

PHYS 160 Astronomy Syllabus
Spring 2020
Revised for transition to remote learning 3/20/2020

Instructor: Dr. Ann Wright

Email: wright@hendrix.edu

Office Hours: W and F 11am-12pm CDT on PHYS 160 Astronomy Team or e-mail for appointment.

Physics Department goals that apply to this course: Students will...

- ...build a foundation of scientific knowledge.
- ...demonstrate their ability to present information clearly, logically, and critically, both orally and in writing.

Learning Goals for this course: Students who complete this course will...

- ...be introduced to the methodology of Astronomy and the models developed to understand our universe.
- ... learn about the historical development of models of the physical world, the experimental basis of these models, and how these models have impacted how humanity views the physical world.
- ... be introduced to the celestial objects in our solar system and beyond.
- ...explore the impact of human behavior on the Earth's physical systems.

Textbook: Free! OpenStax Astronomy <https://openstax.org/details/books/astronomy>

Print version: ISBN-13: 978-1-938168-28-4 available on amazon.com for ~\$35

I also recommend that you download the free OpenStax app from your app store of choice if you want to read your textbook on a tablet or phone.

Course Materials:

On Moodle: syllabus, extra course materials, assignments, gradebook, quizzes

<http://moodle.hendrix.edu/course/view.php?id=19392> .

On class website: calendar, lectures, assignments, syllabus

<http://astronomy.calliope.us/>

On Microsoft Teams page for PHYS 160 Astronomy: class discussion board, chat room for office hours.

<http://teams.microsoft.com>

Observing equipment:

No special equipment is required for this course. However, the following items will be useful if you have them: a compass, astronomy apps on your phone or tablet such as Astronomy Picture of the Day (APOD), Sky Safari, Star Walk. The physics department has telescopes and binoculars that we will use during the class, or you are welcome to use your own if you have them.

Grading:

Course letter grades are assigned based on the numerical course grade:

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

The instructor reserves the right to adjust the limits down (but never up). For example, a course grade of 88% will never be assigned a letter grade lower than a B, but may be raised to an A.

The revised grade formula is:

30% Homework and observational assignments
50% Test average (3 tests, drop lowest score)
20% 4 quizzes (5% each) weekly quizzes

Homework and Observational Assignments

- Assignments will be posted on Moodle, and on the course website.
- HW will be submitted by uploading files to Moodle. Please upload pdf files only. Handwritten work can be scanned or converted to pdf through a phone app such as CamScanner.
- Each HW problem is graded for completion on a 0-2pt scale. Solutions will be posted.
- There will be several observational assignments. These assignments will include outdoor naked-eye observations, and virtual/simulated observations using computer programs or internet resources. Observation assignments will be graded on a 5 point scale.
- Late assignments will receive a 50% point reduction, and may be submitted by end of final exam period.

Test Information:

Prior to Spring Break: 2 tests, in class, closed notes/book.

After Spring Break: Test #3 will be given as a take-home exam on F April 3, 2020 at 11 am, due M April 6, 2020 at 11am. Open notes/textbook/internet.

Weekly Quizzes

All quizzes will be given on Moodle. They will be available on Monday of each week at 11am. They are due one week later.

Quiz 1 will cover material from 4/6-4/10, due M 4/13 at 11am
Quiz 2 will cover material from 4/13-4/17, due M 4/20 at 11am
Quiz 3 will cover material from 4/20-4/24, due M 4/27 at 11am
Quiz 4 will cover material from 4/27-5/1, due M 5/4 at 11am

Final Exam

The final exam period is Monday May 11 at 8:30-11:30am. There is no final exam. Dr. Wright will be available on Teams chat for any last-minute conversations. Please use this time to be sure to complete all assignments.

Academic Integrity

Hendrix College is committed to high standards of honesty and fairness in academic pursuits. Such standards are central to the process of intellectual inquiry, the development of character, and the preservation of the integrity of the community. Please review the College's policy on Academic Integrity. It is available online in the 2019-20 Hendrix Catalog at <https://www.hendrix.edu/Catalog/2019-2020/Academic_Policies_and_Regulations/Policies_and_Appeals/Academic_Integrity/> For this course, you are encouraged to work in small groups for class work and homework, but all HW solutions and tests must be the work of the individual student. Direct copying of another student's paper, the textbook, or other reference is cheating and is not allowed.

Accommodations

It is the policy of Hendrix College to accommodate students with disabilities, pursuant to federal and state law. Students should contact Julie Brown in the Office of Academic Success (501.505.2954; brownj@hendrix.edu) to begin the accommodation process. Any student seeking accommodation in relation to a recognized disability should inform the instructor as soon as possible.

For the remote learning environment: extended time is no longer needed because all quizzes and tests will be available for longer than the regular time it would take to complete it. For example, Test #3 should take a student 50 minutes to complete, but students may have 3 days to complete it. All students should take care to set up an environment that is quiet and distraction-free to complete their test and quizzes.

Statement on Diversity:

The Hendrix College physics department values diversity and inclusion in all forms. We expect our faculty, staff, and students to be respectful of diversity in gender, sexuality, disability, age, socioeconomic status, ethnicity, race, religion, and culture. We strive to create a learning environment that is comfortable and effective for all. We should all be open to the views of others, appreciate the opportunity that we have to learn from each other in this community, and value each other's opinions and communicate in a respectful manner. If you encounter or observe sexual harassment, sexual misconduct, sexual assault, or discrimination please contact an appropriate person who can help. These people include: your instructor, the chair of the department (Dr. Todd Tinsley, tinsley@hendrix.edu, 450-1404), the department Safe Zone Ally (Dr. Ann Wright, wright@hendrix.edu, 450-3808), the Dean of Students (Jim Wiltgen, wiltgen@hendrix.edu, 450-1222), the campus Title IX Coordinator (Shawn Goicoechea, goicoechea@hendrix.edu, 450-1415) and the campus Title IX Investigator and Education Coordinator (Allison Vetter, vetter@hendrix.edu, 505-2901). To review your rights regarding harassment and discrimination, we encourage you to review the information located at <https://www.hendrix.edu/SRR/page.aspx?id=70128>.

Class Schedule:

Date	Class topic	Reading (Chapter.section)
W Jan 22	Syllabus and introductions	Ch 1
F Jan 24	The sky viewed from Earth	2.1-2
M Jan 27	History of Astronomy	2.3-4
W Jan 29	Planetary motion	3.1, 3.4
F Jan 31	Newton's Laws of motion	3.2-3
M Feb 3	Earth and sky	4.1-4
W Feb 5	Moon	4.5-7
F Feb 7	Review	
M Feb 10	Test #1	
W Feb 12	Nature of light	5.1-2
F Feb 14	Atoms and spectra	5.3-5
M Feb 17	No class	
W Feb 19	Doppler shift	5.6
F Feb 21	Optical telescopes	6.1-3
M Feb 24	Non-optical astronomy, space telescopes	6.4-6

W Feb 26	Review	
F Feb 28	Test #2	
M Mar 2	Intro to solar system	Ch 7
W Mar 4	Earth	8.1, 8.3-5
F Mar 6	Moon, Mercury, Venus	Ch 9, 10.1-3
M Mar 9	Mars	10.4-6
W Mar 11	Giant planets	Ch 11
F Mar 13	Giant planets, cont'd	Ch 11
M Mar 16	No class – transition to remote teaching	
W Mar 18	No class – transition to remote teaching	
F Mar 20	No class – transition to remote teaching	
M Mar 23	No class – Spring Break	
W Mar 25	No class – Spring Break	
F Mar 27	No class – Spring Break	

Remote Learning schedule:

Date	lecture	Topic	Reading	Due (11am)
M Mar 30	0A	Outer solar system	Ch 12	
W Apr 1	0B	Asteroids, meteoroids, meteors, meteorites, comets	CH 13.1-4, 14.1-2	
F Apr 3		Test #3 available, due M 4/6 at 11am		
M 4/6	1A	The Sun	Ch 15, 16	Test #3
	1B	Characterizing stars	Ch 17	
	1C	HR diagrams	Ch 18	
M 4/13	2A	Star formation	20.1-3, Ch 21	Quiz 1
	2B	Evolution of low mass stars	Ch 22	
	2C	Death of stars – high mass	Ch 23	
M 4/20	3A	Black holes, relativity	Ch 24	Quiz 2
	3B	Milky Way galaxy	Ch 25	
	3C	Galaxies, Hubble's Law	Ch 19, Ch 26	
M 4/27	4A	Active galaxies, dark matter	Ch 27	Quiz 3
	4B	Universe Today	Ch 28	
	4C	The Big Bang and evolution of the universe	Ch 29	
M May 4				Quiz 4
M May 11		Final exam period 8:30-11:30		All HW/obs

Course Revision FAQ (for remote teaching 4/30-5/4)

1. What is the best way to contact the instructor?

E-mail at wright@hendrix.edu. Please note that Dr. Wright is working from home, so will not be monitoring her office phone. If necessary, leave a voicemail at her office phone 501-450-3808 or call the IT helpdesk at 501-450-1340 and ask them to send me a message.

2. How will online office hours be conducted?

- a. Office hours will be conducted on Wednesdays and Fridays from 11-12 or by appointment through e-mail.
- b. Dr. Wright will be present in the PHYS 160 Astronomy Team (<http://teams.microsoft.com>) and will be available for group chat, or private phone or video calls through Team. If you are unsure of how to use Team, please see the e-mail from Jay Burling to students on 3/19 with details or contact the IT help desk at helpdesk@hendrix.edu
- c. As always, you are welcome to e-mail Dr. Wright at any time for help or information.

3. How do I contact IT for help?

- a. IT helpdesk online form at <https://www.hendrix.edu/helpdesk/>, or by e-mail to helpdesk@hendrix.edu or by phone at 501-450-1340

4. How and when will class be held?

- a. This class will be taught in *asynchronous* mode. That means that you are not required to log in during our previously scheduled class time (MWF 11:10-12).
- b. During the first week, lectures will be posted for M 3/30 and W 4/1, and a take home test will be available on F 4/3 and due on M 4/6 at 11am (on Moodle).
- c. Following that first week: Each Monday, the entire week's lectures will be posted on <http://astronomy.calliope.us>, and the quiz on that material will be posted on Moodle. Work through the material at your own pace, then take the quiz before it is due the following Monday.

5. How will the instructor communicate announcements and updates to students?

Dr. Wright will use CampusWeb to send out class information by e-mail.

6. How will course material or documents be delivered?

- a. On Moodle: syllabus, extra course materials, assignments, gradebook, quizzes <http://moodle.hendrix.edu/course/view.php?id=19392> .
- b. On <http://astronomy.calliope.us/>: calendar, lectures, assignments, syllabus and FAQ
- c. On Microsoft Teams page for PHYS 160 Astronomy: class discussion board, chat room for office hours. <http://teams.microsoft.com>

7. What content will be covered in the remainder of the course?

See the revised course topics schedule in the syllabus.

8. How will semester assignments (homework, observation assignments, quizzes, tests) be handled?

- a. Homework is discontinued (no more assignments after Spring Break). Assignments completed before Spring Break will count toward your course grade. Late HW assignments can now be submitted until the Final Exam period for half credit if late.
- b. Observation Assignments:

- i. Obs #1&2 are already graded.
 - ii. Obs #3 Moon phase assignment – cancelled. All students will receive full credit.
 - iii. Obs #4 Mars Documentaries – Due date moved to Final Exam period.
 - iv. Obs #5 Sunspots – will be posted to Moodle shortly, due by Final Exam period.
- c. Test #3 – Take home test, available on Moodle starting F 4/3, upload answers to Moodle before M 4/6 at 11am CDT. Test will be open notes/book/internet.
- d. Weekly quizzes – Test #4 will be replaced by weekly quizzes on Moodle. Quizzes will be available each Monday by 11am and due 1 week later. Quizzes will be open notes/book/internet.

9. How will my course grade be computed?

30% Homework and observational assignments

50% Test average (3 tests)

20% 4 quizzes (5% each) weekly quizzes

10. What will happen during the final exam period?

Nothing is required. Dr. Wright will be available on the Teams page to answer final questions.

Use this time to make sure that you have completed all assignments.

11. What are the academic integrity expectations for this course?

Test #3 and Quizzes #1-4 will now be open notes, textbook, and internet. You are allowed to use any of these resources to answer the quiz and test questions. You are not, however, allowed to use direct help from other people. This includes, but is not limited to, conversations in person, over technology, posting questions in forums such as Chegg, or any two way exchange of information with sentient lifeforms. Doing so constitutes a violation of our academic integrity policy. For the short answer questions, please take care to not copy other people's text. Instead, summarize the answer in your own words.

12. What happens if I miss an assignment because of internet trouble, sickness, or other reasons that I cannot even imagine at this time?

Given the reason that we are in this remote learning environment (Covid-19 virus), and our utter dependence on technology, it is very likely that something will go wrong. Please know that I will do my utmost best to be accommodating, generous, and fair. The key is communication. Let me know if you are having trouble, or if you are sick. No, I will not require documentation. At this point, we are all on the honor system and just need to trust each other.