

EAS 1601 Syllabus

Habitable Planet, Section A (Lecture), 3 credits

Fall 2026

Instructor Information

Instructor: James Wray

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General Course Information

Description

This course will explore the history of the solar system and the Earth as the one currently known example of a habitable planet—one that can support living organisms. We will consider how stars, elements, and planets form, the important planetary processes that brought about the Earth as it was when life arose and have shaped its evolution as an inhabited planet over billions of years, and the science of searching for life beyond Earth. We will also explore the factors that shape the planet we live on today, and some of the physical and societal drivers that will potentially govern its future. This course is geared toward undergraduate students, and is meant to be both challenging and broadly accessible.

Course Learning Outcomes

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

- Understand the basics of how stars, elements, and planets form.
- Summarize the history of Earth and our solar system.
- Describe the main factors that affect a planetary body's potential for habitability.
- Summarize how Earth's climate has changed through time and describe how these changes impact Earth's habitability.
- Understand the basics of life as we know it on Earth.
- Outline how we are searching for life beyond Earth.

Required Course Materials

- Lecture: No textbook is required, although we recommend the book How to Build a Habitable Planet (2nd Ed.) by Charles Langmuir and Wallace Broecker (available from the Georgia Tech Barnes and Noble Bookstore). You will only be responsible for lecture and lab material in polls and assessments.
- Lecture and Lab: **OLI Torus** – this is an adaptive learning platform hosting the Habitable Worlds online content, integrated directly with the Lab Canvas site.

Grading Policy:

Students will be evaluated on their lecture attendance and participation, OLI Torus homework, labs, five in-class quizzes and an optional cumulative final exam.

Final letter grades will be assigned according to the following scale:

A	≥ 90.0%
B	≥ 80.0% and < 90.0%
C	≥ 70.0% and < 80.0%
D	≥ 60.0% and < 70.0%
F	< 60.0%

Assignments

- Participation, 10%
- Homework, 25%
- Labs, 25%
- Assessments, 40%

Description of Graded Components

- **PARTICIPATION (10%)** - Students will have the opportunity to interact with the instructor and other students during lecture via polls. Students need to participate in these activities **in at least 15 lectures** to receive the full credit, no exceptions.
- **LABS (25%)** - There will be lab activities that complement material discussed in lectures. See lab syllabus for more information about how your lab grade will be determined.
- **OLI TORUS HOMEWORK (25%)** - Throughout the semester, you will be tasked with completing **five modules** (equally weighted), which are designed to further explore concepts related to planetary science and habitable planets. They are intended to

supplement your knowledge and understanding of the course material. These will be accessible on Canvas.

- **ASSESSMENTS (40%, can replace 2 lowest scores with the optional final exam) -** There will be **five Canvas quizzes** (45 min each and equally weighted) that will evaluate students' comprehension of recent course topics. These will be posted under the Quizzes section of Canvas and will use **LockDown Browser**. The quizzes will be **open notes (1 piece of paper, not digital - typed or written, no printed images/figures)** and will be available **only in-person during regular class time** (unless accommodations have been discussed with the instructor). Assessments cannot be completed remotely from other locations besides our classroom or the Testing Center. Assessments may be composed of multiple choice, fill-in-the-blank, simple math calculations, matching, ordering, and short answer questions.
- **OPTIONAL FINAL EXAM (16%, can replace 2 lowest assessment scores—including any missed assessments) -** There will be an optional cumulative final exam at the end of the semester. You will have the option to complete the final exam to replace your two lowest quiz grades. This optional exam is scheduled according to the GT Final Exam Matrix for Fall 2026.
 - If all 5 assessment scores are kept: $5 \text{ quizzes} \times 8\% = 40\%$ of grade
 - If top 3 assessment scores are kept + cumulative final exam: $3 \text{ quizzes} \times 8\% + 1 \text{ final exam} \times 16\% = 40\%$ of grade

Course Policies

Attendance and/or Participation

Students will have the opportunity to interact with the instructor and other students during lecture by taking polls and assessments, asking questions directly, and participating in group discussions. Students need to attend and participate in Canvas polls **in at least 15 lectures** to receive full credit for participation. There are currently 24 lectures scheduled besides the 5 assessment days, so flexibility for student absences (including excused absences, late course additions or illness) has already been factored into this minimum requirement. Because of this, for regular lecture days, students do not need to provide documentation for their absence. Assessment days, when attendance is required, do not count toward the 15-lecture minimum. **If you miss an assessment, it will count as one of your two lowest scores that you can take the final exam to replace, unless an Institute-approved absence letter is provided to the instructor.**

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review [Georgia Tech's Honor Code](#) and the student [Code of Conduct](#).

Course materials are not to be archived anywhere online or in print, distributed, or provided to persons outside of this class.

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Core IMPACTS

This is a Core IMPACTS course that is part of the Technology, Mathematics & Sciences area. Core IMPACTS refers to the core curriculum, which provides students with essential knowledge in foundational academic areas. This course will help master course content, and support students' broad academic and career goals.

This course should direct students toward a broad Orienting Question:

- How do I ask scientific questions or use data, mathematics or technology to understand the universe?

Completion of this course should enable students to meet the following Learning Outcome:

- Students will use the scientific method and laboratory procedures or mathematical and computational methods to analyze data, solve problems and explain natural phenomena.

Course content, activities and exercises in this course should help students develop the following Career-Ready Competencies:

- Inquiry and Analysis
- Problem-Solving
- Teamwork

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, [contact the Office of Disability Services](#) (404-894-2563) as soon as possible to make an appointment

to discuss your special needs and to obtain an accommodations letter. Please also e-mail the instructor as early in the semester as possible to share any concerns or request a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. [The Student-Faculty Expectations](#) articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Extra Credit Opportunities

In fairness to all students, no personalized extra credit opportunities are offered in this course.

Extensions, Late Assignments, & Re-Scheduled/Missed Exams

OLI Torus assignments (lecture): For late or missing assignments, 5% of your score will be deducted each day. For example, if an assignment is due at 11:59PM, the next day starts at 12:00 AM and 5% will automatically be deducted. You will have up to **2 weeks (14 days)** from the original due date of an assignment to communicate with us to discuss possible accommodations for documented tech issues or [Institute-approved absences only](#) (contact Division of Student Life). If you do not communicate with the Lecture TA during this 14-day period, then the assignment cannot be completed for credit (you will receive a zero).

Assessments: If you miss an assessment due to an [Institute-approved absence only](#) (requires documentation), contact the instructor and Lecture TA before the assessment or within **2 days (48 hours)** of the original assessment date to schedule your Make-Up Assessment. The Make-Up assessment periods will be conducted by the Lecture TA up to a week from the original assessment date. After that week period, make-up assessments will not be administered. All other reasons for missing an Assessment will result in a zero and the final exam can be taken to replace this score.

For both OLI Torus assignments and assessments: Please contact the instructor and Lecture TA at the start of the semester if you anticipate being absent during the scheduled assessment dates or when assignments will be due (e.g., due to religious holidays, pre-approved professional activities) to work on a plan. For Institute-approved activities and emergencies (e.g., due to illness) students must obtain the appropriate approval from the

Institute (not from the instructor) and provide documentation for the absence. For regular lecture days, students do not need to provide documentation for their absence.

To acquire Institute-approved absence for approved activities/events please follow the instructions here: <https://iaa.gatech.edu/> Institute policy typically requires students to submit requests at least two weeks (10 business days) in advance of the scheduled event.

For absences due to illness or emergencies follow the instructions here: https://cm.maxient.com/reportingform.php?GeorgiaTech=&layout_id=5

Course Technology Requirements

We will also be using Canvas during the lectures and students must bring an electronic device (phone, tablet, laptop) to complete participation polls to get credit. On Assessment days, students must bring a scientific calculator and a laptop or tablet to complete assessments (cell phones cannot be used to complete quizzes).

Campus Resources for Students

Undergraduate Student Academic Success Resources:

A list of resources for undergraduate students' academic success and information about advising can be found at [Success at Tech](#).

- Academic Support: Academic Success and Advising (a unit in the Office of Undergraduate Education & Student Success) provides free support. Students can attend scheduled supplemental review (PLUS) sessions, stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at success.gatech.edu/tutoring, email us at tutoring@gatech.edu, or come see us at Clough Undergraduate Learning Commons, Suite 283.

Student Well-Being:

At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A [comprehensive list](#) of wellness-related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being.