## Course Information

<table>
<thead>
<tr>
<th>College:</th>
<th>Brookhaven College</th>
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<tbody>
<tr>
<td>Course Title:</td>
<td>Solar System</td>
</tr>
<tr>
<td>Semester/Year:</td>
<td>Fall 2019</td>
</tr>
<tr>
<td>Course number:</td>
<td>PHYS 1404</td>
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<tr>
<td>Section number:</td>
<td>28400</td>
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<tr>
<td>Credit Hours:</td>
<td>4</td>
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</tbody>
</table>

## Instructor Information

| Instructor: | Ryan Bennett |
| E-Mail Address: | ryanb@dccc.edu |
| Telephone: | 214-995-5596 (after 6pm) |
| Online Office Hours: | By appointment |
| Open Lab Hours: | K251 Tu, Th 9:15-10:15am, W 4:30-6:30pm |
| Tutoring: | K137 M 10:30am 3:00pm, T, W, Th 10:00am – 3:00pm |

## Course Prerequisite(s)

Required: College level ready in Reading.

## Required Textbook

| Title: | The Cosmic Perspective |
| Edition: | Eighth |
| Author: | Jeffrey Bennett, Megan Donahue, Nicholas Schneider and Mark Voit |
| Publisher: | Pearson |
| Copyright year: | 2017 |

## Additional Materials

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

*See the Getting Started section of the class website for more details.

## 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.dcccd.edu). Try to check emails daily and access the class at least three times per week. You must show participation in this class prior to the certification date, March 30 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 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):

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

**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

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**Evaluation Procedures**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Points Each</th>
<th>Total Points</th>
<th>Approx. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation Quiz (1)</td>
<td>10</td>
<td>10</td>
<td>1%</td>
</tr>
<tr>
<td>Quizzes (12)</td>
<td>20</td>
<td>240</td>
<td>24%</td>
</tr>
<tr>
<td>Tests (4)</td>
<td>100</td>
<td>400</td>
<td>40%</td>
</tr>
<tr>
<td>Discussion Boards</td>
<td>variable</td>
<td>100</td>
<td>10%</td>
</tr>
<tr>
<td>Labs (8)</td>
<td>25</td>
<td>200</td>
<td>20%</td>
</tr>
<tr>
<td>Observation Activities (5)</td>
<td>10</td>
<td>50</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>1000</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
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**Grading Scale**

90 – 100 = A  
80 – 89 = B  
70 – 79 = C  
60 – 69 = D  
0 – 59 = F

**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, typically with the testing period lasting three (3) days. 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 100 points.

Lab Exercises: There are 8 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 FIVE 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 at least 3 times per week.

To be successful, students should spend a MINIMUM of 8–10 hours working on course materials each week. Test preparation may require additional hours. Remember there’s also a lab component, and each lab will take about three hours of your time.

**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 **November 27th**. 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 DCCC 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.

**Office Hours via BlackBoard Collaborate:** To better accommodate the online course, I will hold my office hours online over BlackBoard Collaborate. To access these, at the time of a scheduled appointment scheduled office hour, click on the “Online Office Hours” link in the left menu on the course page. Then click on the link that says, “Click here during office hours.” Finally click “Join Room.” If it is the first time you are using BlackBoard Collaborate on your machine, you will need you will need to download the launcher software which is located on the page where you join. Then you will need to click join again. This system provides everything we need for an online meeting, video, audio, screen sharing, chat, and a shared wipe board.

**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!