

Course Information

Semester: Fall 2026
Course Number: EAS 1601
Course Title: Habitable Planet Laboratory
Section(s): T1, T3, T4, W1, W2, W3, W4, R1, R3, R4, F1
Time and Location: Kendeda 288
See Canvas for meeting times ([link](#))
Credit Hours: 1

Instructor Details

Instructor: Dr. Ryan North
Office: Ford ES&T 1254
E-Mail: ryan.north@gatech.edu
Office Hours: Available by appointment both in-person and on Zoom

Teaching Assistants: See Canvas ([link](#))

Course Description

Introduction to the origin and evolution of Planet Earth, creation of the universe and the elements, early history of Earth, radioisotope geochemistry, and the timing of events in the universe, the galaxy, and on Earth. Topics will also include the formation of the atmosphere and oceans and the forcings that drive our climate.

Course Learning Outcomes

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

- Explain how different wavelengths of electromagnetic radiation can be used to evaluate the habitability of a planet, including Earth. (Explain Natural Phenomena, Inquiry & Analysis, Solve Problems)
- Apply the scientific process by generating testable hypotheses, analyzing data, and drawing evidence-based conclusions to solve problems related to the origin and evolution of planetary systems. (Solve Problems, Inquiry & Analysis, Teamwork)
- Visualize and analyze data using Microsoft Excel (Analyze Data and Inquiry and Analysis)
- Construct graphs and charts in Microsoft Excel to visualize data, identify trends, and communicate scientific results effectively. (Analyze Data, Inquiry & Analysis)
- Evaluate the astronomical and planetary factors of the Drake Equation using data and models from the course to construct a scientific argument for the likelihood of habitable planets in our galaxy. (Solve Problems, Inquiry & Analysis, Explain Natural Phenomena)

Required Course Materials

- We will be using **Canvas** as our online learning management system.
- The required textbook for this course is: **OLI Torus HabWorlds** Online Content ([see Canvas](#)).
- A laptop is required as assignments will be submitted via Canvas during the in-class lab session. A limited number of laptops are available for use in the lab if you cannot bring your own device.
- You will also need access to **Microsoft Excel**.
 - It is highly recommended that students use the **downloaded** version of **Excel** (free to all GT students) and not the browser-based edition.
 - Google Sheets is discouraged as it offers less overall functionality and is less common in the workplace.

Grading Policy

- The final course grades will follow the standard grading scale:
 - $A \geq 90.0\%$
 - $B \geq 80.0\%$ and $< 90\%$
 - $C \geq 70.0\%$ and $< 80\%$
 - $D \geq 60.0\%$ and $< 70\%$
 - $F < 60\%$
- Grades will be based on:
 - Lab Assignments (70%)
 - Exoplanet Group Project (20%)
 - Pre-lab Quizzes (5%)
 - Attendance (5%)

Description of Graded Components

- **Lab Assignments (70%)** – There will be eight graded laboratory assignments throughout the semester. Most of the work for each assignment will be completed during the in-class scheduled lab time.
 - A small component of each lab assignment comes from OLI Torus. These may be finished outside of class and are due the Sunday (at 11:59 pm) following your lab section.
 - The lab that contributes most negatively to your final grade will be dropped. A zero for academic dishonesty will not be dropped.
- **Exoplanet Group Project (20%)** – There will be one group project assigned towards the last third of the semester. You will be tasked with creating a flyer pitching a potential new space mission to an exoplanet of your choosing.
- **Pre-lab Quizzes (5%)** – Each lab will have a pre-lab quiz designed to give you a brief introduction to key concepts needed to successfully complete the in-class lab. These are designed to take 20-30 minutes to complete, and you will have two attempts. The highest score will be counted.
- **Attendance (5%)** – Attending lab and being on time is crucial for ensuring success for yourself and your lab group. As such, attendance will be graded on a tiered system:
 - **5/5 points** – Student is present in the lab before the official start time.
 - **3/5 points** – Student arrives within the first 10 minutes of the official start time.
 - **0/5 points** – Student arrives more than 10 minutes after the official start time.

Extra Credit Opportunities

Extra credit available to the entire class may be offered at the sole discretion of Dr. North or your TAs, but there will be no individual extra credit opportunities available.

Late Work Policy

- Anything turned in, including extra credit, must be turned in on time. **Late work is not accepted.**
- For excused absences, as outlined by [student rule IV](#), students will be allowed to make up work missed during class.
- If an extenuating circumstance arises, please do not hesitate to contact Dr. North or your TAs as additional options may be considered.

Makeup Work Policy

- There are three make-up weeks baked into the schedule. Any student who is unable to attend lab due to an excused absence ([student rule IV](#)) will be able to complete the missed activity during one of these scheduled periods. This encompasses the pre-lab quiz, in-class lab assignment, and OLI Torus modules corresponding to the week of absence.
 - For example, if you miss Lab 2 due to an excused absence, you may make up the lab 2 pre-lab quiz, in-class assignment, and OLI Torus modules during the first lab makeup session during week 5.
- Per [student rule IV](#), if you have a religious observance, submit your absence request within the first two weeks of the semester.
- **For all excused absences**, please obtain approval from either the Office of Student Life or the Registrar's Office **and include that approval when you email your TAs.**

Course Schedule

The schedule below is tentative and subject to change:

Week 1 (24-Aug): No Labs (First Week of Classes)

Week 2 (31-Aug): Lab 1: Universe to Stars

Week 3 (07-Sep): Lab 2: Properties of Stars

Week 4 (14-Sep): Lab 3: Creating the Elements

Week 5 (21-Sep): Makeup for Labs 1–3

Week 6 (28-Sep): Lab 4: Exoplanet Detection

Week 7 (05-Oct): No Labs (Fall Break)

Week 8 (12-Oct): Lab 5: Planet Structure

Week 9 (19-Oct): Lab 6: Energy Balance and Atmospheres

Week 10 (26-Oct): Makeup for Labs 4–6

Week 11 (02-Nov): Lab 7: Earth's Thermostat and Climate

Week 12 (09-Nov): Lab 8: Habitability and Life

Week 13 (16-Nov): Exoplanet Project Planning

Week 14 (23-Nov): No Labs (Thanksgiving Break)

Week 15 (30-Nov): Project Presentations

Week 16 (07-Dec): Makeup for Labs 7, 8, and Exoplanet Project

Additional Course Information Items

Collaboration and Group Work

You will have many opportunities to collaborate with classmates and participate in group work throughout the semester. Strong teams discuss ideas to come to a shared understanding. Ensure that everyone is actively contributing.

Use of Generative AI

Overarching Philosophy:

Generative AI, such as ChatGPT and Gemini, is a powerful tool that is becoming integral to our professional and personal lives. In this class, we will approach AI as a **tool**, much like a calculator is a tool for making calculations. My goal is to help you become a skilled, ethical, and adaptable professional who knows how to leverage these tools effectively. I encourage you to experiment with AI's capabilities and learn its limitations.

Your Core Responsibilities:

- **You are the Author:** Your final submissions must be written in your voice, reflect your unique understanding, and be something you can stand behind and explain.
- **Fact-Check Everything:** AI tools can be confidently incorrect ("hallucinate"). You are responsible for the factual accuracy of all claims in your submissions. Submitting false information generated by an AI is the same as submitting false information you created yourself.
- **Transparency and Reflection are Mandatory:** You must disclose your use of AI. Every assignment will include a final question asking you to describe how you used AI and reflect on your experience. This is a critical part of your learning process.

How You Can Use AI (Examples):

- **Brainstorming and Outlining:** Generating ideas and a workflow for a paper or project.
- **Understanding Concepts:** Asking for explanations of complex topics in different ways or with new analogies.
- **Improving your Writing:** Checking for grammar, suggesting alternative phrasing, or summarizing a long passage you have already written.
- **Coding/Excel Assistance:** Getting help crafting Excel formulas or receiving step-by-step instructions on a particular feature.

The Key Question:

The line between acceptable and unacceptable use is determined by a simple principle: **are you using AI to *assist* your thinking or to *replace* it?**

- Submitting work generated by an AI tool as your own, without significant original contribution, revision, and transparency. For this class, the mandatory AI Usage Statement serves as the required form of citation/disclosure. Failure to disclose use or submitting work that is not your own is a form of plagiarism and a violation of the university's academic integrity policy.

My Use of AI in Creating this Syllabus:

- Gemini 2.5-Pro was used to check my grammar, spelling, and overall clarity.
 - As is common when asking AI to proofread, it only provides a handful of the errors present and a manual readthrough is still necessary.
- Gemini 2.5-Pro was used to help draft this AI statement. I wanted to ensure that my message was clear and properly portrayed my overall vision.
 - I like to give the AI my overall vision as a statement and then ask the AI to rate my policy from 1 (not aligned) to 5 (well-aligned). I then ask it for suggestions to better align my policy with my thoughts.

Lab Conduct

- For safety reasons, food and drink are **never permitted** inside the lab. If needed, you may step into the hallway and have a snack and/or drink before returning to the classroom.
- Many labs utilize incandescent light bulbs, which can become hot and burn. Please be careful when handling.
- Unprofessional or disruptive conduct will not be tolerated and could lead to you being asked to submit your lab as-is and leave the lab.

Student Use of Mobile Devices in the Classroom

- Some in-class activities will ask you to use your mobile device. When that activity concludes, put your mobile device away so that it does not become a distraction for you or those around you.
- If needed, you may step into the hallway to address urgent matters and return when able.

Student Wellbeing

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 ([student-resource-guide](#)).

University Policies

Attendance and/or Participation

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

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](#).

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 STEM 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 Outcomes:

- 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 me as soon as possible in order to set up 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.