Course Number: PHYS 1304
Course Title: Astronomy of the Solar System

Instructor Name: Fred L. Wilson, Ph. D.
Office Location: VIN 135
(325) 486-6984
fwilson@angelo.edu
Office Hours: M-F 2-4 PM
Virtual Office M-F, 2-4 PM (video and audio through Blackboard)

Please feel free to contact me if you have any problems whatsoever in this course—or if you're doing well, and just want to talk about the wonders and mysteries of the universe. It’s in all our interests, and I care, that you do well! The best way to contact me is by personal in-office visit, or by e mail. Telephone is often less useful because the visual aspect is missing and it is often important if I am to respond properly to you.

Course Description/Overview

This course is a three hour introduction to Solar System Astronomy. A separate laboratory course can be taken. The sequence of astronomy courses (PHYS 1303 and 1304) plus labs (PHYS 1103 and PHYS 1104) satisfy the eight hour physical science with lab requirement for most degree programs. This course can be used for elective credits in most degree programs. Physics 1304, Astronomy of the Solar System, is an introduction to astronomy of the Solar System, covering night sky observations, the techniques and methods of modern astronomy, and basic concepts related to solar system objects such as planets, asteroids, and comets. This is an eight-week, online course.

Course Bibliography and Required Readings:

Understanding Our Universe by Palen, Kay, Smith, Blumenthal. Edition 2
Publisher: Norton
ISBN: 978-0393936315

It is essential that you obtain a recent version of the text. You are expected to read, review and practice all of the content in this course. If you choose, you may download a free book, Astronomy from OpenStax. OpenStax. 13 October 2019. <http://cnx.org/content/col11992/latest/>.

Prerequisites

There are no prerequisites for this course.
Technical skills required for this course

As with all online courses, students must be able to operate a computer and have the necessary technical skills to navigate around a web page. Additional technical skills are not a prerequisite for this course, however your computer must meet minimum requirements to operate Blackboard. *NOTE: You will NOT be able to do this course using a phone only. You will find it difficult if not impossible using only a pad as well. Many parts of this course will work very poorly on a tablet.*

Time spent on this course

Students can expect to spend a minimum of 6 hours per week to complete all the readings and assignments. The lessons themselves take as long as the student will require to read the materials and watch or listen to media presentations. Assignments are due throughout the week, so it is not possible to do the course successfully by doing it only on weekends.

Goals, Objectives, and Outcomes

Course Goals

Apart from the utility of Astronomy in the ordinary sense of the word, the study of the science is of the highest value as an intellectual training. No other science so operates to give us on the one hand just views of our real insignificance in the universe of space, matter, and time, or to teach us on the other hand the dignity of the human intellect as the offspring, and measurably the counterpart, of the Divine; able in a sense to “comprehend” the universe, and know its plan and meaning. The study of the science cultivates nearly every faculty of the mind; the memory, the reasoning power, and the imagination all receive from it special exercise and development. By the precise and mathematical character of many of its discussions it enforces exactness of thought and expression, and corrects that vague indefiniteness which is apt to be the result of pure literary training. On the other hand, by the beauty and grandeur of the subjects it presents, it stimulates the imagination and gratifies the poetic sense. In every way it well deserves the place which has long been assigned to it in education.

Course Objectives:

The following two objectives are the major performance goals for the course.

**Objective One:** After completing this course you should comprehend the most important scientific models governing modern astrophysics and be familiar with the astronomical objects studied by astronomers.

**Objective Two:** After completing this course you should comprehend the practices and methodologies used by modern astronomers in constructing astrophysical models.

Student learning outcomes will be assessed through a combination of assignments submitted each week online. Every question is underwritten by a specific learning objective *and* a reference to Bloom’s taxonomy. (I doubt most of you will care much about this.)
**Course Organization**

**Lesson 1:** Sky Patterns  
**Lesson 2:** Laws of Motion  
**Lesson 3:** Light and Telescopes  
**Lesson 4:** Solar System Formation  
**Lesson 5:** Terrestrial Worlds  
**Lesson 6:** Planet Atmospheres  
**Lesson 7:** Giant Planets  
**Lesson 8:** Small Bodies

**READING ASSIGNMENTS, TESTS, & IMPORTANT DATES**

All reading assignments are in text, *Understanding Our Universe* by Palen, Kay, Smith, Blumenthal, edition 2. Each week the reading assignments will be posted. Also the corresponding reading from OpenStax *Astronomy* will be specified.

Each week’s work is available Monday morning at 12:01 AM. Each week’s work closes at midnight Sunday. [Even though a holiday may occur during the 8 weeks, the course will be open at 12:01 AM on Monday, and all work is due by Sunday night at midnight.] The exception is that on the Discussion Board, students must post a thread each week by Thursday midnight in order to receive full credit. Additionally, comments on at least two other students’ posts must be made by midnight Sunday.
<table>
<thead>
<tr>
<th>Week Beginning</th>
<th>Chapters Covered</th>
<th>Other</th>
</tr>
</thead>
</table>
| Mar 18, 2019  | 2                | • Astronomy Pretest  
• Discussion Board – Self Introduction and Week 1 Topic  
• Self-Test, over Ch 2  
• Ch 2 Quizzes |
| Mar 25, 2019  | 3                | • Discussion Board Week 2 Topic  
• Self-Test, over Ch 3  
• Ch 3 Quizzes |
| Apr 1, 2019   | 4                | • Discussion Board Week 3 Topic  
• Self-Tests Ch 4  
• Ch 4 Quizzes  
|                |                  | **Research Project #1 Due** |
| Apr 8, 2019   | 5                | • Discussion Board Week 4 Topic  
• Self-Test, over Ch 5  
• Ch 5 Post-Test |
| Apr 15, 2019  | 6                | • Discussion Board Week 5 Topic  
• Self-Tests Ch 6  
• Quizzes Ch 6  
|                |                  | **Research Project #2 Due** |
| Apr 22, 2019  | 7                | • Discussion Board Week 6 Topic  
• Self-Tests Ch 7  
• Ch 7 Quizzes |
| May 6, 2019   | 8                | • Discussion Board Week 7 Topic  
• Self-Test Ch 8  
• Ch 8 PT  
• Astronomy PT (required before you can access Week 8 work)  
|                |                  | **Research Project #3 Due** |
| May 7, 2019   | 9                | • Discussion Board Week 8 Topic  
• Self-Test Ch 9  
• Ch 9 PT |

For a road Map for each week, see the Lesson (in the main course tab) for that week.
<table>
<thead>
<tr>
<th>Week</th>
<th>Assignment</th>
<th>Thursday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wk 1 Set Thread Disc Bd.</td>
<td>3/21/2019</td>
<td>3/24/2019</td>
</tr>
<tr>
<td></td>
<td>Ch 02 Quizes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wk 1 comment 2 students threads on disc board</td>
<td></td>
<td>3/24/2019</td>
</tr>
<tr>
<td></td>
<td>Wk 2 Set Thread Disc Bd.</td>
<td>3/28/2019</td>
<td>3/31/2019</td>
</tr>
<tr>
<td></td>
<td>Ch 03 Quizes</td>
<td></td>
<td>3/31/2019</td>
</tr>
<tr>
<td>2</td>
<td>Wk 2 comment 2 students threads on disc board</td>
<td></td>
<td>3/31/2019</td>
</tr>
<tr>
<td></td>
<td>Wk 3 Set Thread Disc Bd.</td>
<td>4/4/2019</td>
<td>4/7/2019</td>
</tr>
<tr>
<td></td>
<td>Ch 04 Quizes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Wk 3 comment 2 students threads on disc board</td>
<td></td>
<td>4/7/2019</td>
</tr>
<tr>
<td></td>
<td>Project 1</td>
<td></td>
<td>4/7/2019</td>
</tr>
<tr>
<td></td>
<td>Wk 4 Set Thread Disc Bd.</td>
<td>4/11/2019</td>
<td>4/14/2019</td>
</tr>
<tr>
<td>4</td>
<td>Ch 05 Quizes</td>
<td>4/14/2019</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wk 4 comment 2 students threads on disc board</td>
<td></td>
<td>4/14/2019</td>
</tr>
<tr>
<td></td>
<td>Wk 5 Set Thread Disc Bd.</td>
<td>4/18/2019</td>
<td>4/21/2019</td>
</tr>
<tr>
<td></td>
<td>Ch 06 Quizes</td>
<td>4/21/2019</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Wk 5 comment 2 students threads on disc board</td>
<td></td>
<td>4/21/2019</td>
</tr>
<tr>
<td></td>
<td>Project 2</td>
<td></td>
<td>4/22/2019</td>
</tr>
<tr>
<td></td>
<td>Wk 6 Set Thread Disc Bd.</td>
<td>4/25/2019</td>
<td>4/28/2019</td>
</tr>
<tr>
<td></td>
<td>Ch 07 Quizes</td>
<td>4/28/2019</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Wk 6 comment 2 students threads on disc board</td>
<td></td>
<td>4/28/2019</td>
</tr>
<tr>
<td></td>
<td>Wk 7 comment 2 students threads on disc board</td>
<td></td>
<td>5/6/2019</td>
</tr>
<tr>
<td></td>
<td>Project 3</td>
<td></td>
<td>5/6/2019</td>
</tr>
<tr>
<td></td>
<td>Wk 7 Set Thread Disc Bd.</td>
<td>5/2/2019</td>
<td>5/5/2019</td>
</tr>
<tr>
<td>7</td>
<td>Ch 08 Quizes</td>
<td>5/5/2019</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wk 7 comment 2 students threads on disc board</td>
<td></td>
<td>5/5/2019</td>
</tr>
<tr>
<td></td>
<td>Project 3</td>
<td></td>
<td>5/5/2019</td>
</tr>
</tbody>
</table>
Quizzes open on Monday of each week and are available for answering. Quizzes close at midnight on Sunday of each week. In order for a quiz to count it must be answered AND submitted.

Many online courses use a host of multiple choice questions for online testing. In this course you will have three different graded assignments each week. First is a Pre-Assessment Quiz to help you judge your understanding of the material. Each week there is a topic for you to respond to: you set a thread (by Thursday of the week) and comment on at least two other students’ posts by Sunday midnight. The exception is week 8 when everything on the Discussion Board must be completed by Thursday of the final week (in order that it may be graded in time to turn in grades.) Extra credit is available for attending Planetarium shows.

This is an 8-weeks course, and things become due awfully fast. NO MAKEUPS unless you can justify (to my satisfaction) dire circumstances, beyond your control. You just have to keep up with the course. Getting a late start for whatever reason is not, in itself, justification for makeup work. Posts on the Discussion Board may not be made up for any reason.

Since this is an ONLINE COURSE, it is really important that you feel part of a group instead of a lone wanderer trying to navigate astronomy. To that end there is a Discussion Board. There may be non-graded forums where you may ask questions, and offer suggestions for the course. In each week, beginning with week 1 there is a graded forum: The forum explains what you are to do. This can be significant in your grade, since you may earn up to 15 points for each week’s topic. For every graded forum to get full credit you must create a thread and post at least two responses to threads created by other students.

**Grading Policies**

Your grade is determined by the percentage of available points you earn by the end of the 8 weeks. The various assignments are weighted approximately as shown in the table below.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percent of Grade</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion Board</td>
<td>20%</td>
<td>Weekly (200 total points)</td>
</tr>
<tr>
<td>Project 1, 2, 3</td>
<td>7.4%</td>
<td>(74 total points)</td>
</tr>
<tr>
<td>Chapter Quizzess</td>
<td>72.6%</td>
<td>Weekly (726 total points)</td>
</tr>
</tbody>
</table>
Total base points is 1000. Actually, with extra credit, it is possible to earn more than 1000 points.

**Grades**

Angelo State University employs a letter grade system. Grades in this course are determined on a percentage scale:

- **A** = 90 – 100 % (900 or more points)
- **B** = 80 – 89 % (800—899 points)
- **C** = 70 – 79 % (700–799 points)
- **D** = 60 - 69 % (600–699 points)
- **F** = 59 % and below (below 600 points).

**Assessment Items**

This is an 8-weeks’ course, and things become due awfully fast. NO MAKEUPS FOR ANY REASON EXCEPT IN DIRE CIRCUMSTANCES, beyond your control. If such circumstances arise, you must contact me as soon as possible, and we will work out a plan, if warranted. You just have to keep up with the course. Discussion Board posts may not be made up for any reason.

**Extra Credit**

Attend Planetarium shows. For each unique show you attend (and attendance is verified to me) you may receive 10 course points. The schedule is online and is also shown, updated, on the first page of the course when you open it in Blackboard. To get credit for attending, you must sign in at the door. When you sign in you supply your name (legibly), you CID, and for which course you are asking credit. For example, 1304 online. Be sure to indicate you are in an online course, or I won’t get your name.

**Final Exam**

This course does not require a final exam as you are evaluated on a weekly basis. However all work must be completed by the dates specified in assignments. An optional final will be available. It will NOT hurt you but is a way to gain additional points.

**Administration**

**Communication**

In this class, we will communicate primarily by writing, mostly in e mail. In any form of communication, you are expected to treat your fellow students and your instructor with courtesy and respect. In this class, the following rules of etiquette apply:

- Spelling and grammar count. Don’t use slang terms or shorthand “text-speak” abbreviations.
- It's okay to disagree, but it's not okay to insult. Flame-wars and ad-hominem attacks are not acceptable.
- No profanity. Offensive language will not be tolerated.
- No racial, ethnic, or cultural slurs. This may result in your removal from the class.

Feedback

As the instructor of this course, it is my goal to respond to all communication within one working day. At a minimum, you can expect me to be actively engaged in this course during the stated office hours, and will strive to be responsive at other times as well. In addition, I will do my best to grade all writing assignments and provide feedback within 2 days of the due date for the assignment.

Attendance

This is an online course and attendance is not taken. However, failure to communicate, or respond to emails from your professor, is an indication something is wrong.

Late Work

You must contact your professor before the assignment is due if you believe it will be late. Failure to do so will result in a zero for the assignment. In general it will not be possible to do a posted assignment late. No make ups of any kind are allowed after the fact except in dire circumstances. Don't ask.

Incompletes

The University policy on grades of “Incomplete” is that the deficiency in performance must be addressed satisfactorily by the end of the next long (16 week) semester or the grade automatically becomes a “F”. Grades of “Incomplete” will only be awarded to students who have demonstrated sufficient progress to earn the opportunity to complete the course outside of the normal course duration. The award of an “Incomplete” will only be made in rare circumstances, with the concurrence of the student and the professor on what specific tasks remain and when they are due for the grade to be changed to a higher grade. The determination of the need to award an “Incomplete” is entirely up to the professor's personal judgment.

Add/Drop dates

Students may add or drop this course within the dates assigned by Angelo State University. For exact dates see the Academic Calendar for ASU

See: http://www.angelo.edu/services/registrars_office/academic_calendar.ph
University Policies

Academic Integrity

Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Students are responsible for understanding and complying with the university Academic Honor Code and the ASU Student Handbook.

Accommodations for Disability

The Student Life Office is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability, and it is the student’s responsibility to initiate such a request by contacting the Student Life Office at (325) 942-2191 or (325) 942-2126 (TDD/FAX) or by e-mail at Student.Life@angelo.edu to begin the process. The Student Life Office will establish the particular documentation requirements necessary for the various types of disabilities.

Student absence for religious holidays

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.