Habitable Planet

Last Updated: Mon, 01/05/2026

Course prefix: EAS

Course number: 1601

Section: A

CRN (you may add up to five):
20341

Instructor First Name: Frances

Instructor Last Name: Rivera-Hernández

Semester: Spring

Academic year: 2026

Course description:

This is an introductory Astrobiology course. We 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 drivers that will potentially govern its future. This course is geared toward undergraduate students and is meant to be both challenging and broadly accessible. The course will draw upon lectures and laboratory exercises to enrich those lessons learned in class.

Course learning outcomes:

- Understand the basics for 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 long term habitability.
- Understand the basics of life as we know it on Earth.
- Outline how we are searching for life beyond Earth.

Required course materials:

You should bring a scientific calculator and an electronic device (laptop or tablets only) to access Canvas to complete course polls and assessments. No textbook is required, although we recommend the textbook *How to Build a Habitable Planet (2nd Ed.)* by Charles Langmuir and Wallace Broecker.

Grading policy:

Grading Breakdown: The students will be evaluated on in class participation (10%), assignments (25%), labs (25%), five assessments (40%), and an *optional* cumulative final exam which can substitute the two lowest assessment scores.

Grading scale: 90.00-100%=A; 80.00-89.99%=B; 70.00-79.99%=C; 60.00-69.99%=D; <60.00%=F. Grades in this course are not curved.

Late Policy: For a late or missing Assignment, 5% of your total score will be deducted per day. You will have up to 1 week (7 days) from the original due date of an assignment to communicate with us to discuss possible accommodations for university approved absences. For missed Assessments, due to an university approved absence only (requires documentation), contact the instructor and Lecture TA ASAP to schedule a time for your Make-Up Assessment. All other reasons for missing an Assessment will result in a zero and the final exam can be taken to replace this score.

Attendance policy:

Students will have the opportunity to interact with the instructor and other students during lecture taking review polls on Canvas and asking questions directly. Students will have to participate in these polls in at least **15 lectures** to receive full credit for course participation. There are currently 23 lectures scheduled (not including assessment days), and flexibility for student absences has already been factored into this minimum requirement. It is *strongly* recommended that students attend all lectures.

Academic honesty/integrity statement:

Students are expected to maintain the highest standards of academic integrity. All work submitted must be original and properly cited. Plagiarism, cheating, or any form of academic dishonesty will result in immediate consequences as outlined in the university's academic integrity policy.

Core IMPACTS statement(s) (if applicable):

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