

Course Syllabus – PHY 101 01

Introduction to Astronomy
Spring 2023

This is a completed example of a syllabus based on the [accessible syllabus template](#). Please download the template to complete your own syllabus.

Class Information

Class Day/Time: MWF 9:05-9:55 AM

Modality: Face-to-face

Class Location: Science Center 119

Time Zone: All times for this course are in EDT time zone.

Credit Hours: 3

Course Format: Lecture and problem-solving

Instructor Information

Instructor: Professor Rudy Flyer

Email: rflyer1@udayton.edu

Phone: 937-229-1000

Office Hours: MWF 10:00 – 11:30 AM

Campus Office Location: Science Center 08

Course Description

Welcome to the Introduction of Astronomy! I'm so excited to be sharing my passion and love for space with you.

Astronomy means a lot of things to a lot of people. For some, it means using telescopes to look at stars, planets, and other objects. Others come at astronomy from a perspective of physics - what are the calculations and forces that make the universe work. And yet still others believe astronomy to be the prediction of our lives based on horoscopes. If you're here for that last group, you're in the wrong class.

The truth is, astronomy is a word that has lost its meaning, to some degree, and we can debate for as long as we've been trying to decide if Pluto is a planet (so 10+ years) what the real definition of astronomy is. Astronomy in this class means a little bit of everything. We'll start locally - our place in space and the motion of the earth and the moon. We'll also look into the history of astronomy - the history explains a LOT of how we view astronomy today. We'll get into the physics of the universe, telescopes and optics, exploration, deep sky objects, and more. Along the way, there will be plenty of beautiful pictures and lots of inspiring videos

Course Learning Objectives

Upon completion of this course, students will be able to:

- Demonstrate improvement in critical and quantitative thinking by applying the scientific method to fact and theory in classroom learning, activities, and assignments.
- Explain theories of the origin of the universe.

- Describe the nature of stars and starlight.
- Discuss the probabilities of life elsewhere in the universe.
- Identify major constellations and astronomical objects.
- Compare and contrast major exploration efforts.

Course Website

All course materials such as the syllabus, assignments, grades, etc. can be found on our course site in UD's Learning Management System, Isidore. Log in at isidore.udayton.edu with your UD username and password. Check the site regularly for updates to the course.

Required Text and Supplementary Materials

Textbook:

Chaisson, Eric. Astronomy Today. 8th edition.

ISBN-13: 978-0321901675

ISBN-10: 0321901673

This textbook can be purchased at the Bookstore. You can also rent an eText or physical text [from Amazon for a low price](#).

Technology Requirements

This course requires the use of a computer that [complies with the hardware specifications](#) that were communicated to you by your college. This course will require your use of the latest version of the Microsoft Office software, which is available for you to download at no additional cost at [UD's Software page](#). It is your responsibility to ensure you have a working computer with the required software installed and functional for this course.

- All email messages will be sent to you via your UD Gmail account, so you should be in the habit of checking that account every day.
- A secure and reliable internet connection is important. Please let me know as soon as possible if you foresee any trouble connecting to the internet.
- Please contact the Udit Service Center at (937) 229-3888 or itservicecenter@udayton.edu if you have any technical problems with Zoom, Porches, Isidore, Gmail, Microsoft Office, or your computer.

How This Course Will Work

Our class will run in a face-to-face format that is supplemented by online activities and materials that you will complete on your own time as homework.

Our class is broken down into 16 weekly modules that open on Mondays at 8 AM and close on Sundays at 11:55 PM. Each week will have at most two due dates: Thursdays at 11:55 PM and Sundays at 11:55 PM.

Our in-person class time will be used for lecture, discussion, and individual and group problem solving activities. Please come to class prepared to be an engaged listener and an active participant.

Activity Descriptions

Below are the activities we will be completing throughout the semester. More details for each of these will be provided on Isidore and in class as the semester progresses.

Participation

Physics is hard. Please don't be intimidated to ask questions. If I say something that you don't understand, I encourage you to interrupt me. During lectures, I will occasionally be asking students to explain back to the class a concept that I just conveyed. I think this is a great way for folks to understand complex concepts. Please be listening and prepared to do this. We will also do small group problem solving sessions as well as large group problem solving.

Homework

The homework assignments for this class are designed to help you practice and master the more difficult concepts presented in this class. While each homework has a small point value, all together, they make up a large chunk of your grade. Plus, they really will help you for the midterm and final exams. I don't expect perfection on these assignments - I just want you to try your hardest to solve and think through the problems. I will be able to tell if you put in an effort. I also suggest you start early on the homework assignments so that you can pop in to office hours with questions before the due date -- I'll look kindly upon those who take advantage of that time!!

Quizzes

There will be quizzes posted on Isidore throughout the semester. They are designed to help you make sure you understand the topics presented in the readings. You can take the quizzes as many times as you want, but please note that you will see different questions each time you take the quiz as the questions are pulling from a pool. You will be able to see your score, the questions, and how you responded after each attempt so you can work to improve your score with multiple attempts. When the deadline for the quiz closes, you will be able to see the correct answers for each of your attempts. Your highest score on the quiz will be the one that is recorded in the Gradebook. Lastly, the lowest score for your quizzes will be dropped.

Project

You will complete a research project about a specific object in astronomy throughout the semester. I will be helping you make progress on this project in several assignments throughout the semester so that it's not all delayed until the last minute. The details for each step of the project will be explained for each week they are due. The idea is that by the time we get to the end of the semester, your project will be 100% finished with the exception of creating/delivering a presentation of your work.

For this project, you will research an object of your choice. It can be a planet, moon, nebula, star, dark matter, rover, telescope, satellite - whatever. Your research paper will consist of 5 sections:

- **Introduction:** Brief description of what the object is and why you selected it.
- **Description:** Thorough description of object - the details will vary depending on the object. I'll provide guidance on this once you select your object.
- **Literature Review:** No matter what you choose, there is research being done on it. This will be the bulk of your paper. I expect you to find at least 5 scholarly articles about the current research on the object and summarize each.
- **Reflection:** I then want you to provide your thoughts on each of those articles and research. What are you still curious about? Where do you think the research will take us? What other topics are related to this object that would further inform our knowledge of it?
- **Conclusion:** A few sentence summary that wraps up the paper.

The final step will be a presentation. Students will present for 10 minutes during the last week of classes.

Exams

Our midterm and final exams will be open notes, open book. You will bring your laptops to class on exam days to take the tests through Isidore. The exams will consist of multiple choice, fill-in-the-blank, matching, and written response questions. Each exam will be cumulative up to that point in the semester (in other words, the final exam will cover only the latter half of course content). The questions for the tests will be drawn from a MASSIVE bank of questions - so it will be extremely difficult for you to cheat or to help others cheat. REMEMBER to have Isidore closed in all other browser windows and tabs - if there are resources on Isidore you'd like to use during the exam, please download them so you can open them locally on your computer.

[See the university's Final Exam Policy](#)

Course Policies

Attendance & Participation Policy

[You are allowed 3 excused absences throughout the semester. Please let me know as soon as possible if you are missing class. I don't need to know why you are missing class, but I appreciate a head's up via email. I encourage you to ask a classmate for notes or updates if you have to miss class. For each absence after 3, I will take 2% off your participation grade.

If you are in class, I expect you to be actively participating. This doesn't necessarily mean you will need to talk a lot, but I want to be able to look at you and see you

listening, taking notes, thinking, etc. When called upon, I expect you to give your best shot to answer my questions.

Classroom Technology Policy

You are allowed to use your laptops or other devices for classwork. I know just how easy it is to get distracted by all the good stuff on the internet, but please try to stay on task as much as possible. I believe the internet and technology can supplement our learning – especially for astronomy! Please feel free to look up extra information about subjects we're discussing – but the rule is, if you find something interesting or cool, you need to share it with the group!

You're in college, and this is a good place for you to practice staying on task as you will be expected to be able to do this in the workplace. If you find yourself frequently distracted by your device, start paying attention to the patterns and try to be mindful of your focus. If I notice that you are never paying attention, I will ask to chat with you during office hours so we can try to address the problem. I invite anyone in our class to come to me if they find themselves distracted by others' device usage – I will do my best to help.

Communication Expectations & Procedures

Please post all questions about the course on the Commons tool on the homepage of our Isidore site. Other students should feel free to jump in and try to answer other students' questions. Feel free to even ask for help on homeworks and quizzes!

If you see something broken in the Isidore site, feel free to post that to the Commons tool as well. I will be checking this page at least once a day, except for Fridays and Saturdays.

If you have a more specific question that is related to your feedback or your situation, please just shoot me an email. I will be checking my email at least once a day except on Fridays and Saturdays.

If I, for any reason, cannot hold to these expectations myself - I will do my best to let you know.

Feedback & Turnaround Time

Here are my general feedback commitments to you. If I cannot meet these commitments, I will do my best to let you know.

If you have questions about any grade or feedback you receive, don't hesitate to shoot me an email! I'm happy to discuss anything. And, I'm human and I can make mistakes. If you think I've made a mistake, definitely let me know. Don't let problems fester!

Homework feedback: I will provide grades and feedback on homework assignments within 3 days of you submitting. I may ask you to resubmit your homework for a better grade if you were way off track.

Quiz feedback: The system will automatically provide feedback to you once the due date of the quiz passes.

Exam feedback: I aim to have these graded within a week of you submitting.

Makeup / Late Work Policy

Students are expected to complete course activities by the assigned due dates. If for any reason you cannot complete work on-time, please notify me as soon as possible as I am willing to grant extensions.

For any assignment extension, I will deduct 1% off the grade on that assignment. I will grant an extra 3 days (longer if necessary due to extenuating circumstances. If you do not complete the assignment within that time, we will need to meet to discuss options.

Grading Policy

I do not expect the framework for grades to change from what is laid out below, but please note that the grades and assessments could change.

Category	Number of Items	Points	Weight
Participation	42	5 points each	15%
Homework	10	10 points each	20%
Project	7	Varies for each component	15%
Quizzes	10	10 points each; your lowest score will be dropped	20%
Midterm	1	100 points	15%
Final Exam	1	100 points	15%

Final course letter grades will be assigned as follows:

Letter Grade	Percentage Range
A	93 – 100%
A-	90 – 92.99%
B+	87 – 89.99%
B	83 – 86.99%
B-	80 – 82.99%
C+	77 – 79.99%

C	73 – 76.99%
C-	70 – 72.99%
D	60 – 69.99%
F	0 – 59.99%

University Policies

Civility, Respect, and Privacy

The University of Dayton adopted a “Statement of Dignity which states the following: “A primary assertion of both our religious and civil traditions is the inviolable dignity of each person. Recognition of and respect for the person are central to our life as a Christian and education community and are what allow us to pursue our common mission while being many diverse persons. Thus discrimination, harassment, and any other conduct that diminishes the worth of a person are incompatible with our fundamental commitment as a Catholic university conducted in the Marianist tradition.”

Classroom Climate and Bias Experiences and Process

As part of a University for the Common Good that aims to be an anti-racist university, I want all students to feel safe, respected, and valued in all of their classes. Should you have an experience in this class, or in any class in this department, where you feel devalued because of an incident in class, we would like to learn about it.

You are free to discuss the issue with me if you feel comfortable. If you are wary of discussing the issue with me, then please contact the Chair of the department. You can find department chairs or office locations by searching the [UD website](#).

You are, of course, welcome to share your experience with the Equity Compliance Office at <mailto:equitycompliance@udayton.edu> or by [submitting an incident report](#). You can also reach the Equity Compliance Office by phone at 937-229-3622.

Intellectual Property Statement

The materials shared with you during this course are authored and owned by the instructor, the department, the school and/or the book publisher. Copyright laws must be respected in using these materials. For example, unless authorized to do so, do not share course materials with anyone outside the course.

Academic Honesty

I encourage you to talk with each other about the readings and ideas brought up in class. But in all assignments to be graded as individual work you are expected to do your own written work. In the case of group work, all members of a group will be held

responsible for the content of work turned in to satisfy group assignments. The instructor will keep a healthy eye out for possible plagiarism when reading your work.

Here is some advice to help you avoid plagiarizing:

It is best to express the ideas you use in your own words. In the case of both individual and group work, words or ideas that come from someplace or someone else must be cited: “A good rule of thumb is this: Whenever you consciously borrow any important element from someone else, any sentence, any colorful phrase or original term, any plan or idea—say so, either in a footnote, bibliography, or parenthesis” (from “Academic Honesty in the Writing of Essays and Other Papers,” Carleton College, 1990).

For specific university policies concerning academic honesty, see the [University's Academic Honor Code](#) in the Academic Catalog.

Contract Cheating

Contract cheating occurs when a student pays someone (such as a person or company found online) to write essays or complete assignments for a class. This defeats the purpose of the course and I encourage students to follow the academic honor code and seek to develop a personal sense of academic integrity which lays the foundation for an ethical life. Contract cheating is especially dangerous because of the risk of bribery and extortion (potentially for an entire life after college!). Students are often lured into contract cheating by signing up for online tutoring services. Remember that UD provides many learning support mechanisms (see: <https://www.udayton.edu/lrc/learningresources/index.php>).

Dropping the Course

You are responsible for understanding the university's policies and procedures regarding withdrawing from courses. You should also be aware of the current deadlines and penalties for dropping classes. Information on [withdrawal from courses](#) is available in the Academic Catalog under Grades and Scholarship. You may also want to speak with your academic advisor or the Deans Office from your college or school.

Student Evaluation of Teaching

The university will ask for your anonymous feedback regarding instruction in this course through the online Student Evaluation of Teaching (SET) as your candid, respectful opinions and constructive suggestions have an impact on the quality of teaching at UD. Instructions for how to complete SET will be sent to your UD email account toward the end of the semester, and I may give you additional instructions (for example, whether you will complete SET in the classroom). If you encounter technical problems accessing SET, contact the Udit Service Center at 937-229-3888 or itservicecenter@udayton.edu. To learn more about SET, visit <http://go.udayton.edu/set>.

University Services

It is the university's goal that learning experiences be as accessible as possible. Your learning in this course is important to me, and I want you to be aware of existing supports on campus which are available to all university students.

Support for Your Learning in This Course

The Ryan C. Harris Learning Teaching Center's Office of Learning Resources (OLR) is a learning resource for students, parents, faculty, and staff at the University of Dayton. OLR offers a wide variety of information and services to help everyone become a successful learner. Peruse the web site, attend one of our offerings, or contact our office and meet with a staff member – however you look at it, OLR is Your Partner in Learning!

Please contact OLR at [937-229-2066](tel:937-229-2066) (TTY 937-229-2059 for deaf/hard of hearing individuals) or visit the office on the ground floor of Roesch Library (LTC 023) if you would like to talk about how you could become a more effective learner. You can also check out the website: <http://go.udayton.edu/learning>.

Students with Disabilities

If you are a student with a disability and feel you may need a reasonable accommodation to fulfill the essential functions of this course, please connect with the Office of Learning Resources (OLR). OLR provides accommodations and services for students with a variety of disabilities, including physical, medical, and psychiatric disabilities. You can contact the OLR the following ways:

- Email: disabilityservices@udayton.edu
- Phone: 937-229-2066 (TTY: Ohio Relay 711 for deaf/hard of hearing)
- Office Location: Roesch Library Room 023 in the Learning Teaching Center

Wellbeing and Success

At UD, we know health and wellbeing are important to your success. That's why we help students of all backgrounds build a foundation for sustainable, lifelong, physical, mental, and social wellbeing. We provide the services, resources, and support you need to be successful on campus and in life. Health and Wellbeing resources include the following:

- Dean of Students Office: 927-229-1212
- Counseling Center: 937-229-3141
- Student Health Center: 937-229-3131
- Center for Alcohol and Other Drugs Resources and Education: go.udayton.edu/cadre
- Brook Center: go.udayton.edu/brook
- Campus Recreation: activeflyers.udayton.edu
- YOU@Dayton: wellbeing.udayton.edu
- Engage and stay up to date by following [@ud_healthandwellbeing](https://www.instagram.com/ud_healthandwellbeing) on Instagram

Student Success Network

The University of Dayton makes student success a priority. For this reason, I will be using the Student Success Network (SSN) in this course as an early identification and intervention system designed to enable students' academic success and graduation. If I notice that you are struggling with issues such as attendance, class participation, or assignment/test performance, I may choose to send notification through SSN in order to put you in touch with appropriate campus resources. These referrals are designed to maximize your chances for success at the University, not as punishment, so please respond to any communications you may receive from me, your Academic Advisor, your Dean's Office, or other campus offices regarding your academic progress in this course.

[Please see the Student Success Network website](#) for more information.

Write Place

The Write Place offers free writing assistance on any assignment at any stage of the writing process. To make an appointment with the Write Place, email writeplace@udayton.edu.

Library Research Support

Roesch Library's reference services offer free research assistance on any assignment at any stage of the research process. Visit the first floor Information Desk to meet in-person, or connect remotely with a librarian via the Libraries' Get Help page. Research consultation service hours are listed online. No appointment is necessary, although they are available. To make an appointment with a librarian, see either the Library Resources tab in Isidore or make an appointment online.

Religious Accommodations

The University of Dayton strives for an inclusive climate and welcomes students from all backgrounds, faiths and experiences. If religious observance impedes your ability to participate fully in classroom activities or a principal holiday from your religious tradition occurs during the semester and conflicts with class meetings or activities, please make the professor aware of this immediately to determine if a reasonable accommodation is possible. [Find out more about how to request a religious accommodation](#).

Technical Support

For general computer, software, and username and password issues, please contact the [IT Service Center](#).

Course Schedule

Below is a tentative schedule for the semester. It is subject to change. Our class is broken down into 16 weekly modules that open on Mondays at 8 AM and close on Sundays at 11:55 PM. Each week will have at most two due dates: Thursdays at 11:55 PM and Sundays at 11:55 PM.

Week Number	Week Dates	Topics and Activities	Assignments
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1	Aug. 23 – Aug. 29	Astronomy Discussion of reading questions Problem solving: orbital motion and measuring distance	<ul style="list-style-type: none">• Quick Write• Project: Topic Exploration• Chapter 1 Quiz
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2	Aug. 30 – Sept. 5	Problem solving: Newton’s Laws and Laws of Planetary Motion	<ul style="list-style-type: none"> • History Prior Knowledge Assignment • Chapter 2 Quiz
3	Sept. 6 – Sept. 12	Demonstration: Emission and absorption spectra Problem solving: Telescope optics	<ul style="list-style-type: none"> • Discussion • Radiation Assignment • Chapters 3, 4, 5 Quiz
4	Sept. 13 – Sept. 19	Problem Solving: HR Diagrams and calculating stellar masses & temperatures	<ul style="list-style-type: none"> • Sun Observation Activity • Project: Further Exploration • Chapters 16, 17 Quiz
5	Sept. 20 – Sept. 26	Group Work: mapping differences between nebulae	<ul style="list-style-type: none"> • Research LibGuide & Quiz • Finalize Group Work • Chapters 18, 19 Quiz
6	Sept. 27 – Oct. 3	Game: Pin the tail on the HR Diagram (aka practice stellar evolution principles)	<ul style="list-style-type: none"> • Nebula Bracket Activity • Project: Finding Research • Chapter 20, 21 Quiz
7	Oct. 4 – Oct. 10	Discussion: What the heck is relativity?	<ul style="list-style-type: none"> • Discussion • Chapter 22 Quiz
8	Oct. 11 – Oct. 17	Midterm Review	<ul style="list-style-type: none"> • Midterm
9	Oct. 18 – Oct. 24	Problem Solving: Redshift and blueshift	<ul style="list-style-type: none"> • Project: Finding Research • Chapters 23, 24, 25 Quiz
10	Oct. 25 – Oct. 31	Mini Presentations: Spacecraft Exploration	<ul style="list-style-type: none"> • Mini Presentations • Project: Intro Paragraph • Chapter 6 Quiz
11	Nov. 1 – Nov. 7	Discussion: Satellite takeover & space policy	<ul style="list-style-type: none"> • Discussion • Project: Body Outline • Chapter 7, 8 Quiz
12	Nov. 8 – Nov. 14	Discussion: Mars exploration	<ul style="list-style-type: none"> • Discussion Reflection • Project: Revisions • Chapter 10 Quiz
13	Nov. 15 – Nov. 21	Game: Moon identification	<ul style="list-style-type: none"> • Project: Body 1st Draft • Chapters 11, 12 Quiz

14	Nov. 22 – Nov. 28	Problem solving: orbital periods	<ul style="list-style-type: none"> • Discussion Reflection • Project: Plan presentation • Chapters 14, 15 Quiz
15	Nov. 29 – Dec. 5	Project Presentations	<ul style="list-style-type: none"> • Project: Submit paper • Chapters 26, 27, 28 Quiz
16	Dec. 6 – Dec. 12	Project Presentations	<ul style="list-style-type: none"> • Project: Submit presentation
Exam Week	Dec. 13 – Dec. 17	Final	<ul style="list-style-type: none"> • Final