<table>
<thead>
<tr>
<th>Course Information</th>
<th>Instructor Information</th>
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<tbody>
<tr>
<td>College: Brookhaven College</td>
<td>Instructor: Anahita Sidhwa</td>
</tr>
<tr>
<td>Course Title: Solar System</td>
<td>E-Mail Address: <a href="mailto:afsidhwa@dccc.edu">afsidhwa@dccc.edu</a></td>
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<tr>
<td>Semester/Year: Summer I 2019</td>
<td>Telephone: 214-862-5745</td>
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<tr>
<td>Course number: PHYS 1404</td>
<td>Online Office Hours: By appointment</td>
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<tr>
<td>Section number: 25401</td>
<td>Campus Office Hours: Wed 3:30 – 5:30 pm</td>
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<tr>
<td>Credit Hours: 4</td>
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**Course Prerequisite(s)**

Required: College level ready in Reading.

**Course Description**

Study of the Sun and its solar system. Introduction to the solar system and the historical development of astronomical ideas. Topics include the study of the celestial sphere, the planets and their satellites, the sun and other objects in the solar system. Emphasis is on the application of scientific principles and explanation of phenomena in the solar system. The laboratory includes outdoor viewing sessions, constellation identification and the use of telescopes. (3 Lec., 3 Lab)

**Course Overview**

This is a 4-credit hour course that fulfills the lab science requirements for non-science majors. Students access lecture and lab materials online using eCampus, DCCCD's virtual campus system. In addition to the textbook, students also use free software for star maps and a few lab exercises. Stargazing sessions, which are an important component of the lab activities, will be done at the Brookhaven College campus. Optional activities are available for students who cannot participate in star gazing.

**Class Participation**

Since this is an online class, no on-campus attendance is required. However, students are expected to log in and participate actively via eCampus (http://ecampus.dccc.edu). Try to check emails daily and access the class every day. You must show participation in this class prior to the certification date, June 10 2019, by completing the Questionnaire and Orientation Quiz.

**Core Competencies**

PHYS 1404 is part of the Life and Physical Sciences Component Area (030). Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications

### Required Textbook

**Title:** The Cosmic Perspective  
**Edition:** Eighth  
**Author:** Jeffrey Bennett, Megan Donahue, Nicholas Schneider and Mark Voit  
**Publisher:** Pearson  
**Copyright year:** 2017  
**ISBN:** 978-0-13-411031-8 (loose leaf version)  
**ISBN:** 978-0-13-412755-2 (eTextbook)

### Additional Materials

- scientific calculator with exponential notation key
- metric ruler
- protractor

*See the Getting Started section of the class website for more details.*
of scientific principles on the physical world and on human experiences. PHYS 1404 is designed to help you develop the following competencies to fulfill this requirement: (see items marked with X):

<table>
<thead>
<tr>
<th>Competency</th>
<th>Mark</th>
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<tr>
<td><strong>Critical Thinking Skills:</strong> to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
<td>X</td>
</tr>
<tr>
<td><strong>Communication Skills:</strong> to include effective development, interpretation and expression of ideas through written, oral and visual communication.</td>
<td>X</td>
</tr>
<tr>
<td><strong>Empirical and Quantitative Skills:</strong> to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.</td>
<td>X</td>
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<tr>
<td><strong>Teamwork:</strong> 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>X</td>
</tr>
<tr>
<td><strong>Personal Responsibility:</strong> to include the ability to connect choices, actions and consequences to ethical decision-making.</td>
<td></td>
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<tr>
<td><strong>Social Responsibility:</strong> 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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### Student Learning Outcomes

Upon successful completion of this course, students will:

1. Explain the daily and annual motions that occur in the sky.
2. Relate the contributions of astronomers through the centuries and describe the methods used by them to predict the observed heavenly motions.
3. Apply the principles of science to describe and explain various astronomical phenomena.
4. Describe the construction and working of different types of telescopes.
5. Compare the characteristics of the terrestrial and Jovian planets and their satellites.
6. Distinguish between comets, asteroids, meteors and explain current views on the formation of the solar system.
7. Describe the physical properties of the Sun and its effect on earth.
8. Perform lab experiments and exercises which illustrate the concepts listed above.
9. View the night sky, identify the brightest stars and constellations and observe various objects through the telescope and personally experience the marvels of the universe.

### Course Outline

The course consists of 4 units:

**Unit 1**
- Lesson 1: Introduction and Overview
- Lesson 2: The Celestial Sphere
- Lesson 3: Ancient Astronomers and History

**Unit 2**
- Lesson 4: Gravity and Newton’s Laws
- Lesson 5: The Nature of Light
- Lesson 6: Telescopes
Unit 3
Lesson 7: Solar System Overview
Lesson 8: Planetary Geology
Lesson 9: Planetary Atmospheres

Unit 4
Lesson 10: Jovian Planets
Lesson 11: Asteroids, Comets, and Other Planets
Lesson 12: Our Sun

<table>
<thead>
<tr>
<th>Evaluation Procedures</th>
<th>Point Accumulation and Distribution</th>
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<tbody>
<tr>
<td>Requirement</td>
<td>Points Each</td>
</tr>
<tr>
<td>Orientation Quiz (1)</td>
<td>10</td>
</tr>
<tr>
<td>Quizzes (12)</td>
<td>20</td>
</tr>
<tr>
<td>Tests (4)</td>
<td>100</td>
</tr>
<tr>
<td>Discussion Boards</td>
<td>variable</td>
</tr>
<tr>
<td>Indoor Labs (6)</td>
<td>25</td>
</tr>
<tr>
<td>Observation Activities (4)</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td></td>
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Grading Scale

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90 – 100</td>
<td>A</td>
</tr>
<tr>
<td>80 – 89</td>
<td>B</td>
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<tr>
<td>70 – 79</td>
<td>C</td>
</tr>
<tr>
<td>60 – 69</td>
<td>D</td>
</tr>
<tr>
<td>0 – 59</td>
<td>F</td>
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Extra Credit

3 extra star gazing exercises will be allowed

Orientation Quiz: This is worth 10 points and it is to be done before you submit Quiz 1. It will help you navigate the website and find all the components of the course.

Quizzes: The course is divided into twelve lessons with a quiz for each lesson, which is graded for 20 points. Each quiz can be accessed multiple times, but may be submitted only once.

Tests: Four tests will be given during the term after Lessons 3, 6, 9, and 12. Each test is worth 100 points and the questions will be multiple choice, true-false, and short answer. Some questions may require simple calculations using a scientific calculator. All tests are online and are open-book but timed for 120 minutes. Unlike the quizzes, the tests can be accessed only once and must be submitted in one sitting.

Tests will be available at 8:00 am on their start day and close at 11:59 pm on the last test day. Instructions and passwords for each test will be sent in the weekly emails. Check the Class Outline or Course Calendar for test dates.
Discussion Board: Discussion topics will be posted on the Discussion Board at regular intervals. Post your frank and thoughtful responses to the original topic and to at least two other classmates. Follow the rules for online etiquette. Your participation on the discussion board will be graded for 60 points.

Lab Exercises: There are 6 compulsory lab exercises which are available on eCampus. Each lab can be accessed multiple times, but may be submitted only once.

Stargazing Activities: At Brookhaven College you have the opportunity to do real stargazing on campus or on field trips using telescopes and binoculars. However, since this is an online course an optional lab which consists of writing essays is available in case star gazing is not possible.

Stargazing sessions conducted by Chaz Hafey will be held at the Brookhaven College campus on Wednesday evenings, if clear skies permit. Since we want you to become familiar with the real sky, you are required to do FOUR outdoor observing activities during the semester. Coming to the star gazing session on campus enables you to have instructor support and see interesting sights with the telescope. You can typically complete two or three activities at one star gazing session. Field trips are also planned, which provide additional opportunities for star gazing.

You may also do up to three extra star gazings for extra credit. This is the only extra credit allowed.

Possible observation activities include:

1. Azimuth and Altitude (naked eye)
2. Magnitude and Color (naked eye)
3. Artificial Satellites (naked eye)
4. Galileo (telescope)
5. Binary Stars (telescope)
6. M-Objects (telescope)
7. Mizar and Alcor (telescope & binoculars)
8. Planet Observing - Sketch of Planets (telescope)

Other activities may be used, after consulting your instructor.

Star Gazing Protocol

1. Call 972-860-4301 after 6:00 p.m. on Wednesday to find out the status, since the sessions are subject to change due to weather.
2. Observing sessions will begin after sunset, please check the time at the phone number given above.
3. Bring a clipboard, pencil and a flashlight.
4. Meet in the lobby of K-building, downstairs for initial discussion. Then follow the instructor to the star gazing site, usually on the plaza between K and X Buildings.
5. Plan to arrive at the beginning of the session to accomplish the most work. Worksheets and star maps will be distributed to you, and it is your responsibility to turn them in.
6. Since we will be outdoors, please dress appropriately. Spray for mosquitoes if it is warm and do not use perfumes. As the weather cools, wear a jacket, hat and gloves.
The indoor lab exercises and stargazing will count towards the lab grade. **Since this is a lab science course, a student must make a passing grade in lab to pass the course.**

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

**Attendance and Participation**
Students are expected to login and utilize the course materials and activities in eCampus on a regular basis. As a minimum expectation, you should login to the course every day during the summer semester.

This is a lab science course, and each lab takes about three hours to complete. During the summer semester there is an assignment (quiz, lab or test) to be submitted almost every day. Hence students should schedule enough time to do the required course work.

**Emails**
The instructor will reply to all emails within 24 hours on weekdays, and by Monday for emails sent on the weekend. Please resend the email if you do not receive a reply. The format is to use PHYS-1404 in the subject line.

**Late Work**
This is not a self-paced class. You MUST keep up with the work in the class and the due dates are designed to help you complete the course within the time-frame of the semester. All assignments must be completed and submitted on time. Please contact your instructor if you have extenuating circumstances. Instructors will use their discretion to deduct points, give partial credit or no credit.

**Withdrawal Deadline**
The deadline for withdrawal with a W grade is **Tuesday June 25, 2019**. If you are unable to complete the course, it is your responsibility to withdraw by filing the appropriate form. Failure to do so will result in a performance grade which may be an F.

**Code of Student Conduct: Scholastic Dishonesty**
Every student should know his or her responsibility as a member of the DCCCD community. As a college student, you are considered a responsible adult and no form of scholastic dishonesty will be tolerated. Scholastic dishonesty includes but is not limited to cheating on assignments, plagiarism and collusion. Your enrollment indicates acceptance of the Code of Student Conduct.

**INSTITUTIONAL POLICIES**
Please visit [https://www.brookhavencollege.edu/au/fastfacts/legal/pages/policies-for-syllabi.aspx](https://www.brookhavencollege.edu/au/fastfacts/legal/pages/policies-for-syllabi.aspx) for a complete list of institutional policies.

**NOTE:** The instructor reserves the right to modify any course requirements and due dates as necessary to manage and conduct this class. The intent of the instructor is to promote the best education possible within prevailing conditions affecting this class. You are responsible for contacting the instructor and seeking clarification of any requirement that is not understood in the syllabus.
**Assistance**

**Open Lab Hours:** Chaz Hafey is the Lab Coordinator and he is available to assist you during Open Lab in K-251. Timings are listed under his name in the Contact Instructor area on eCampus.

**Other Help:** As your instructor, I want to hear from you! Please feel free to contact me by email or phone with your questions, comments, suggestions and ideas. Be sure to get even your smallest questions answered so you can progress to the next step with confidence. In addition to my on-campus office hours, I am also available by appointment. We look forward to “reaching the stars” with you!