

## Term Information

Effective Term Autumn 2022  
[Previous Value](#) Autumn 2021

## Course Change Information

What change is being proposed? (If more than one, what changes are being proposed?)

Have course count as a Lived Environments Theme course AND Sustainability Theme course under new GE.

What is the rationale for the proposed change(s)?

Topic lends itself very well to both of these Themes.

What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

None.

Is approval of the request contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

## General Information

Course Bulletin Listing/Subject Area Earth Sciences  
Fiscal Unit/Academic Org School of Earth Sciences - D0656  
College/Academic Group Arts and Sciences  
Level/Career Undergraduate  
Course Number/Catalog 2205  
Course Title The Planets  
Transcript Abbreviation Planets  
Course Description Survey of the solar system's planets and moons with focus on surface environments, dynamics, and the ability to host life. Add EarthSc 1200 for Physical Science GE lab credit.  
[Previous Value](#) *Survey of the solar system's planets and moons with focus on surface environments, dynamics, and the ability to host life. Autumn 2021 and after: Add EarthSc 1200 for Physical Science GE lab credit.*  
Semester Credit Hours/Units Fixed: 3

## Offering Information

Length Of Course 14 Week, 12 Week, 8 Week, 7 Week, 6 Week  
Flexibly Scheduled Course Sometimes  
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 Lecture  
Grade Roster Component Lecture  
Credit Available by Exam No  
Admission Condition Course No  
Off Campus Never  
Campus of Offering Columbus, Lima, Mansfield, Marion, Newark, Wooster  
[Previous Value](#) *Columbus, Lima, Mansfield, Marion, Newark*

## Prerequisites and Exclusions

Prerequisites/Corequisites

Exclusions

Electronically Enforced No

## Cross-Listings

Cross-Listings

## Subject/CIP Code

Subject/CIP Code	40.0699
Subsidy Level	Baccalaureate Course
Intended Rank	Freshman, Sophomore, Junior, Senior

## Requirement/Elective Designation

General Education course:

Physical Science; Lived Environments; Sustainability

The course is an elective (for this or other units) or is a service course for other units

### *Previous Value*

*General Education course:*

*Physical Science*

*The course is an elective (for this or other units) or is a service course for other units*

## Course Details

**Course goals or learning objectives/outcomes**

- Lived Env. GOAL 1: Successful students will explore a range of perspectives on the interactions and impacts between humans and one or more types of environment (e.g. agricultural, built, cultural, economic, intellectual, natural) in which humans live
- Lived Env. GOAL 2: Successful students will analyze a variety of perceptions, representations and/or discourses about environments and humans within them.
- GOAL 3: Students analyze and explain how social and natural systems function, interact, and evolve over time; how human wellbeing depends on these interactions; how actions have impacts on subsequent generations and societies globally;
- and how human values, behaviors, and institutions impact multi-faceted, potential solutions across time.
- Students will:
  - develop an intuition for the vast spatial and temporal scales in our Universe and how to make order-of-magnitude-estimates (or educated guesses) of quantities that are hard to know or remember precisely,
- revisit basic physics concepts related to motion, energy, and gravity; and how light and matter interact, which allows us to learn a tremendous amount of information from light,
- use those concepts to understand planetary geology and atmospheres,
- visit each planet in the solar system, as well as many moons, asteroids, and comets, and learn how they are similar or different in terms of their interiors, surfaces, and atmospheres, including some that may well harbor conditions for life
- be provided with an up-to-date overview of the evermore daring exploration of our solar system by space crafts.

**Previous Value**

- *students will*
  - *develop an intuition for the vast spatial and temporal scales in our Universe and how to make order-of-magnitude-estimates (or educated guesses) of quantities that are hard to know or remember precisely,*
  - *revisit basic physics concepts related to motion, energy, and gravity; and how light and matter interact, which allows us to learn a tremendous amount of information from light,*
  - *use those concepts to understand planetary geology and atmospheres,*
  - *visit each planet in the solar system, as well as many moons, asteroids, and comets, and learn how they are similar or different in terms of their interiors, surfaces, and atmospheres, including some that may well harbor conditions for life*
  - *be provided with an up-to-date overview of the evermore daring exploration of our solar system by space crafts.*

**Content Topic List**

- Solar system formation
- Age of the Earth and solar system
- Light and matter
- Heat and energy
- Gravity
- Plate tectonics
- Conditions for life in the solar system
- Solar system exploration
- Meteorite impacts
- Volcanoes and earthquakes on Earth and beyond
- Water on Earth and beyond

**COURSE CHANGE REQUEST**  
2205 - Status: PENDING

Last Updated: Vankeerbergen, Bernadette  
Chantal  
12/07/2021

**Sought Concurrence**

No

**Attachments**

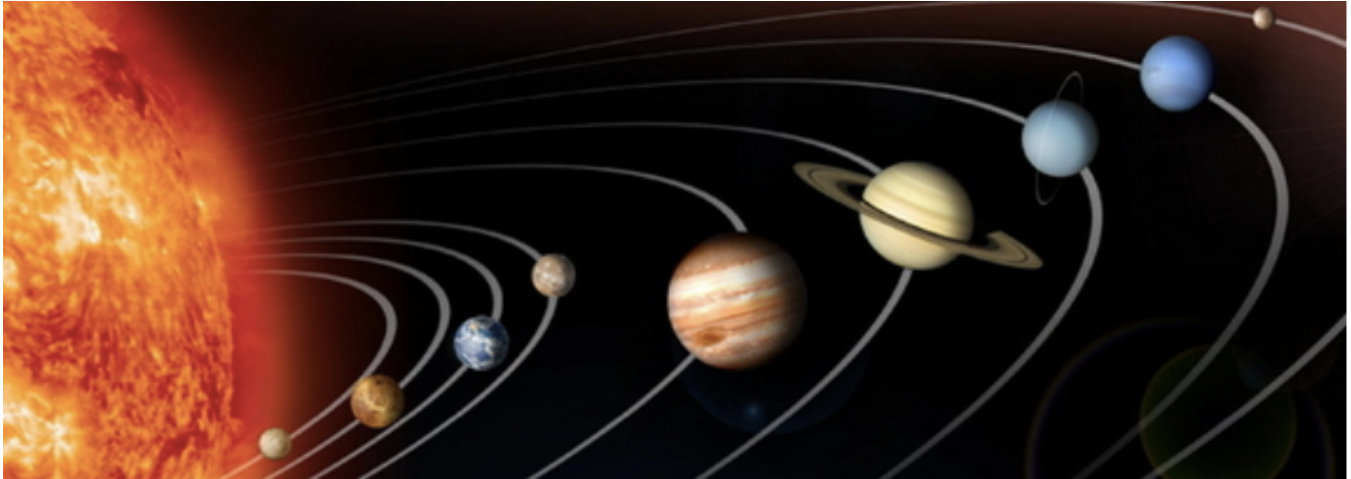
- EARTHSC2205-syllabus.pdf: updated syllabus  
*(Syllabus. Owner: Griffith, Elizabeth M)*
- submission-lived-environments\_EARTHSC2205.pdf: LE submission application  
*(Other Supporting Documentation. Owner: Griffith, Elizabeth M)*
- submission-sustainability\_EARTHSC2205.pdf: Sustainability submission application  
*(Other Supporting Documentation. Owner: Griffith, Elizabeth M)*

**Comments**

- Since this course is already approved as DL, those supporting documents were not uploaded. *(by Griffith, Elizabeth M on 11/16/2021 11:30 AM)*

**Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Griffith, Elizabeth M	11/16/2021 11:30 AM	Submitted for Approval
Approved	Griffith, Elizabeth M	11/16/2021 11:31 AM	Unit Approval
Approved	Vankeerbergen, Bernadette Chantal	12/07/2021 02:55 PM	College Approval
Pending Approval	Cody, Emily Kathryn Jenkins, Mary Ellen Bigler Hanlin, Deborah Kay Hilty, Michael Vankeerbergen, Bernadette Chantal Steele, Rachel Lea	12/07/2021 02:56 PM	ASCCAO Approval



# The Planets Syllabus

EARTHSC 2205 Spring 2023 - Online

## Course Information

- **Course times and location:** No required schedule meetings; all instruction occurs on Carmen each week
- **Credit hours:** 3
- **Mode of delivery:** Distance Learning

## Instructor

- **Name:** Joachim Moortgat
- **Email:** Moortgat.1@osu.edu
- **Phone number:** 614-688-2410
- **Office hours:** <http://carmenzoom.osu.edu/moortgat-office-hour>

## Course Description

In this course we will explore our Solar System, study the origin and evolution of materials within it so that we may better understand our place in the Universe, the prospect of life elsewhere, and the destiny of humanity on Earth and in space. The goal of this course is for students to understand the principles, theories, and methods of modern science, the relationship between science and technology, the implications of scientific discoveries and the potential of science and technology to address problems of the contemporary world.

*Students starting at Ohio State in Autumn 2022 and beyond: EARTHSC 2205 fulfills a three-credit course in the General Education (GE) Themes: **Lived Environment and Sustainability**.*

## Course Learning Outcomes

As part of the **Lived Environments** Theme of the General Education curriculum, this course is designed to prepare students to be able to do the following:

**GOAL 1: Successful students will explore a range of perspectives on the interactions and impacts between humans and one or more types of environment (e.g. agricultural, built, cultural, economic, intellectual, natural) in which humans live.**

### **1.1 Engage with the complexity and uncertainty of human-environment interactions.**

In the first half of this course, you will then learn how different early civilizations throughout the World interacted and studied their lived environment (i.e., the Earth in the solar system) and figured out how to track the motions of the Sun, Moon, and stars, built structures (like Stonehenge and many others) to mark important dates, and used that understanding in agricultural and religious practices. From there we cover how humans have continuously peeled away layer after layer of uncertainty to ultimately arrive at our current understanding of the Universe, our place in it, and ‘how Earth works’, from its internal geology, to its surface processes, to its atmosphere. You will frequently be asked to compare Earth to other similar planets (and moons) such as Mars, Venus, or Europa and Titan and think about questions such as: why is Earth the only planet/moon with an oxygen-rich atmosphere? and why do we have an ozone layer that protects us from harmful solar radiation?

### **1.2 Describe examples of human interaction with and impact on environmental change and transformation over time and across space.**

Towards the end of the semester, when you have a more thorough understanding of the processes that shape the Earth’s surface and those that affect our tenuous atmosphere, water, and CO<sub>2</sub> cycles, we focus on impacts of humans on our lived environment, such as acid rain caused by sulphur emissions, damage to our protective ozone layer by CFCs, and of course the current climate crisis caused by anthropogenic CO<sub>2</sub> emissions. We discuss how good governance helped resolve those first two environmental crises two decades ago, as well as the challenges in addressing the current climate crisis. Moreover, we discuss the wide range of not only environmental but also social impacts of climate change and inequities in the communities affected. Finally, we contrast the ways in which Indigenous Americans

interacted with their environment to European settlers. Various exercises will help you develop a better intuition of the scale at which human activities impact our environment.

**GOAL 2: Successful students will analyze a variety of perceptions, representations and/or discourses about environments and humans within them.**

**2.1 Analyze how humans' interactions with their environments shape or have shaped attitudes, beliefs, values and behaviors.**

In covering the ~2500 years of the history of science, you will learn about the perpetual cycles of friction between major scientific discoveries of how our environment works and prevailing religious beliefs and power structures. We also discuss the sometimes seemingly arbitrary and ongoing friction between science and politics around our lived environment.

**2.2 Describe how humans perceive and represent the environment with which they interact.**

The course starts by giving you a more intuitive sense of our place in the Universe by constructing a complete scale model of our Solar System down to the scale of Columbus. From there, we zoom out even further and define our cosmic address in our Milky Way Galaxy as part of the local group of galaxies. Similarly, we discuss how while astronomical distances are huge, so are the velocities at which objects spin around our Solar System. Several exercises will help you develop a better intuition for those huge numbers. Later, we discuss the natural and human processes that shape the Earth's surface environment. In this context, you will learn how current perceptions and representations of, e.g., our National Parks as 'wilderness' areas overlook that many of those environments were extensively changed over time by Indigenous Americans. Other perceptions of our environment that were already mentioned in the context of climate change, are that humans still perceive our atmospheres and oceans as effectively 'infinite' resources or dumping grounds, with disastrous consequences.

**2.3 Analyze and critique conventions, theories and ideologies that influence discourse around environments.**

You will discuss the 'Scientific Method' and learn the difference between a 'I have a theory' in everyday conversations versus the meaning of a -scientific- theory. Importantly, we discuss how a theory can be extremely robust when, say, 100 years of experiments have not led to inconsistencies with a theory, but that nevertheless a theory is never absolute and can (and usually does) have to be revised when such inconsistent data emerge (often under some new extreme experimental conditions). Geocentric conventions, for example, embedded in

religions had to be challenged for many hundreds of years to arrive at our current understanding of the Solar System (and beyond), climate change, and the different discourses around environments today as compared to the indigenous stewards of those lands in the past.

As part of the **Sustainability** Theme of the General Education curriculum, this course is designed to prepare students to be able to do the following:

**GOAL 1: Students analyze and explain how social and natural systems function, interact, and evolve over time; how human wellbeing depends on these interactions; how actions have impacts on subsequent generations and societies globally; and how human values, behaviors, and institutions impact multi-faceted, potential solutions across time.**

**1.1 Describe elements of the fundamental dependence of humans on Earth and environmental systems and on the resilience of these systems.**

Early on, you will learn how ancient civilizations looked at the skies to provide a calendar for, e.g., agricultural activities and navigation (as well as omens for military and other endeavors). Later, in learning about our own Solar System and other star-planet we keep returning to the ‘goldilocks’ zone and more generally the conditions required for the existence and sustainability of Life. At the most basic level, these are a narrow range of temperatures and pressures that allow for liquid (in addition to frozen and gaseous) water. An atmosphere is required for pressures that prevent surface water from evaporating into space, and temperatures have to be just right for large amounts of surface water to exist. On Earth, a - moderate- greenhouse effect from our atmosphere is essential and without it most/all surface water would be frozen. You will learn how Earth has a unique CO<sub>2</sub> cycle that has acted as a thermostat in regulating the Earth’s temperature, thus safeguarding the resilience of Life on Earth, but that this cycle operates on geological time-scales.

**1.2 Describe, analyze and critique the roles and impacts of human activity and technology on both human society and the natural world, in the past, currently, and in the future.**

After you learn the basic mechanism of heating in a greenhouse you will work through back-of-the-envelope calculations to convince yourself that 1) there is not as much atmosphere as most people imagine, 2) the air in our atmosphere only contains a tiny fraction of CO<sub>2</sub> to begin with, 3) the total amounts of CO<sub>2</sub> that humans emit annually is a lot more than people imagine, so 4) it is really not that surprising that this has an effect on our atmosphere and indeed leads to significant global warming. We also discuss many other impacts of humans on our environment, such as the use of lead in many products, sulphur emissions leading to



acid rain, and chlorofluorocarbon (CFC) emissions destroying our protective ozone layer. The latter two are examples of good governance where eventually global treaties were agreed to; in fact, your generation may be barely aware of the worries about acid rain and the ozone layer that perhaps kept your teachers and parents awake at night only ~2 decades ago, while any worries of negative impacts of the global treaties on economies appear to have been unwarranted. We are not there yet with climate change and we discuss the all-encompassing societal and technological changes that will be required to address this challenge.

### 1.3 **Devise informed and meaningful responses to problems and arguments in the area of sustainability based on the interpretation of appropriate evidence and an explicit statement of values.**

Our discussions on climate change as well as a semester-long group project will address this Sustainability Theme ELO. In the group project, you will discuss with each other how to address the innumerable challenges in establishing a new human civilization on an extraterrestrial planet or moon. What does a sustainable agricultural system look like on Ganymede? Are the methane lakes on Titan a sustainable energy source? Does solar energy make sense on Pluto? Is nuclear energy ever a good option? In terms of values and ethics, we will also talk about media coverage in which a few billionaires appear to envision human colonies in space / other planets / moons rather than using their resources to improve the sustainability of Life on Earth (which is still far easier). Finally, we will discuss more specifically how resource extraction and impacts of climate change tend to disproportionately affect communities that are already economically disadvantaged.

Specific to the topic of Planets, you will

- develop an intuition for the vast spatial and temporal scales in our Universe and how to make order-of-magnitude-estimates of quantities that are hard to remember precisely,
- revisit basic physics concepts related to motion, energy, and gravity; and how light and matter interact, which allows us to learn a tremendous amount of information from light,
- use those concepts to understand planetary geology and atmospheres,
- (virtually) visit each planet in the solar system, as well as many moons, asteroids, and comets, and learn how they are similar or different in terms of their interiors, surfaces, and atmospheres, including some that may well harbor conditions for extraterrestrial life,
- be provided with an up-to-date overview of the evermore daring exploration of our solar system by space crafts.

# 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. The online materials consist of reading, videos, practice quizzes, short assignments, and discussions boards.

**Pace of online activities:** This course is divided into **weekly modules** that are released one week ahead of time. Students are expected to keep pace with weekly deadlines but may schedule their efforts freely within that time frame.

**Credit hours and work expectations:** This is a **3-credit-hour course**. According to **Ohio State policy**, students should expect around 3 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of (C) average.

**Attendance and participation requirements:** Because this is an online course, your attendance is based on your online activity and participation. The following is a summary of everyone's expected participation:

- **Participating in online activities for attendance: AT LEAST ONCE PER WEEK** You are expected to log in to the course in Carmen every week. (During most weeks you will probably log in many times.) If you have a situation that might cause you to miss an entire week of class, discuss it with your instructor *as soon as possible*.
- **Office hours and live sessions: OPTIONAL** All live, scheduled events for the course, including office hours, are optional.
- **Participating in discussion forums: 2+ TIMES PER WEEK.** As part of your participation, each week you can expect to post at least twice as part of our substantive class discussion on the week's topics.
- **Group project:** you will be assigned to a group of 5 to 6 students for the duration of the semester. Together with your group, you will work on a proposal to establish the first human colony on one of the planets, moons, asteroids, or comets in our Solar System; a plan that you will present as a group at the end of the semester on CarmenZoom. Your presentation will be graded on a rubric (on Carmen) that includes both the presentation materials (slides) and oral delivery, and how well you covered topics such as how to travel there, what resources are/aren't available, how you might resolve the lack of certain resources, what life on your object would be like (e.g., in terms of temperatures, gravity, seasons, sunlight, etc.). You will have a group section on Carmen where you should have a weekly discussion (at a time fitting your own schedules) about progress on this project, as well as help each other out with the other online materials for each week's Unit. In other words, this is a more intimate setting for discussions than the class-wide discussion forum.

# Course Materials and Technologies

## Textbook: Recommended

*The Cosmic Perspective: The Solar System* Bennett, Danahue, Schneider, and Voit, Pearson Education Inc. (any edition)

## Course Technology

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the OSU IT Service Desk. Standard support hours are available at <https://ocio.osu.edu/help/hours>, and support for urgent issues is available 24/7.

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

## Baseline Technical Skills for ONLINE Courses

- Basic computer and web-browsing skills
- Navigating Carmen: for questions about specific functionality, see the [Canvas Student Guide](#).

## Required Technology Skills Needed for This Course

- CarmenConnect text, audio, and video chat
- Recording a slide presentation with audio narration
- Recording, editing, and uploading video

## Required Equipment

- Computer: current Mac (OS X) or PC (Windows 7+) 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) or landline to use for BuckeyePass authentication



## Required Software

- None.

## CARMEN Access

You will need to use **BuckeyePass** 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 - Adding a Device** help article for step-by-step instructions.
- 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 the IT support staff will work out a solution with you.

# Grading and Faculty Response

## How Your Grade is Calculated

Assignment Category	Points
Midterm 1	25
Midterm 2	25
Midterm 3	25
Group presentation	10
Weekly assignments (10) and quizzes (5)	15
Engagement: up to 10 bonus points. Best group presentations (5), top 10% constructive activity on discussion boards (5), valuable suggestions to improve on-line materials (2.5).	10
<b>Total</b>	<b>100 + 10 bonus</b>

See [Course Schedule](#) for due dates.

## Late Assignments

Late submissions will not be accepted. Please refer to Carmen for due dates.

## Instructor Feedback and Response Time

I am providing the following list to give you an idea of my intended availability throughout the course. (Remember that you can call **614-688-HELP** at any time if you have a technical problem.)

- **Grading and feedback:** For large weekly assignments, you can generally expect feedback within **7 days**.
- **Email:** I will reply to emails within **24 hours on days when class is in session at the university**.

- **Discussion board:** I will check and reply to messages in the discussion boards every **24 hours on school days.**

## Grading Scale

93–100: A

90–92.9: A-

87–89.9: B+

83–86.9: B

80–82.9: B-

77–79.9: C+

73–76.9: C

70–72.9: C-

67–69.9: D+

60–66.9: D

Below 60: E



# Other Course Policies

## Discussion and Communication Guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style:** While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation. A more conversational tone is fine for non-academic topics.
- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online.
- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say. (For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.)
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

Throughout this semester, you will work in the same small group. Collaborating as a group does not come natural to everyone, in general, and working with a group of people with all different backgrounds can take even more practice. But an abundance of research has demonstrated that diverse teams are most effective. Many successful companies now try to capitalize on the full breath of their 'human capital'.

Diverse teams make strong teams. Assuming of course that

- all team members are respectful towards each other,
- one or more team members do not dominate discussions at the expense of others, and
- all team members carry their weight and contribute equally.

## Diversity Statement

As your instructor in this course, I strongly support OSU's general commitment to diversity:

“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.”

If you experience any lack of respect in this context either by myself or any of your fellow students, please do not hesitate to reach out to me, my TA, or a neutral party (e.g. the Office of Diversity and Inclusion: [odi@osu.edu](mailto:odi@osu.edu)). Also, if you have a name and/or set of pronouns that differ from those apparent on Carmen, please let me know!

## Academic Integrity Policy

### POLICIES FOR THIS ONLINE COURSE

- **Quizzes and exams:** You must complete the midterms yourself, without any external help or communication. Weekly quizzes are intended as self-checks and can be repeated as many times as you like.
- **Reusing past work:** In general, you are prohibited in university courses from turning in work from a past class to your current class, even if you modify it. If you want to build on past research or revisit a topic you've explored in previous courses, please discuss the situation with me.
- **Falsifying research or results:** All research you will conduct in this course is intended to be a learning experience; you should never feel tempted to make your results or your library research look more successful than it was.
- **Collaboration and informal peer-review:** The course includes many opportunities for formal collaboration with your classmates. While study groups and peer-review of major written projects is encouraged, remember that comparing answers on a quiz or assignment is not permitted. If you're unsure about a particular situation, please feel free just to ask ahead of time.
- **Group projects:** This course includes a group project, which can be stressful for students when it comes to dividing work, taking credit, and receiving grades and feedback. I have attempted to make the guidelines for group work as clear as possible for each activity and assignment, but please let me know if you have any questions.

## Ohio State's Academic Integrity Policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the university's [Code of Student Conduct](https://studentconduct.osu.edu) ([studentconduct.osu.edu](https://studentconduct.osu.edu)), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the university's *Code of Student Conduct* and this syllabus may constitute “Academic Misconduct.”



The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the university or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the university's *Code of Student Conduct* is never considered an excuse for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

**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](http://go.osu.edu/coam) (go.osu.edu/coam)
- [Ten Suggestions for Preserving Academic Integrity](http://go.osu.edu/ten-suggestions) (go.osu.edu/ten-suggestions)
- [Eight Cardinal Rules of Academic Integrity](http://go.osu.edu/cardinal-rules) (go.osu.edu/cardinal-rules)

## 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.

## Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also

have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

1. Online reporting form at [equity.osu.edu](https://equity.osu.edu),
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or email [equity@osu.edu](mailto:equity@osu.edu)

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Office of Institutional Equity to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

## 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. No matter where you are engaged in distance learning, The Ohio State University's Student Life Counseling and Consultation Service (CCS) is here to support you. If you find yourself feeling isolated, anxious, or overwhelmed, [on-demand mental health resources](https://go.osu.edu/ccsondemand) (go.osu.edu/ccsondemand) are available. You can reach an on-call counselor when CCS is closed at [614-292-5766](tel:614-292-5766). **24-hour emergency help** is available through the [National Suicide Prevention Lifeline website](https://www.nationalsuicideline.org) (suicidepreventionlifeline.org) or by calling [1-800-273-8255\(TALK\)](tel:1-800-273-8255). [The Ohio State Wellness app](https://go.osu.edu/wellnessapp) (go.osu.edu/wellnessapp) is also a great resource.

## Other resources

For an overview and contact information regarding student academic services offered on the OSU main campus, please visit: <http://advising.osu.edu/welcome.shtml>

For an overview and contact information for student services offered on the OSU main campus, please visit: <http://ssc.osu.edu>.

# Accessibility Accommodations for Students with Disabilities

## Requesting Accommodations

The university strives to make all learning experiences as accessible as possible. 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 \(SLDS\)](#). After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services.

## Disability Services Contact Information

- Phone: [614-292-3307](tel:614-292-3307)
- Website: [slds.osu.edu](http://slds.osu.edu)
- Email: [slds@osu.edu](mailto:slds@osu.edu)
- In person: [Baker Hall 098, 113 W. 12th Avenue](#)

## Accessibility of Course Technology

This online course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations as early as possible.

- [CarmenCanvas accessibility](http://go.osu.edu/canvas-accessibility) (go.osu.edu/canvas-accessibility)
- Streaming audio and video
- [CarmenZoom accessibility](http://go.osu.edu/zoom-accessibility) (go.osu.edu/zoom-accessibility)



# Course Schedule

**Note:** All reading is optional extra background from the recommended book. The same topics are covered in detail in the online materials. All Assignments are due at the end of the week in which they are listed.

Week	Dates	Topics, Readings, Assignments, Deadlines
1		Reading: §1.1 – §1.3 (18pg) Introductions The Scale and Age of the Universe Assignment 1 Quiz
2		Reading: §2.1 (7pg) Patterns in the Night Sky Assignment 2 Quiz
3		Reading: §2.2 – §2.4 (14pg) Seasons, Moon Phases, Eclipses, and Retrograde Planetary Motions Assignment 3 Quiz
4		Reading: §3.2 – §3.5 (18pg) & Video The Copernican Revolution, Kepler, Brahe, and Galileo. The Scientific Method & Astrology Assignment 4 Quiz
5		Midterm 1 (and practice session) Optional visit to OSU Department of Astronomy Planetarium for on-campus students.
6		Reading: §4.1 – §4.5 (20pg) Concepts from Physics Required to Understand Planets Assignment 5 Quiz
7		Reading: §5.1 – §5.4 (20pg) Properties of Light & Matter Assignment 6

		Quiz
<b>8</b>		Reading: Ch. 7 & Ch. 8 (13pg) The Formation of our Solar System Assignment 7 Quiz
<b>9</b>		Midterm 2 (and practice session)
<b>10</b>		Spring Break
<b>11</b>		Reading: §9.1 – §9.2 (13pg), §9.3 – §9.6 (16pg; cursory) Planetary Geology Group work on presentations Quiz
<b>12</b>		Reading: Ch. 10 (30pg) Atmospheric Basics, Weather & Climate, and Earth's Atmosphere. Group work on presentations Quiz
<b>13</b>		Reading: Ch. 11 (25pg) Jovian Planets and their Moons Group work on presentations Quiz
<b>14</b>		Reading: Ch. 12 (21pg) Asteroids, Comets, and Dwarf Planet Group work on presentations Quiz
<b>15</b>		Midterm 3 (and practice session)



# GE THEME COURSES

## Overview

Courses that are accepted into the General Education (GE) Themes must meet two sets of Expected Learning Outcomes (ELOs): those common for all GE Themes and one set specific to the content of the Theme. This form begins with the criteria common to all themes and has expandable sections relating to each specific theme.

A course may be accepted into more than one Theme if the ELOs for each theme are met. Courses seeing approval for multiple Themes will complete a submission document for each theme. Courses seeking approval as a 4-credit, Integrative Practices course need to complete a similar submission form for the chosen practice. It may be helpful to consult your Director of Undergraduate Studies or appropriate support staff person as you develop and submit your course. .

Please enter text in the boxes to describe how your class will meet the ELOs of the Theme to which it applies. Please use language that is clear and concise and that colleagues outside of your discipline will be able to follow. You are encouraged to refer specifically to the syllabus submitted for the course, since the reviewers will also have that document. Because this document will be used in the course review and approval process, you should be *as specific as possible*, listing concrete activities, specific theories, names of scholars, titles of textbooks etc.

## 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](mailto:daly.66@osu.edu) or call 614-247-8412.

Course subject & number

## General Expectations of All Themes

**GOAL 1: Successful students will analyze an important topic or idea at a more advanced and in-depth level than the foundations.**

**Please briefly identify the ways in which this course represents an advanced study of the 1**

In this context, “advanced” refers to courses that are e.g., synthetic, rely on research or cutting-edge findings, or deeply engage with the subject matter, among other possibilities. (50-500 words)



Course subject & number

**ELO 1.1 Engage in critical and logical thinking about the topic or idea of the theme.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**ELO 1.2 Engage in an advanced, in-depth, scholarly exploration of the topic or idea of the theme.** 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 integrate approaches to the theme by making connections to out-of-classroom experiences with academic knowledge or across disciplines and/or to work they have done in previous classes and that they anticipate doing in future.**

**ELO 2.1 Identify, describe, and synthesize approaches or experiences as they apply to the theme.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**ELO 2.2 Demonstrate a developing sense of self as a learner through reflection, self-assessment, and creative work, building on prior experiences to respond to new and challenging contexts.** 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

Specific Expectations of Courses in Lived Environments

**GOAL 1: Successful students will explore a range of perspectives on the interactions and impacts between humans and one or more types of environment (e.g. agricultural, built, cultural, economic, intellectual, natural) in which humans live.**

**ELO 1.1 Engage with the complexity and uncertainty of human-environment interactions.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

**ELO 1.2 Describe examples of human interaction with and impact on environmental change and transformation over time and across space.** 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 analyze a variety of perceptions, representations and/or discourses about environments and humans within them.**

**ELO 2.1 Analyze how humans' interactions with their environments shape or have shaped attitudes, beliefs, values 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)

**ELO 2.2 Describe how humans perceive and represent the environments with which they interact.** 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

**ELO 2.3 Analyze and critique conventions, theories, and ideologies that influence discourses around environments.** Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

