Syllabus

ASTRONOMY1100

Astronomy IRL: An Influencer's Guide to Science

Autumn 2025

4 Credit Hours

Online

## Course overview

### Instructor (TBD)

* Name
* Email Address
* Phone Number
* Course Zoom Link
* Office Hours
* Zoom Link
* Office hours will take place daily via zoom. Times TBD.

**Note**: My preferred method of contact is office hours or email communication.

### Course description

Science shapes our daily lives, from the food we eat to the news we read. Yet, with so much information claiming to be "scientific," how do we know what to trust? Saying "science isn’t for me" is no longer an option—we all rely on it, whether we realize it or not.

This course is designed to sharpen your ability to evaluate scientific information and apply it to real-life decisions. We focus on universal science literacy skills, using astronomy as a concrete way to introduce and practice them. You’ll explore key methods and topics in modern astronomy, using them as a lens to understand the nature and tools of science – while experiencing the wonders of our universe along the way! You’ll also apply these skills in real-world scenarios, including creating your own responsible social media content.

So, why "Influencer"? Whether you create content or simply consume it, you are part of the cycle of influence. We are all shaped by online information, and at some point, we shape others. This course is for both the influenced and the influencer—helping ensure that science is used responsibly in the digital age.

### Prerequisites

Completion of Math 1075 or higher or a Math Placement score of “N” or higher.

### General education goals and expected learning outcomes

The goals of the *Foundations: Natural Sciences* category of the General Education curriculum are as follows:

GE Goal#1: Successful students will engage in theoretical and empirical study within the natural sciences while gaining an appreciation of the modern principles, theories, methods and modes of inquiry used generally across the natural sciences.

GE Goal#2: Successful students will discern the relationship between the theoretical and applied sciences while appreciating the implications of scientific discoveries and the potential impacts of science and technology.

As part of the *Foundations: Natural Sciences* category of the General Education curriculum, this course is designed to prepare students to be able to do the following:

GE ELO 1.1 Explain basic facts, principles, theories and methods of modern natural sciences, and describe and analyze the process of scientific inquiry.

GE ELO 1.2 Identify how key events in the development of science contribute to the ongoing and changing nature of scientific knowledge and methods.

GE ELO 1.3 Employ the processes of science through exploration, discovery and collaboration to interact directly with the natural world when feasible, using appropriate tools, models and analysis of data.

GE ELO 2.1 Analyze the inter-dependence and potential impacts of scientific and technological developments.

GE ELO 2.2 Evaluate social and ethical implications of natural scientific discoveries.

GE ELO 2.3 Critically evaluate and responsibly use information from the natural sciences.

This course achieves the outcomes of GE Goal 1 by using astronomy as a concrete way to introduce and develop an understanding of the methods and nature of science, and of universal scientific literacy skills. To promote the extension of this knowledge beyond astronomy and into everyday experiences, the outcomes of GE Goal 2 will be achieved by applying these universal skills in the context of real-life social media influences. To this end, the course has been structured into the following four units:

**Unit 1: Science Unlocked: How to Talk the Talk and Walk the Walk:** How do we separate science from pseudoscience? How do we separate truth from misleading claims? This unit kicks off your science IRL journey by building the skills needed to think, talk and walk like a scientist. Through the lens of astronomy, we’ll trace the birth and development of science, learning what science is and how to recognize it. And we’ll catch you up on the math and physics you need to go all the way in this course! Expect to have some fun along the way – we’re going to put your bull$#!t detector and logic to the test as we lay the groundwork for deeper cosmic exploration ahead.

**Unit 2: Behind the Scenes: Where Do Scientists Get Their Facts From?** This unit builds on the previous unit and develops trust in the scientific method by exploring how we know seemingly impossible things. You'll build domain knowledge by expanding your map of physics and exploring the astronomical methods and technologies that make discovery possible. We’ll put constraints on discovery by introducing the concept of uncertainty in measurement —whether due to the vast scale of the universe, technological constraints, or inherent uncertainties in observations. You'll continue to learn how to think like a scientist as we explore what “uncertainty” means to a scientist, how they account for uncertainty and error, and that good science always reports its limitations.

**Unit 3:** **Guessing or Slaying? How Theories Evolve and Get Verified:** Now that we’ve covered the basics of how science works, we’re letting you loose in the world of modern astronomy! This unit builds trust in the scientific method by showing how scientific theories are born, tested, and refined. We’ll dive into four hot topics in astronomy, exploring key concepts, theory development, and open questions. You’ll also learn about current and upcoming surveys tackling these mysteries. Plus, it’s your time to shine as a responsible influencer—get ready to create media content on a trending astronomy topic!

**Unit 4: Game On! Tackling Tough Topics in Science Like a Boss:** Now that you’ve got a solid grip on the scientific process, it’s time to put those skills to work IRL! This unit is all about using science literacy in decision-making—spotting and debunking false claims, evaluating source trustworthiness, understanding the significance of claims, and asking whether it matters IRL! With the rise of AI tools that can answer just about anything, the real challenge isn’t finding information—it’s knowing the right questions to ask and how to validate the answers. Plus, get ready to level up on your influencer game! Be prepared to tackle more complex topics and up your appeal!

## How this online course works

### Mode of delivery

This course is 100% online.

### Pace of online activities

You are only required to participate in one 30-minute live **Astro Chat** discussion per week. All other weekly tasks can be completed throughout the week at your own time. Each week will typically follow a similar pattern:

* You will complete the following tasks **before** Astro Chat (due Thursday, midnight):
  + First complete the introductory mini lesson (The Big Idea).
  + Then complete the remainder of the week’s mini lessons and the virtual lab (V-lab). These can be completed in parallel as you see fit.
* You will then attend your live 30-minute Astro Chat session with me (or a member of the instructional team) on Zoom:
  + Your Astro Chat sessions will take place on Fridays or Mondays. You will select your fixed timeslot at the start of the semester.
* **After** completing all the week’s tasks and participating in Astro Chat, you will complete the week’s Knowledge Check by Monday midnight of the following week.

In addition to weekly tasks, you will also need to spend time completing and/or preparing for unit assessments each week. A more detailed description of work expectations is provided in the next section.

Since this is a mostly asynchronous course, you are strongly encouraged to communicate any questions or concerns as they arise via email or during office hours. I am available daily via Zoom for drop-in office hours (see **Course Overview** for information on days and times).

### Credit hours and work expectations

This is a **4-credit-hour course** with a practical component. According to Ohio State policy ([go.osu.edu/credithours](http://go.osu.edu/credithours)), students should expect around 12 hours of engagement with the class each week to receive a grade of (C) average. Actual hours spent will vary by student learning habits and the assignments each week.

Weekly tasks include roughly 7 **mini lessons**, a **V-lab**, an **Astro Chat** virtual discussion and a **Knowledge Check** quiz. In addition to weekly tasks, students will complete **unit assessments** at the end of, or during, each unit that will test the astronomy-related concepts and science literacy skills developed throughout the unit. See **Course Schedule** for information on the scheduling of unit assessments.

An overview of the weekly tasks and the estimated hours required is given in the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| Activity | Description | No. per week | Hrs. per week |
| Mini lessons | Mini lessons are designed for knowledge building and skills development and comprise of readings, instructional videos, and/or interactive activities. Each mini lesson is roughly 30 minutes long, with an additional 10 minutes allocated to embedded checkpoint quizzes.  **Mode of delivery and assessment:** Carmen assignment | 7 | ~4.5 |
| V-lab | Virtual labs are aimed at hands-on exploration of the week’s topic/s and are designed to be completed within 3 hours.  **Mode of delivery and assessment:** Carmen assignment | 1 | 3 |
| Astro chat | Virtual discussions will center on the week’s key theme and offer students a space to deepen their understanding while engaging with their peers and the instructional team. Each small-group discussion will take place at a fixed 30-minute time slot in CarmenZoon each week, with an expected 1 hour of preparation required.  **Mode of delivery and assessment:** Carmen assignment (preparation) and CarmenZoom session (discussion), facilitated and graded by a member of the instructional team. | 1 | 1.5 |
| Knowledge check | At the end of each week, students will take a knowledge check quiz. Students can expect to spend 1 hour on knowledge checks – 30 minutes to prepare and 30 minutes to compete the quiz.  **Mode of delivery and assessment:** Carmen quiz | 1 | 1 |
| Unit assessments | In addition to weekly tasks, students will complete a unit assessment for each unit. It is anticipated that students will spend roughly 2 hours completing and/or preparing for unit assessments each week.  **Mode of delivery and assessment:** Variable. See **Description of major course assignments** for details. |  | 2 |
| TOTAL |  |  | 12 |

### Participation requirements

#### Participating in online activities

You are only required to participate in one 30-minute virtual **Astro chat** discussion on CarmenZoom per week. All other weekly tasks can be completed throughout the week at your own time. See **Pace of online activities** for an overview of weekly activities and due dates.

#### Office hours and live sessions

The attendance of office hours and any ad hoc live sessions is optional. Recordings of ad hoc live sessions (excluding office hours and Astro Chat) will be made available for asynchronous access.

### Course communication guidelines

#### ****Writing style****

All formal written communication in this course, including emails, discussion posts, and assignments, should adhere to standard grammar and punctuation. Use complete sentences and clear language, avoiding overly casual language or abbreviations. Please proofread communications to ensure clarity and accuracy.

#### ****Tone and civility****

#### This course is designed to foster a respectful and supportive learning environment. All interactions, whether with peers or instructors, should be conducted with courtesy and thoughtfulness. Approach discussions and communications with an open mind, especially in cases of differing perspectives. In situations of disagreement, focus on constructive dialogue. Any disruptive or disrespectful behavior may be addressed formally according to The Ohio State University’s student [conduct policies](https://studentconduct.osu.edu/for-students/understanding-the-student-conduct-process/code-of-student-conduct-versions). As your instructor, I am committed to responding to inquiries thoughtfully and encouraging an inclusive and respectful space for all students.

#### ****Citing your sources****

Proper citation is essential in this course to maintain academic integrity and respect intellectual property. When referencing material in assignments or discussions, provide comprehensive citations. For example, include the following information where applicable: author(s), title, publisher, publication date, page numbers (if applicable), and a link for online sources. Use a consistent citation style (e.g., APA, MLA) throughout.

#### ****Protecting and saving your work****

To safeguard your work, please compose assignments in a word processing tool before submitting them on Carmen. Saving your work offline provides a backup in case of internet connectivity issues, browser timeouts, or failed submissions. Ensure you regularly save your progress to avoid data loss and keep copies of submitted assignments until you receive a grade confirmation.

## Course materials and technologies

### Required Textbook

Bennett, J., Donahue, M., Schneider, N., & Voit, M. (2023). The Cosmic Perspective (10th ed.). Pearson. The online textbook is included in your course fees and accessible via Carmen.

Supplementary reference material, including An Influencer's Guide to Science IRL, will be made available for download on Carmen.

### Course technology

#### Technology support

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at [it.osu.edu/help](http://it.osu.edu/help), and support for urgent issues is available 24/7.

* Self-Service and Chat support: [it.osu.edu/help](http://it.osu.edu/help)
* Phone: 614-688-4357(HELP)
* Email: [8help@osu.edu](mailto:8help@osu.edu)
* TDD: 614-688-8743

#### Technology skills needed for this course

* Basic computer and web-browsing skills
* Navigating Carmen ([go.osu.edu/canvasstudent](http://go.osu.edu/canvasstudent))
* CarmenZoom virtual meetings ([go.osu.edu/zoom-meetings](http://go.osu.edu/zoom-meetings))

#### Required Equipment

* Computer: current Mac (MacOs) or PC (Windows 10) with high-speed internet connection
* Webcam: built-in or external webcam, fully installed and tested
* Microphone: built-in laptop or tablet mic or external microphone
* Other: a mobile device (smartphone or tablet) to use for BuckeyePass authentication

#### Required software

* Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Full instructions for downloading and installation can be found at [go.osu.edu/office365help](http://go.osu.edu/office365help).

#### Carmen Access

You will need to use BuckeyePass ([buckeyepass.osu.edu](http://buckeyepass.osu.edu/)) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

* Register multiple devices in case something happens to your primary device. Visit the BuckeyePass
* Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
* Download the Duo Mobile application to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357(HELP) and IT support staff will work out a solution with you.

#### Hypothes.is

This course requires the use of a digital social annotation tool called Hypothes.is. Hypothes.is allows students to engage with course readings and online content by highlighting text and adding comments directly on web pages or PDFs. This tool will be used to foster collaborative learning and facilitate discussions about the course material. Students will be able to annotate readings, share insights, ask questions, and respond to peers, creating a dynamic learning environment. The instructor may also monitor and participate in the annotations, providing feedback, guiding discussions, and answering questions to enhance the learning experience.

If you encounter an issue with access to this tool, please contact your instructor at their name.#@osu.edu and [ascode@osu.edu](mailto:ascode@osu.edu). Accommodation and assistance will be arranged for you to complete any work required with this tool free of penalty.

### V-Lab Equipment

The following equipment will be required for V-labs:

* Calculator
* Ruler
* Phone camera
* Craft materials to model our solar system at home, including Styrofoam base and balls, skewers and a lamp. Any replacement items serving the same function can be used. For example, a phone torch can be used instead of a lamp, and clay balls can be used instead of Styrofoam balls.
* Diffraction grating glasses. These will be available for collection from the Astronomy Department. Students unable to collect glasses, can create their own diffraction grating at home using an old CD.

Details of equipment requirements will be provided at the start of each lab. Please reach out with any equipment-related concerns.

### Accessibility Statement

This course utilizes web-based planetarium tools such as [Stellarium](https://stellarium-web.org/) and [NASA’s Eyes](https://science.nasa.gov/eyes/), which are highly visual applications. If you have difficulty accessing this content due to a visual impairment or other accessibility concerns, equivalent alternative assignments will be provided as needed. Please reach out if you require accommodations.

At times, this course may require outdoor explorations such as moon observations and walking the [Solar System to Scale](https://solarsystem.osu.edu/experience) on North Campus. If you are unable to participate in outdoor explorations due to safety or accessibility concerns, or being out of town, equivalent alternative assignments will be provided as needed. Please reach out for assistance.

## Grading and instructor response

### How your grade is calculated

| **Assignment Category** | **Percentage** |
| --- | --- |
| Mini lesson checkpoint quizzes | 20% |
| V-labs | 25% |
| Astro chat | 10% |
| Knowledge checks | 30% |
| Unit assessments | 15% |
| **Total** | **100%** |

### Description of major course assignments

#### Assignment categories

See **Credit hours and work expectations** for an overview of the assignment categories listed above.

Below are the details of the unit assessments. See **Course Schedule** for due dates.

#### Unit 1 assessments

**Escape Room: Smoke and Mirrors**

This escape room will be based on the course content from Weeks 1-3. See the learning outcomes listed at the start of each activity to guide your preparation.

Duration: 1 hour

Format and grading: Auto-graded Carmen assignment

**Ongoing Activity 1: You Be the Scientist!**

In this ongoing activity you will craft your own physical model of the Earth-Moon-Sun system, use your model to make predictions about when you should see each phase of the moon, test your predictions by watching the sky, and then refining your model if needed.

An alternative version of this assignment is available on request for students with accessibility concerns.

Duration: 6 weeks

Format and grading: Scientific report, completed according to template. See rubric for grading guidelines.

#### Unit 2 assessment

**Escape Room: The Mystery of the Dead Star**

This escape room will be based on the course content from Weeks 4-7. See the learning outcomes listed at the start of each activity to guide your preparation.

Duration: 1 hour

Format and grading: Auto-graded Carmen assignment

#### Unit 3 assessment

**Ongoing Activity 2: You Be the Influencer!**

This ongoing activity will be issued at the start of Unit 3. Using the science communication tips in your user guide, you’ll create responsible content explaining one of the astronomy topics from the provided list. If you want to choose a different topic, check with us first to ensure it meets the assignment’s learning goals. Your content should be engaging for your target audience and meet all the requirements outlined in the grading rubric.

Format of submission: Your content can take the form of a popular science article or a YouTube video. For YouTube videos, you can submit either a voice-overed storyboard or go ahead and create the final video—your choice!

Due date and grading: Your final product will be due in the first week of the next unit. You’ll present it to your Astro Chat discussion group, where your instructor and peers will grade it based on the grading rubric.

#### Unit 4 assessment

**Ongoing Activity 3: You Be the Influencer – Boss Level!**

In the previous unit, you gained hands-on experience creating science content and received feedback on your work. Now, it’s time to level up! We’ll tackle more complex topics and be even more selective when it comes to judging the appeal of your content.

This ongoing activity will be issued at the start of Unit 4. Using the science communication tips in your user guide, create a responsible YouTube video on one of the astronomy topics from our list of hot topics. Your video should be engaging for your target audience and cover all the hallmarks of responsible reporting, as outlined in the grading rubric.

Format of submission: You can submit either a storyboard with an accompanying script or go ahead and create the final video—your choice!

Due date and grading: Your video (or voice-overed storyboard) will be due in the last week of term. You’ll present it to your Astro Chat discussion group, where your instructor and peers will grade it based on the grading rubric.

#### Academic integrity and collaboration guidelines

The completion of all mini lesson review quizzes and knowledge check quizzes are strictly closed-internet with no collaboration. Students may however reference course notes when completing quizzes. Unless otherwise stated, the same rules apply to unit assessment escape rooms.

V-labs, Astro chat preparation and content creation assignments are typically open-internet, open-notes and collaboration is permitted. However, unless otherwise stated, students are expected to submit their own work for grading.

### Late assignments

Late submissions will incur a 10% grade deduction for each day past the deadline.

Missed assignments will automatically receive a grade of zero.

All activities need to be submitted for grading by the last day of class.

Exceptions to the above rules can be made for cogent reasons on request. The responsibility is on the student to request an extension as soon as possible. **Extension requests received more than one week after the original deadline may be denied if no valid reason for the delay is provided.**

### Grading Scale

* 93-100: A
* 90-92: A
* 87-89: B+
* 83-86: B
* 80-82: B
* 77-79: C+
* 73-76: C
* 70-72: C
* 67-69: D+
* 60-66: D
* Under 60: E

### Instructor feedback and response time

#### Grading and feedback

The results of auto-graded assignments will be released automatically once the assessment has closed. For assignments requiring manual grading, results will typically be made available within a week after the due date.

#### Preferred contact method

Students can ask questions, voice concerns or query grades during office hours or via email. The typical response time for email enquiries is 1-2 business days.

## Academic policies

### Academic integrity policy

See **Descriptions of major course assignments**, above, for my specific guidelines about collaboration and academic integrity in the context of this online class. Suspected infringements of these requirements will be reported to the Committee on Academic Misconduct for further investigation.

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct: <http://studentlife.osu.edu/csc/>.

If I suspect that a student has committed academic misconduct in this course, I am obligated by university rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the university’s Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

* Committee on Academic Misconduct web page ([go.osu.edu/coam](http://go.osu.edu/coam))
* Ten Suggestions for Preserving Academic Integrity ([go.osu.edu/ten-suggestions](http://go.osu.edu/ten-suggestions))

### Copyright for instructional materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

### Statement on title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator at [titleix@osu.edu](mailto:titleix@osu.edu).

### Commitment to a diverse and inclusive learning environment

The Ohio State University affirms the importance and value of diversity of people and ideas. We believe in creating equitable research opportunities for all students and to providing programs and curricula that allow our students to understand critical societal challenges from diverse perspectives and aspire to use research to promote sustainable solutions for all. We are committed to maintaining an inclusive community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among all members; and encourages each individual to strive to reach their own potential. The Ohio State University does not discriminate on the basis of age, ancestry, color, disability, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, race, religion, sex, gender, sexual orientation, pregnancy, protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. (To learn more about diversity, equity, and inclusion and for opportunities to get involved, please visit: <https://odi.osu.edu/> or <https://cbsc.osu.edu>)

### Land acknowledgement

We would like to acknowledge the land that The Ohio State University occupies is the ancestral and contemporary territory of the Shawnee, Potawatomi, Delaware, Miami, Peoria, Seneca, Wyandotte, Ojibwe and Cherokee peoples. Specifically, the university resides on land ceded in the 1795 Treaty of Greeneville and the forced removal of tribes through the Indian Removal Act of 1830. I/We want to honor the resiliency of these tribal nations and recognize the historical contexts that has and continues to affect the Indigenous peoples of this land.

More information on OSU’s land acknowledgement can be found here: <https://mcc.osu.edu/about-us/land-acknowledgement>

### Your mental health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student’s ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life’s Counseling and Consultation Service (CCS) by visiting [ccs.osu.edu](http://ccs.osu.edu/) or calling [614­-292-­5766](tel:%28614%29%20292-5766). CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on-call counselor when CCS is closed at [614­-292-­5766](tel:%28614%29%20292-5766) and 24 hour emergency help is also available 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

### Accessibility accommodations for students with disabilities

#### Requesting accommodations

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.

If you are ill and need to miss class, including if you are staying home and away from others while experiencing symptoms of a viral infection or fever, please let me know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations. You can connect with them at [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; or <slds.osu.edu>.

### Religious accommodations

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the [Office of Institutional Equity](mailto:equity@osu.edu).

Policy: [Religious Holidays, Holy Days and Observances](https://oaa.osu.edu/religious-holidays-holy-days-and-observances)

## Course Schedule

Refer to our Carmen course page for up-to-date assignment due dates. See **Late assignments** for more information on late or missed tasks and assignments.

| Week | Topics and Tasks | Assessments Due |
| --- | --- | --- |
| **Unit 1: Science Unlocked: How to Talk the Talk and Walk the Walk** | | |
| 1 | **Is it Science?**  Astronomy mini lessons topics: Patterns in the Night Sky; The Science of Astronomy  Science IRL mini lessons topic: Is it Science?  V-lab: Discovering the Night Sky for Yourself  Astro chat: How good is your bull$#!t detector? Is it even science?  Ongoing Activity 1: You Be the Scientist! | Mini lesson checkpoint quizzes  Knowledge check |
| 2 | **How to Speak and Think Like a Scientist**  Astronomy mini lessons topic: A Modern View of the Universe  Science IRL mini lessons topic: How to Speak and Think Like a Scientist  V-lab: The Power of Math: Scaling Relations  Astro chat: How good is your bull$#!t detector? Data and logic edition  Ongoing Activity 1: You Be the Scientist! | Mini lesson checkpoint quizzes  Knowledge check |
| 3 | **A Map of Physics**  Astronomy mini lessons topic: Orbital Mechanics  Science IRL mini lessons topic: A Map of Physics  V-lab: Standing on the Shoulders of Giants  Astro chat: When common-sense fails you!  Ongoing Activity 1: You Be the Scientist! | Mini lesson checkpoint quizzes  Knowledge check |
| **Unit 2: Behind the Scenes: Where Do Scientists Get Their Facts From?** | | |
| 4 | **How far can and have we gone?**  Astronomy mini lessons topics: Our Planetary System; Solar System Exploration  Science IRL mini lessons topic: A Map of Physics  V-lab: Exploring the Scale of our Solar System  Astro chat: Our evolving definition of a planet  Ongoing Activity 1: You Be the Scientist! | Mini lesson checkpoint quizzes  Knowledge check  **Unit 1 Assessment: Escape Room** |
| 5 | **If we can’t *go* there, how do we know so much?**  Astronomy mini lessons topics: How we use light; Surveying the Stars  Science IRL mini lessons topic: A Map of Physics  V-lab: Properties of Stars  Astro chat: The hidden world of light  Ongoing Activity 1: You Be the Scientist! | Mini lesson checkpoint quizzes  Knowledge check |
| 6 | **Are there limits to our observations?**  Astronomy mini lessons topics: How we use light; Exoplanets  Science IRL mini lessons topics: A Map of Physics; Sources of Error  V-lab: Transiting Exoplanets  Astro chat: Do aliens know we exist?  Ongoing Activity 1: You Be the Scientist! | Mini lesson checkpoint quizzes  Knowledge check  **Ongoing Activity 1 due** |
| 7 | **If only we had a cosmic measuring tape!**  Astronomy mini lessons topics: Counting galaxies; Measuring galactic distances; Lookback time  Science IRL mini lessons topics: A Map of Physics; Sources of Error  V-lab: Parallax  Astro chat: Each crayon of light tells a story | Mini lesson checkpoint quizzes  Knowledge check |
| **Unit 3:** **Guessing or Slaying? How Theories Evolve and Get Verified** | | |
| 8 | **Stellar evolution**  Astronomy mini lessons topic: Stellar Evolution  Science IRL mini lessons topic: -  V-lab: Scaling Relations and Stellar Evolution  Astro chat: We are made of star stuff!  Ongoing Activity 2: You Be the Influencer! | Mini lesson checkpoint quizzes  Knowledge check  **Unit 2 Assessment: Escape Room** |
| 9 | **Dark matter**  Astronomy mini lessons topic: Dark Matter  Science IRL mini lessons topic: A Map of Physics  V-lab: Galaxy Rotation Curves  Astro chat: Newtonian Gravity vs. General Relativity  Ongoing Activity 2: You Be the Influencer! | Mini lesson checkpoint quizzes  Knowledge check |
| 10 | **Cosmic expansion and dark energy**  Astronomy mini lessons topics: Cosmic expansion; Dark energy  Science IRL mini lessons topic: -  V-lab: The Expanding Universe  Astro chat: What’s at the edge of the universe?  Ongoing Activity 2: You Be the Influencer! | Mini lesson checkpoint quizzes  Knowledge check |
| 11 | **The early universe**  Astronomy mini lessons topic: The Birth of the Universe  Science IRL mini lessons topic: A Map of Physics  V-lab: Rewinding the Universe  Astro chat: Inflation – faster than the speed of light?!  Ongoing Activity 2: You Be the Influencer! | Mini lesson checkpoint quizzes  Knowledge check |
| **Unit 4: Game On! Tackling Tough Topics in Science Like a Boss** | | |
| 12 | **Is it reliable science?**  Astronomy mini lessons topic: Life in the Universe  Science IRL mini lessons topics: A Basic Guide to Science IRL: Checkpoint 1 and 2  V-lab: Finding and evaluating scientific sources: Life in the Universe  Astro chat: Extraordinary claims: Aliens are visiting Earth  Ongoing Activity 3: You Be the Influencer – Boss Level! | Mini lesson checkpoint quizzes  Knowledge check  **Ongoing Activity 2 due** |
| 13 | **Does it warrant action?**  Astronomy mini lessons topic: Planetary Atmospheres  Science IRL mini lessons topic: A Basic Guide to Science IRL: Checkpoint 3  V-lab: Finding and evaluating scientific sources: Climate change  Astro chat: Is this politics or the real deal?  Ongoing Activity 3: You Be the Influencer – Boss Level! | Mini lesson checkpoint quizzes  Knowledge check |
| 14 | **Does it matter IRL?**  Astronomy mini lessons topic: Black holes  Science IRL mini lessons topic: A Basic Guide to Science IRL: Checkpoint 4  V-lab: Evaluating the technological and socio-economic impact black hole of research  Astro chat: Is taxpayer funding for blue sky research justified?  Ongoing Activity 3: You Be the Influencer – Boss Level! | Mini lesson checkpoint quizzes  Knowledge check |
| 15 |  | **Ongoing Activity 3 due** |
| Finals |  | This course has no final exam. |