</td>
<td>10 %</td>
</tr>
<tr>
<td>Labs</td>
<td>15 %</td>
</tr>
<tr>
<td>Tests</td>
<td>44 %</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100 %</strong></td>
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</table>

Final Grade

<table>
<thead>
<tr>
<th>Points</th>
<th>Percentages</th>
<th>Letter Grade</th>
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<tbody>
<tr>
<td>900-1,000</td>
<td>90-100%</td>
<td>A</td>
</tr>
<tr>
<td>800-899</td>
<td>80-89%</td>
<td>B</td>
</tr>
<tr>
<td>700-799</td>
<td>70-79%</td>
<td>C</td>
</tr>
<tr>
<td>600-699</td>
<td>60-69%</td>
<td>D</td>
</tr>
<tr>
<td>0-599</td>
<td>0-59%</td>
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</tr>
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</table>

Description of Graded Work

Orientation Activities
All students must read the orientation information and complete the Orientation Quiz posted in “Getting Started” by the assigned due date.

Quizzes: The course is divided into twelve lessons and there is a quiz for each lesson, which is graded for 20 points. Late assignments will not be graded, unless you have made arrangements with the Instructor. A 10-point orientation quiz is also required, to familiarize you with the various components of the website.

Tests: There will be four tests, each worth 100 points. Tests will be multiple choice, true false and short answer. Some questions may involve simple computations. All tests are
taken on-line and are open-book, but are timed for 120 minutes. You will receive instructions and passwords prior to the test in the weekly emails.

**Discussion Board:** A discussion topic will be posted on the Discussion Board every other week. Post your frank and thoughtful responses to the original topic and at least twice to another classmate for each forum. Follow the rules for online etiquette. Your participation on the discussion board will be graded for 10% of overall grade.

**Lab exercises:** All the labs will be done online. Lab handouts will be posted on eCampus every week. You will answer the questions included in the lab and submit the completed lab via eCampus. Lab is worth 15% of the grade. If you have any difficulty completing any of the labs, please email the instructor for help. If you are able to come to the campus, you may stop by during the open lab hours to get help. Open lab hours will be posted on eCampus.

**Late Work Policy**
It is in each student's best interest to submit work in a timely fashion. As this is an accelerated course, late work will not be accepted without the instructor’s permission.

**Other Course Policies**

**Incompletes**
An incomplete grade of "I" may be given when an unforeseen emergency prevents you from completing the work for this class. Make contact with the instructor immediately if there is a situation preventing you from finishing the course.

**Communication**
The primary means of communication for this class is email. You are responsible for ensuring that your email address is correctly listed in the course (Check this on the first day!) and that you are receiving emails from the instructor. To ensure you receive all notices from the instructor in a timely manner, check your email frequently (at least 3-4 times per week).

If you send the instructor an email with a technical problem or other request that requires a rapid response to meet a deadline, make sure to use the correct subject line and then check your email frequently between the time you send your request/problem and the due date. Extensions will NOT be granted in situations where the instructor responded before the due date with instructions, but the student did not check frequently enough to see the response.
The instructor will reply to all emails sent in the proper format within 24 hours, so double check your format and re-send your email if you do NOT hear back from the instructor within this time frame. Do NOT assume that an unanswered email was received – ALWAYS RE-SEND if you do not receive a reply in 24 hours!

**Required Subject Line Format**

When contacting the instructor, the SUBJECT LINE must contain the course ID (PHYS 1403-**section #**) AND the student’s first and last name. The email itself (the body/message) must ALSO contain course ID and the student’s first and last name at the end of the message. Emails sent without this format will either receive no reply or a reply telling the student to re-send in proper format, which slows down response time.

**Institutional Policies**

Institutional Policies relating to this course can be accessed using the link below. These policies include information about tutoring, Disabilities Services, class drop and repeat options, Title IX, and more.

[Eastfield Institutional Policies](http://www.eastfieldcollege.edu/syllabipolicies)

**Course Schedule**

**Listing of Topics by Week**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Readings &amp; Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Modern View of the Universe</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>1</td>
<td>Discovering the Universe for Yourself</td>
<td>Chapter 2</td>
</tr>
<tr>
<td>1</td>
<td>Light and Matter</td>
<td>Chapter 5</td>
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<tr>
<td>1</td>
<td>Test – 1</td>
<td>Chapters 1, 2, and 5</td>
</tr>
<tr>
<td>2</td>
<td>Our Star</td>
<td>Chapter 14</td>
</tr>
<tr>
<td>2</td>
<td>Surveying the Stars</td>
<td>Chapter 15</td>
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<tr>
<td>2</td>
<td>Test – 2</td>
<td>Chapters 14 and 15</td>
</tr>
<tr>
<td>3</td>
<td>Star Birth</td>
<td>Chapter 16</td>
</tr>
<tr>
<td>3</td>
<td>Star Stuff</td>
<td>Chapter 17</td>
</tr>
<tr>
<td>3</td>
<td>Bizarre Stellar Graveyard</td>
<td>Chapter 18</td>
</tr>
<tr>
<td>3</td>
<td>Test – 3</td>
<td>Chapters 16, 17, and 18</td>
</tr>
<tr>
<td>Week</td>
<td>Topic</td>
<td>Readings &amp; Assignments</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>4</td>
<td>Our Galaxy</td>
<td>Chapter 19</td>
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<tr>
<td>4</td>
<td>Galaxies and Modern Cosmology</td>
<td>Chapter 20</td>
</tr>
<tr>
<td>4</td>
<td>The Birth of the Universe, Dark Matter, Dark Energy, and Fate of the Universe</td>
<td>Chapter 22, 23</td>
</tr>
<tr>
<td>4</td>
<td>Test – 4</td>
<td>Chapters 19, 20, 22, and 23</td>
</tr>
</tbody>
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