
Term Information

Effective Term Autumn 2025

General Information

Course Bulletin Listing/Subject Area Astronomy
Fiscal Unit/Academic Org Astronomy - D0614
College/Academic Group Arts and Sciences
Level/Career Undergraduate
Course Number/Catalog 1100
Course Title Astronomy IRL: An Influencer's Guide to Science
Transcript Abbreviation Astronomy IRL
Course Description This course introduces students to the methods and topics of modern astronomy, using them as a lens to explore and understand the scientific method. Emphasis is placed on building science literacy skills essential for navigating daily life in the Information Age. Students will apply these skills across various contexts, including social media, as a way to prepare them for practical, everyday use.
Semester Credit Hours/Units Fixed: 4

Offering Information

Length Of Course 14 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? Yes
Is any section of the course offered 100% at a distance
Grading Basis Letter Grade
Repeatable No
Course Components Laboratory, Lecture
Grade Roster Component Lecture
Credit Available by Exam No
Admission Condition Course No
Off Campus Always
Campus of Offering Columbus, Lima, Mansfield, Marion, Newark, Wooster

Prerequisites and Exclusions

Prerequisites/Corequisites None
Exclusions
Electronically Enforced Yes

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 40.0201
Subsidy Level Baccalaureate Course
Intended Rank Freshman, Sophomore, Junior, Senior

Requirement/Elective Designation

Natural Sciences

Course Details

Course goals or learning objectives/outcomes

- Course ELO 1.1 Demonstrate proficiency in fundamental scientific competencies including astronomical units and unit conversion, scientific notation, SI prefixes, interpreting graphs, common proportions, percentages and scaling relations.
- Course ELO 1.2 Comprehend the scale of the Universe and its constraints on astronomical observation and exploration.
- Course ELO 1.3 Recall and explain basic facts, principles and theories of modern astronomy.
- Course ELO 2.1 Apply and explain the scientific methods used by modern astronomy to characterize the Universe, and explain the limitations and associated uncertainties of these methods.
- Course ELO 2.2 Identify how key events in the development of modern astronomy contribute to the ongoing and changing nature of scientific knowledge and methods in the field.
- Course ELO 2.3 Demonstrate an understanding of fundamental scientific literacy concepts including uncertainty and bias in data, variable control, confounding factors, and evaluating the validity of sources of information.
- Course ELO 2.4 Describe and analyze the nature and process of scientific inquiry including the premises and boundaries of its application, and the merit and evolving nature of scientific theories.
- Course ELO 3.1 Analyze the inter-dependence and potential societal impacts of scientific and technological developments.
- Course ELO 3.2 Demonstrate an understanding of ethical practice in science and the responsible use of information from the natural sciences.
- Course ELO 4.1 Demonstrate an appreciation for the need for scientific literacy in everyday life.
- Course ELO 4.2 Interpret and critically evaluate the scientific merit of reported information both within and outside the field of astronomy.

Content Topic List

- Unit 1: Science Unlocked: How to Talk the Talk and Walk the Walk
- Unit 2: Behind the Scenes: Where Do Scientists Get Their Facts From?
- Unit 3: Guessing or Slaying? How Theories Evolve and Get Verified
- Unit 4: Game On! Tackling Tough Topics in Science Like a Boss

Sought Concurrence

No

Attachments

- Astron1100_Astronomy IRL_ASC Distance Learning Syllabus Template.docx: Syllabus
(Syllabus. Owner: Westraadt, Lindsay)
- Astron1100_Astronomy IRL_ASC-distance-approval-cover-sheet-fillable Updated 2-1-24 APPROVED.pdf: Approved Cover Sheet
(Cover Letter. Owner: Westraadt, Lindsay)
- Astron1100_Astronomy IRL_ASC-distance-approval-cover-sheet-fillable Updated 2-1-24.pdf: Pre-approved Cover Sheet for easier reading
(Cover Letter. Owner: Westraadt, Lindsay)
- ge-foundations-submission.pdf: GE Submission Form
(Other Supporting Documentation. Owner: Westraadt, Lindsay)

Comments

- There is a small typo in the approved ODE cover sheet. The course number is Astronomy 1100, not Astronomy 1000. This was corrected after sending the document for approval. *(by Westraadt, Lindsay on 11/22/2024 02:54 PM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Westraadt, Lindsay	11/22/2024 02:57 PM	Submitted for Approval
Approved	Thompson, Todd Alan	11/22/2024 03:03 PM	Unit Approval
Approved	Vankeerbergen, Bernadette Chantal	12/02/2024 08:31 AM	College Approval
Pending Approval	Jenkins, Mary Ellen Bigler Hanlin, Deborah Kay Hilty, Michael Neff, Jennifer Vankeerbergen, Bernadette Chantal Steele, Rachel Lea	12/02/2024 08:31 AM	ASCCAO Approval



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

This course introduces students to the methods and core topics of modern astronomy, using them as a lens to explore and understand the scientific method. Emphasis is placed on building science literacy skills essential for navigating daily life in the Information Age. Students will apply these skills across various contexts—including social media—as a way to reinforce learning and prepare them for practical, everyday use.



This course is designed to meet the *GE Foundations: Natural Sciences* needs of students requiring a flexible schedule. This is a fully online asynchronous course, and weekly tasks have been divided into shorter tasks that can be completed as time allows.

Course goals and expected learning outcomes

In today's Information Age, practical science literacy is essential for navigating everyday life. It empowers individuals to make informed personal choices, engage in civic matters, and contribute to global responsibility. This course aims to build science literacy by applying scientific methods and examining the evolution of science within the field of astronomy. By the end of the course, students will be able to interpret and critically evaluate the scientific merit of reported information and actions—both within and beyond astronomy—and gain an appreciation for the responsible use of knowledge from the natural sciences.

The goals of this course are as follows:

Course Goal #1: Students will possess the foundational scientific competencies and subject knowledge needed to understand and apply scientific methods within the field of astronomy.

Course Goal #2: Students will develop scientific literacy skills by applying the methods of science and analyzing its evolution within the field of astronomy.

Course Goal #3: Students will appreciate the relationship between science and technology, and will discern the potential impacts of scientific enquiry on society.

Course Goal #4: Students will appreciate the need for scientific literacy and will be able to apply the scientific literacy skills developed in this course to critically evaluate the scientific merit of reported information.



As such, this course is designed to prepare students to be able to do the following:

- Course ELO 1.1 Demonstrate proficiency in fundamental scientific competencies including astronomical units and unit conversion, scientific notation, SI prefixes, interpreting graphs, common proportions, percentages and scaling relations.
- Course ELO 1.2 Comprehend the scale of the Universe and its constraints on astronomical observation and exploration.
- Course ELO 1.3 Recall and explain basic facts, principles and theories of modern astronomy.
- Course ELO 2.1 Apply and explain the scientific methods used by modern astronomy to characterize the Universe, and explain the limitations and associated uncertainties of these methods.
- Course ELO 2.2 Identify how key events in the development of modern astronomy contribute to the ongoing and changing nature of scientific knowledge and methods in the field.
- Course ELO 2.3 Demonstrate an understanding of fundamental scientific literacy concepts including uncertainty and bias in data, variable control, confounding factors, and evaluating the validity of sources of information.
- Course ELO 2.4 Describe and analyze the nature and process of scientific inquiry including the premises and boundaries of its application, and the merit and evolving nature of scientific theories.
- Course ELO 3.1 Analyze the inter-dependence and potential societal impacts of scientific and technological developments.
- Course ELO 3.2 Demonstrate an understanding of ethical practice in science and the responsible use of information from the natural sciences.



Course ELO 4.1 Demonstrate an appreciation for the need for scientific literacy in everyday life.

Course ELO 4.2 Interpret and critically evaluate the scientific merit of reported information both within and outside the field of astronomy.

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 above GE goals and outcomes by applying these concepts in the context of astronomy. See **Course goals and expected learning outcomes**.

How this online course works

Mode of delivery

This course is 100% online. There are no required sessions when you must be logged in to Carmen at a scheduled time.

Pace of online activities

This course is divided into 14 levels. Each level is designed to be completed in a week. You can progress through the levels ahead of time if you wish. However, you are required to complete at least one level a week to keep pace with the course.

An estimated 12 hours is required per week for this course. Weekly tasks are divided into a number of shorter tasks that can be spread out throughout your day and week.

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), 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 12 **mini lessons**, 1-2 **practical tasks**, and a **level-up quiz** at the end of each level. *Mini lessons* are designed for knowledge building and skills development and comprise of instructional readings and videos, and interactive activities. Each mini lesson is roughly 20 minutes long, followed by a 10-minute review quiz. *Practical activities* are aimed at consolidating the week's topics and are designed to be completed within 3 hours. These activities can be done at the student's own time using resources readily available to them. At the end of each level (week), students will take a *level-up quiz* before moving on to the next level.

Other activities include 4 **unit challenges** and participation in **virtual discussions**. At the end of each unit, students will complete a *unit challenge* that will test the astronomy-related concepts and science literacy skills developed over the preceding 3–4 week period. Unit challenges will take on a variety of forms and can include, but is not limited to, escape room challenges, summative quizzes and student-created content. *Virtual discussions* will take place once every two weeks. Topics will vary, covering a broad range of course-related topics. Discussions can take on various forms, including live virtual colloquia and asynchronous discussion forums. Synchronous attendance of live events is not compulsory and recordings of all live activities will be made available for later viewing.

An overview of the weekly tasks and the 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 instructional readings and videos, and interactive activities. Each mini lesson is roughly 20 minutes long, followed by a 10-minute review quiz.	12	6



Practical tasks	Practical activities are aimed at consolidating the week's topics and are designed to be completed within 3 hours. These activities can be done at the student's own time using resources readily available to them.	1-2	3
Level-up quizzes	At the end of each level (week), students will take a level-up quiz before moving on to the next level.	1	0.5
Virtual discussions	Virtual discussions will take place once every two weeks. Topics will vary, covering a broad range of course-related topics. Discussions can take on various forms, including live virtual colloquia and asynchronous discussion forums.	0.5	0.5
Unit Challenges	At the end of each unit, students will complete a unit challenge that will test the astronomy-related concepts and science literacy skills developed over the preceding 3–4 week period. The time taken to prepare for and complete all 4 unit challenges is estimated to be around 24 hours over the course of the semester. This is equivalent to roughly 2 hours a week.		2
TOTAL			12

Participation requirements

Because this is an online course, your attendance is based on your online activity and participation. The following is a summary of students' expected participation:

Participating in online activities

Participation will not be measured directly but will be reflected in your course grade as each course activity has a grade associated with it. Failure to participate in sufficient activities will result in a failing grade. See the section on **How your grade is calculated**.

Office hours and live sessions

All live, scheduled events for the course, including my office hours, are optional. However, asynchronous interaction with event recordings is required as per each assignment brief.

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. 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

Textbooks

Required reference material will be provided on Carmen. The course will also reference the OpenStax open textbook for Astronomy:

OpenStax. (2019). Astronomy 2e. OpenStax.
<https://openstax.org/details/books/astronomy-2e>

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, and support for urgent issues is available 24/7.

- Self-Service and Chat support: it.osu.edu/help
- Phone: 614-688-4357(HELP)
- Email: 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)
- CarmenZoom virtual meetings (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.

Carmen Access

You will need to use BuckeyePass (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. Accommodation and assistance will be arranged for you to complete any work required with this tool free of penalty.

Grading and instructor response

How your grade is calculated



Assignment Category	Percentage
Mini lesson review quizzes	40%
Practical tasks	15%
Level-up quizzes	30%
Virtual discussions (Participation grade)	5%
Unit Challenges	10%
Total	100%

Description of major course assignments

See **Credit hours and work expectations** for a description of course activities and assignments.

Academic integrity and collaboration guidelines

The completion of all review and level-up 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 challenges.

Practical tasks are typically open-internet, open-notes and collaboration is permitted and encouraged. However, unless otherwise stated, students are expected to submit their own work for grading.



Virtual discussions will be graded on participation, either by means of Top Hat quizzes (for live events), imbedded quizzes (for event recordings), or the tracking of comments in discussion forums. Students are expected to uphold integrity by actively engaging with virtual discussions. Thoughtful contributions are essential to foster a meaningful learning experience.

Late assignments

While students may progress ahead of time through the weekly levels, students are required to complete at least one level a week to keep pace with the course (see **Pace of online activities**). 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

Review and level-up quizzes will be automatically graded by Carmen, and students will receive their results immediately after submitting their final attempts for each quiz.

Participation grades for virtual discussions will be graded automatically by Carmen and will be made available to students immediately after completion of the activity.

Practical tasks and unit challenges may be graded by a grader. We ask that students allow up to two weeks for these to be graded, with a typical turnaround time of 1 week.

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)
- Ten Suggestions for Preserving Academic Integrity (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.



Commitment to a diverse and inclusive learning environment

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

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 or calling 614-292-5766. 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 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 isolating while waiting for a COVID-19 test result, please let me know immediately. Those testing positive for COVID-19 should refer to the [Safe and Healthy Buckeyes site](#) for resources. Beyond five days of the required COVID-19 isolation period, I may rely on Student Life Disability Services to establish further reasonable accommodations. You can connect with them at 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](#).

Policy: [Religious Holidays, Holy Days and Observances](#)

Course Schedule

Refer to our Carmen course page for up-to-date assignment due dates.

Unless otherwise specified, all tasks need to be completed by the end of the week in which they appear. See **Late assignments** for more information on late or missed tasks and assignments.

This course is divided into 4 units that address the course ELOs (see **Course goals and expected learning outcomes**).

Week	Topics and Tasks	Assessments Due
<p>Unit 1: Science Unlocked: How to Talk the Talk and Walk the Walk</p> <p>This unit explains what scientific thinking is and what it is not. It introduces the process of scientific discovery and equips students with the fundamental science literacy skills necessary to decode scientific lingo.</p>		
1	<p><u>Mini lesson topics</u>: Heliocentric Model and the birth of modern science; The scientific process; Hypothesis vs theory; Working with big and small numbers</p> <p><u>Practical task</u>: Scientific models: Earth-Moon-Sun Model</p> <p><u>Ongoing task 1</u>: Night Sky Observations: Science is evidence based. In this ongoing task, you will collect your own evidence to</p>	<p>Mini lesson review quizzes</p> <p>Level-up quiz</p>



Week	Topics and Tasks	Assessments Due
	support your proposed Earth-Moon-Sun Model Virtual discussion: Course Introduction and Star Gazer’s Toolkit	
2	<u>Mini lesson topics:</u> Universal laws of nature and common equations (Part 1); Assumptions of science <u>Practical task:</u> Graphs; Common proportions; Percentages and Scaling relations <u>Ongoing task 1:</u> Night Sky Observations	Mini lesson review quizzes Level-up quiz
3	<u>Mini lesson topics:</u> Universal laws of nature and common equations (Part 2); Scope of Science; Astronomical units and unit conversion <u>Practical task:</u> Spinning 360; Galilean Moons <u>Ongoing task 1:</u> Night Sky Observations Virtual discussion: Astro(logy)nomy	Mini lesson review quizzes Level-up quiz

Unit 2: Behind the Scenes: Where Do Scientists Get Their Facts From?

This unit develops trust in the scientific method by explaining how we know seemingly impossible things. This unit will showcase commonly applied methods in astronomy and the technologies that enable them. The unit will also unpack the current limits to our knowledge including



Week	Topics and Tasks	Assessments Due
the sheer scale of the Universe, technological limitations, sources of uncertainty and how we account for them.		
4	<p><u>Mini lesson topics</u>: The Solar System</p> <p><u>Practical task</u>: Solar System Walk (Scale of the Solar System); Solar System Exploration (limits of direct observation)</p> <p><u>Ongoing task 1</u>: Night Sky Observations</p>	<p>Mini lesson review quizzes</p> <p>Level-up quiz</p> <p>Unit 1 Challenge</p>
5	<p><u>Mini lesson topics</u>: Light: Our Window on the Universe; Methods of exoplanet detection; Doppler Shift; Sources of uncertainty: Noise and bias in data</p> <p><u>Practical task</u>: Transiting Exoplanets</p> <p><u>Ongoing task 1</u>: Night Sky Observations</p> <p>Virtual discussion: Mission Showcase</p>	<p>Mini lesson review quizzes</p> <p>Level-up quiz</p>
6	<p><u>Mini lesson topics</u>: Properties and composition of stars; Spectroscopy</p> <p><u>Practical task</u>: Exploring the Light Around You; The Age of the Crab Nebula</p> <p><u>Ongoing task 1</u>: Night Sky Observations</p>	<p>Mini lesson review quizzes</p> <p>Level-up quiz</p>
7	<p><u>Mini lesson topics</u>: Galaxies; Cosmic Distance Ladder, Standard Candles and the Scale of the Universe; Lookback time;</p>	<p>Mini lesson review quizzes</p>



Week	Topics and Tasks	Assessments Due
	<p>Sources of uncertainty: Confounding factors; Estimation and OoM</p> <p><u>Practical task</u>: Parallax; Counting Galaxies</p> <p><u>Ongoing task 2</u>: YouTube video: Find an example of an astronomy-related topic that is misunderstood in social media. Create your own YouTube video correctly explaining the topic.</p> <p>Virtual discussion: Every Crayon of Light tells a Story</p>	<p>Level-up quiz</p> <p>Ongoing task 1 due</p>
<p>Unit 3: Guessing or Slaying? How Theories Evolve and Get Verified</p> <p>This unit further develops trust in the scientific method by illustrating how scientific theories develop, evolve and are verified.</p>		
8	<p><u>Mini lesson topics</u>: Stellar evolution; Scientific process; Evolution and validation of theory</p> <p><u>Practical task</u>: Light from Stars; HR Diagram (Part 1)</p> <p><u>Ongoing task 2</u>: YouTube video</p>	<p>Mini lesson review quizzes</p> <p>Level-up quiz</p> <p>Unit 2 Challenge</p>
9	<p><u>Mini lesson topics</u>: Origin of the elements; Scientific process; Evolution and validation of theory; Scaling relations</p> <p><u>Practical task</u>: H-R Diagram (Part 2)</p>	<p>Mini lesson review quizzes</p> <p>Level-up quiz</p>



Week	Topics and Tasks	Assessments Due
	<p><u>Ongoing task 2</u>: YouTube video</p> <p>Virtual discussion: Star Stuff</p>	
10	<p><u>Mini lesson topics</u>: The Expanding Universe; Cosmological redshift; Scientific process; Evolution and validation of theory</p> <p><u>Practical task</u>: The Expanding Universe</p> <p><u>Ongoing task 2</u>: YouTube video</p>	<p>Mini lesson review quizzes</p> <p>Level-up quiz</p>
11	<p><u>Mini lesson topics</u>: Dark Matter and Dark Energy; Scientific process; Evolution and validation of theory</p> <p><u>Practical task</u>: Galaxy rotation curves</p> <p>Virtual discussion: The Brith and Death of the Universe</p>	<p>Mini lesson review quizzes</p> <p>Level-up quiz</p> <p>Ongoing task 2 due</p>
<p>Unit 4: Game On! Tackling Tough Topics in Science Like a Boss</p> <p>This unit goes beyond understanding the scientific process to applying science literacy skills IRL! The unit equips students will the skills needed to identify and debunk false claims, as well as create scientifically responsible content. The unit will give students tips on the responsible use of information in the natural sciences and on which sources of information they can trust.</p>		
12	<p><u>Mini lesson topics</u>: Aliens; Validity of sources</p>	<p>Mini lesson review quizzes</p>



Week	Topics and Tasks	Assessments Due
	<p><u>Practical task</u>: Scientific myth busting (YouTube edition)</p> <p>Virtual discussion: Galactic Civilizations</p>	<p>Level-up quiz</p> <p>Unit 3 Challenge</p>
13	<p><u>Mini lesson topics</u>: Black holes; Responsible use of scientific information</p> <p><u>Practical task</u>: Responsible content creation: Create a YouTube video script</p> <p>Virtual discussion: Strange Physics</p>	<p>Mini lesson review quizzes</p> <p>Level-up quiz</p>
14	<p><u>Mini lesson topics</u>: Science in the realm of decision-making</p> <p><u>Practical task</u>: Opinion Piece</p> <p>Virtual discussion: Should we kill Hubble?</p>	<p>Mini lesson review quizzes</p> <p>Level-up quiz</p>
15		<p>Unit 4 Challenge</p>
Finals		<p>This course has no final exam.</p>

GE Foundation Courses

Overview

Courses that are accepted into the General Education (GE) Foundations provide introductory or foundational coverage of the subject of that category. Additionally, each course must meet a set of Expected Learning Outcomes (ELO). Courses may be accepted into more than one Foundation, but ELOs for each Foundation must be met. It may be helpful to consult your Director of Undergraduate Studies or appropriate support staff person as you develop and submit your course.

This form contains sections outlining the ELOs of each Foundation category. You can navigate between them using the Bookmarks function in Acrobat. Please enter text in the boxes to describe how your class meets the ELOs of the Foundation(s) to which it applies. Because this document will be used in the course review and approval process, you should use language that is clear and concise and that colleagues outside of your discipline will be able to follow. Please be as specific as possible, listing concrete activities, specific theories, names of scholars, titles of textbooks etc. Your answers will be evaluated in conjunction with the syllabus submitted for the course.

Accessibility

If you have a disability and have trouble accessing this document or need to receive the document in another format, please reach out to Meg Daly at daly.66@osu.edu or call 614-247-8412.

GE Rationale: Foundations: Race, Ethnicity, and Gender Diversity (3 credits)

Requesting a GE category for a course implies that the course fulfills **all** the expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Race, Ethnicity, and Gender Diversity, please answer the following questions for each ELO.

A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational for the study of Race, Ethnicity and Gender Diversity.

Course Subject & Number: _____

B. Specific Goals of Race, Ethnicity, and Gender Diversity

GOAL 1: Successful students will engage in a systematic assessment of how historically and socially constructed categories of race, ethnicity, and gender, and possibly others, shape perceptions, individual outcomes, and broader societal, political, economic, and cultural systems.

Expected Learning Outcome 1.1: Successful students are able to describe and evaluate the social positions and representations of categories including race, gender, and ethnicity, and possibly others. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.2: Successful students are able to explain how categories including race, gender, and ethnicity continue to function within complex systems of power to impact individual lived experiences and broader societal issues. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.3: Successful students are able to analyze how the intersection of categories including race, gender, and ethnicity combine to shape lived experiences. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.4: Successful students are able to evaluate social and ethical implications of studying race, gender, and ethnicity. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

GOAL 2: Successful students will recognize and compare a range of lived experiences of race, gender, and ethnicity.

Expected Learning Outcome 2.1: Successful students are able to demonstrate critical self- reflection and critique of their social positions and identities. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 2.2: Successful students are able to recognize how perceptions of difference shape one’s own attitudes, beliefs, or behaviors. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 2.3: Successful students are able to describe how the categories of race, gender, and ethnicity influence the lived experiences of others. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met.

GE Rationale: Foundations: Social and Behavioral Sciences (3 credits)

Requesting a GE category for a course implies that the course **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Social and Behavioral Sciences, please answer the following questions for each ELO.

A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Social and Behavioral Sciences.

Course Subject & Number: _____

B. Specific Goals of Social and Behavioral Sciences

GOAL 1: Successful students will critically analyze and apply theoretical and empirical approaches within the social and behavioral sciences, including modern principles, theories, methods, and modes of inquiry.

Expected Learning Outcome 1.1: Successful students are able to explain basic facts, principles, theories and methods of social and behavioral science. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.2: Successful students are able to explain and evaluate differences, similarities, and disparities among institutions, organizations, cultures, societies, and/or individuals using social and behavioral science. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

GOAL 2: Successful students will recognize the implications of social and behavioral scientific findings and their potential impacts.

Expected Learning Outcome 2.1: Successful students are able to analyze how political, economic, individual, or social factors and values impact social structures, policies, and/or decisions. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 2.2: Successful students are able to evaluate social and ethical implications of social scientific and behavioral research. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 2.3: Successful students are able to critically evaluate and responsibly use information from the social and behavioral sciences. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

GE Rationale: Foundations: Historical or Cultural Studies (3 credits)

Requesting a GE category for a course implies that the course fulfills the expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Historical and Cultural Studies, please answer the following questions for each ELO. Note that for this Foundation, a course need satisfy either the ELOs for Historical Studies or the ELOs for Cultural Studies.

A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational in the study of History **or** Cultures.

Course Subject & Number: _____

B. Specific Goals of Historical *or* Cultural Studies

Historical Studies (A) Goal: Successful students will critically investigate and analyze historical ideas, events, persons, material culture and artifacts to understand how they shape society and people.

Expected Learning Outcome 1.1A: Successful students are able to identify, differentiate, and analyze primary and secondary sources related to historical events, periods, or ideas. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.2A: Successful students are able to use methods and theories of historical inquiry to describe and analyze the origin of at least one selected contemporary issue. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.3A: Successful students are able to use historical sources and methods to construct an integrated perspective on at least one historical period, event or idea that influences human perceptions, beliefs, and behaviors. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.4A: Successful students are able to evaluate social and ethical implications in historical studies. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Cultural Studies (B) Goal: Successful students will evaluate significant cultural phenomena and ideas to develop capacities for aesthetic and cultural response, judgment, interpretation, and evaluation.

Expected Learning Outcome 1.1B: Successful students are able to analyze and interpret selected major forms of human thought, culture, ideas or expression. Please link this ELO to the course goals and topics and identify the *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.2B: Successful students are able to describe and analyze selected cultural phenomena and ideas across time using a diverse range of primary and secondary sources and an explicit focus on different theories and methodologies. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.3B: Successful students are able to use appropriate sources and methods to construct an integrated and comparative perspective of cultural periods, events or ideas that influence human perceptions, beliefs, and behaviors. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.4B: Successful students are able to evaluate social and ethical implications in cultural studies. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met.

GE Rationale: Foundations: Writing and Information Literacy (3 credits)

Requesting a GE category for a course implies that the course fulfills **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Writing and Information Literacy, please answer the following questions for each ELO.

Course Subject & Number: _____

A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Writing and Information Literacy.

B. Specific Goals of Writing and Information Literacy

GOAL 1: Successful students will demonstrate skills in effective reading, and writing, as well as oral, digital, and/or visual communication for a range of purposes, audiences, and context.

Expected Learning Outcome 1.1: Successful students are able to compose and interpret across a wide range of purposes and audiences using writing, as well as oral, visual, digital and/or other methods appropriate to the context. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. Explain how the course includes opportunities for feedback on writing and revision. Furthermore, please describe how you plan to insure sufficiently low instructor-student ratio to provide efficient instruction and feedback. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.2: Successful students are able to use textual conventions, including proper attribution of ideas and/or source, as appropriate to the communication situation. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. Is an appropriate text, writing manual, or other resource about the pedagogy of effective communication being used in the course? (50-700 words)

Expected Learning Outcome 1.3: Successful students are able to generate ideas and informed responses incorporating diverse perspectives and information from a range of sources, as appropriate to the communication situation. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.4: Successful students are able to evaluate social and ethical implications in writing and information literacy practices. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

GOAL 2: Successful students will develop the knowledge, skills, and habits of mind needed for information literacy.

Expected Learning Outcome 2.1: Successful students are able to demonstrate responsible, civil, and ethical practices when accessing, using, sharing, or creating information. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 2.2: Successful students are able to locate, identify and use information through context appropriate search strategies. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 2.3: Successful students are able to employ reflective and critical strategies to evaluate and select credible and relevant information sources. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

GE Rationale: Foundations: Literary, Visual, or Performing Arts (3 credits)

Requesting a GE category for a course implies that the course fulfills **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Literary, Visual, and Performing Arts, please answer the following questions for each ELO.

A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Literary, Visual, or Performing Arts.

B. Specific Goals

Goal 1: Successful students will analyze, interpret, and evaluate major forms of human thought, cultures, and expression; and demonstrate capacities for aesthetic and culturally informed understanding.

Expected Learning Outcome 1.1: Successful students are able to analyze and interpret significant works of design or visual, spatial, literary or performing arts. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.2: Successful students are able to describe and explain how cultures identify, evaluate, shape, and value works of literature, visual and performing art, and design. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.3: Successful students are able to evaluate how artistic ideas influence and shape human beliefs and the interactions between the arts and human perceptions and behavior. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.4: Successful students are able to evaluate social and ethical implications in literature, visual and performing arts, and design. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Goal 2: Successful students will experience the arts and reflect on that experience critically and creatively.

Expected Learning Outcome 2.1: Successful students are able to engage in informed observation and/or active participation within the visual, spatial, literary, or performing arts and design. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 2.2: Successful students are able to critically reflect on and share their own experience of observing or engaging in the visual, spatial, literary, or performing arts and design.

Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

GE Rationale: Foundations: Natural Science (4 credits)

Requesting a GE category for a course implies that the course fulfills **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Natural Sciences, please answer the following questions for each ELO.

A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Natural Science.

Course Subject & Number: _____

B. Specific Goals for Natural Sciences

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

Expected Learning Outcome 1.1: Successful students are able to explain basic facts, principles, theories and methods of modern natural sciences; describe and analyze the process of scientific inquiry. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.2: Successful students are able to identify how key events in the development of science contribute to the ongoing and changing nature of scientific knowledge and methods. Please link this ELO to the course goals and topics and indicate specific activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.3: Successful students are able to 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. Please explain the 1-credit hour equivalent experiential component included in the course: e.g., traditional lab, course-based research experiences, directed observations, or simulations. Please note that students are expected to analyze data and report on outcomes as part of this experiential component. *(50-1000 words)*

Course Subject & Number: _____

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.

Expected Learning Outcome 2.1: Successful students are able to analyze the inter-dependence and potential impacts of scientific and technological developments. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 2.2: Successful students are able to evaluate social and ethical implications of natural scientific discoveries. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 2.3: Successful students are able to critically evaluate and responsibly use information from the natural sciences. Please link this ELO to the course goals and topics and indicate *specific* activities/ assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

GE Rationale: Foundations: Mathematical and Quantitative Reasoning (or Data Analysis) (3 credits)

Requesting a GE category for a course implies that the course fulfills **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Mathematical and Quantitative Reasoning (or Data Analysis), please answer the following questions for each ELO.

A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Mathematical & Quantitative Reasoning (or Data Analysis).

B. Specific Goals for Mathematical & Quantitative Reasoning/Data Analysis

Goal: Successful students will be able to apply quantitative or logical reasoning and/or mathematical/statistical analysis methodologies to understand and solve problems and to communicate results.

Expected Learning Outcome 1.1: Successful students are able to use logical, mathematical and/or statistical concepts and methods to represent real-world situations. Please link this ELO to the course goals and topics and indicate *specific* activities/ assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.2: Successful students are able to use diverse logical, mathematical and/or statistical approaches, technologies, and tools to communicate about data symbolically, visually, numerically, and verbally. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.3: Successful students are able to draw appropriate inferences from data based on quantitative analysis and/or logical reasoning. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.4: Successful students are able to make and evaluate important assumptions in estimation, modeling, logical argumentation, and/or data analysis. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.5: Successful students are able to evaluate social and ethical implications in mathematical and quantitative reasoning. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Distance Approval Cover Sheet

For Permanent DL/DH Approval | College of Arts and Sciences
(Updated 2-1-24)

Course Number and Title:

Carmen Use

When building your course, we recommend using the [ASC Distance Learning Course Template](#) for CarmenCanvas. For more on use of [Carmen: Common Sense Best Practices](#).

A Carmen site will be created for the course, including a syllabus and gradebook at minimum.

If no, why not?

Syllabus

Proposed syllabus uses the ASC distance learning syllabus template, includes boilerplate language where required, as well as a clear description of the technical and academic support services offered, and how learners can obtain them.

Syllabus is consistent and is easy to understand from the student perspective.

Syllabus includes a schedule with dates and/or a description of what constitutes the beginning and end of a week or module.

If there are required synchronous sessions, the syllabus clearly states when they will happen and how to access them.

Additional comments (optional).

Instructor Presence

For more on instructor presence: [About Online Instructor Presence](#).

For more on Regular and Substantive Interaction: [Regular Substantive Interaction \(RSI\) Guidance](#)

Students should have opportunities for regular and substantive academic interactions with the course instructor. Some ways to achieve this objective:

- Instructor monitors and engages with student learning experiences on a regular and substantive cadence.

Explain your plan for understanding student experiences of the course and how the instructor will be responsive to those experiences (required).

- Regular instructor communications with the class via announcements or weekly check-ins.
- Instructional content, such as video, audio, or interactive lessons, that is visibly created or mediated by the instructor.
- Regular participation in class discussion, such as in Carmen discussions or synchronous sessions.
- Regular opportunities for students to receive personal instructor feedback on assignments.

Please comment on this dimension of the proposed course (or select/explain methods above).

Delivery Well-Suited to DL/DH Environment

Technology questions adapted from the [Quality Matters](#) rubric. For information about Ohio State learning technologies: [Toolsets](#).

- The tools used in the course support the learning outcomes and competencies.
- Course tools promote learner engagement and active learning.
- Technologies required in the course have been vetted for accessibility, security, privacy and legality by the appropriate offices and are readily and reasonably obtainable.
- Links are provided to privacy policies for all external tools required in the course.

Additional technology comments:

Which components of this course are planned for synchronous delivery and which for asynchronous delivery?
(For DH, address what is planned for in-person meetings as well)

If you believe further explanation would be helpful, please comment on how course activities have been adjusted for distance learning:

Workload Estimation

For more information about calculating online instruction time: [ODEE Credit Hour Estimation](#).

- Course credit hours align with estimated average weekly time to complete the course successfully.
- Course includes regular substantive interaction well-suited to the learning environment at a frequency and engagement level appropriate to the course.

Provide a brief outline of a typical course week, categorizing course activities and estimating the approximate time to complete them or participate (required):

- In the case of course delivery change requests, the course demonstrates comparable rigor in meeting course learning outcomes.

Accessibility

For more information or a further conversation, contact the [accessibility coordinator](#) for the College of Arts and Sciences. For tools and training on accessibility: [Digital Accessibility Services](#).

- Instructor(s) teaching the course will have taken Digital Accessibility training (starting in 2022) and will ensure all course materials and activities meet requirements for diverse learners, including alternate means of accessing course materials when appropriate.
- Information is provided about the accessibility of all technologies required in the course. All third-party tools (tools without campus-wide license agreements) have their accessibility statements included.

Description of any anticipated accommodation requests and how they have been/will be addressed.

Additional comments (optional):

Academic Integrity

For more information: [Academic Integrity](#).

- The course syllabus includes online-specific policies about academic integrity, including specific parameters for each major assignment:
- Assignments are designed to deter cheating and plagiarism and/or course technologies such as online proctoring or plagiarism check or other strategies are in place to deter cheating.

Additional comments (optional):

Frequent, Varied Assignments/Assessments

For more information: [Designing Assessments for Students](#).

Student success in online courses is maximized when there are frequent, varied learning activities. Possible approaches:

- Opportunities for students to receive course information through a variety of different sources, including indirect sources, such as textbooks and lectures, and direct sources, such as scholarly resources and field observation.
- Variety of assignment formats to provide students with multiple means of demonstrating learning.
- Opportunities for students to apply course knowledge and skills to authentic, real-world tasks in assignments.

Comment briefly on the frequency and variety of assignment types and assessment approaches used in this course or select methods above:

Community Building

For more information: [Student Interaction Online](#).

Students engage more fully in courses when they have an opportunity to interact with their peers and feel they are part of a community of learners. Possible approaches:

- Opportunities for students to interact academically with classmates through regular class discussion or group assignments.
- Opportunities for students to interact socially with classmates, such as through video conference sessions or a course Q&A forum.
- Attention is paid to other ways to minimize transactional distance (psychological and communicative gaps between students and their peers, instructor, course content, and institution).

Please comment on this dimension of the proposed course (required)

Transparency and Metacognitive Explanations

For more information: [Supporting Student Learning](#).

Students have successful, meaningful experiences when they understand how the components of a course connect together, when they have guidance on how to study, and when they are encouraged to take ownership of their learning. Possible approaches:

- Instructor explanations about the learning goals and overall design or organization of the course.
- Context or rationale to explain the purpose and relevance of major tasks and assignments.

- Guidance or resources for ancillary skills necessary to complete assignments, such as conducting library research or using technology tools.
- Opportunities for students to take ownership or leadership in their learning, such as by choosing topics of interest for an assignment or leading a group discussion or meeting.
- Opportunities for students to reflect on their learning process, including their goals, study strategies, and progress.
- Opportunities for students to provide feedback on the course.

Please comment on this dimension of the proposed course (or select methods above):

Additional Considerations

Comment on any other aspects of the online delivery not addressed above (optional):

Syllabus and cover sheet reviewed by *Bob Mick* on *11/22/24*

Reviewer Comments:

Additional resources and examples can be found on [ASC's Office of Distance Education](#) website.