

**SYLLABUS (preliminary)**  
**Earth, Planetary, and Space Sciences 3: Astrobiology**  
**Fall 2020**

**Zoom lectures with Q&A: TR 12:30 pm - 1:45 pm**  
**Videorecordings posted online after each lecture**

**Course Description:**

**Origin, evolution, distribution, and future of life on Earth and in the universe, including the search for biosignatures and technosignatures. Course material primarily from planetary and Earth science, paleontology and biology, astronomy, chemistry, and physics.**

Lectures (three hours/week) are supplemented with active learning exercises, in-class demonstrations, and weekly discussion sections (one hour/week).

**Instructors:**

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 5642 Geology  
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**Teaching assistants:**

TBD	Geology 1234	<u><a href="mailto:tbd@ucla.edu">tbd@ucla.edu</a></u>
TBD	Geology 1234	<u><a href="mailto:tbd@ucla.edu">tbd@ucla.edu</a></u>
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**Required textbook (\$11.95 on Amazon.com):**

David Catling “[Astrobiology: A Very Short Introduction](#)”, Oxford U. Press, 2014.

**EPSS 3 website:**

<https://ccle.ucla.edu/course/view/20F-EPSSCI3-1>

### Earth, Planetary, and Space Sciences 3: Astrobiology; Fall 2020

Readings are chapters from Catling's "Astrobiology: A Very Short Introduction".

Pre-recorded lectures are identified with <sup>PR</sup>.

Date	Lecture	Title	Reading
Thu Oct. 1	01 ALL	<i>Astrobiology</i>	1
Tue Oct. 6	02 JLM	<i>The Universal Context of Life</i>	2
Thu Oct. 8	03 JLM	<i>The Universal Context of Life</i>	2
Tue Oct. 13	04 JLM	<i>Building a Habitable Planet</i>	2
Thu Oct. 15	05 JLM	<i>Nature and Evolution of Habitability</i>	4, 6
Tue Oct. 20	06 TT	<i>The Origin of Life on Earth, Part I</i>	3-5
Thu Oct. 22	07 TT	<i>The Origin of Life on Earth, Part II</i>	3-5
Tue Oct. 27	08 TT	<i>Fossils of primitive Life Forms on Earth</i>	3
Thu Oct. 29	09 TT	<i>The Evolution &amp; Extinction of Life on Earth</i>	4, 5
Tue Nov. 3		<b>No class due to take-home midterm exam (lectures 1-9)</b>	
Thu Nov. 5	10 TT	<i>Limits of Life</i>	3, 5
Tue Nov. 10	11 TT	<i>Extremophiles on Earth</i>	3, 5
Thu Nov. 12	12 TT	<i>Search for Life beyond Earth</i>	1, 3
Tue Nov. 17	13 TT	<i>Mars</i>	6
Thu Nov. 19	14 TT	<i>Titan</i>	6
Tue Nov. 24		No class	
Thu Nov. 26		Thanksgiving break	
Tue Dec. 1	15 JLM	<i>Europa and Enceladus</i>	6
Thu Dec. 3	16 JLM	<i>Exoplanets</i>	7
Tue Dec. 8	17 JLM	<i>Search for Extraterrestrial Intelligence</i>	7
Thu Dec. 10	18 JLM	<i>Interstellar Travel, Relativity</i>	7
TBD		<b>Take-home final exam (lectures 10-18)</b>	

## GRADING

Students will be graded out of 100 points with the following weights:

Homework	40%
Take-home midterm exam	30% (multiple choice)
Take-home final exam	30% (multiple choice)

Extra credit worth 10 points can be obtained by visiting one of four local area museums' websites (see links below) and writing a 100-250-word paragraph about a museum item (e.g., object, specimen, instrument) of your choosing. Students completing the extra credit will be graded out of 110 points.

- 1) La Brea Tar Pits <http://www.tarpits.org/>
- 2) Natural History Museum <http://www.nhm.org>
- 3) California Science Center <http://www.californiasciencecenter.org/>
- 4) Griffith Observatory <http://www.griffithobservatory.org>

## ACTIVE LEARNING

We will promote active learning and participation during lectures with multiple choice questions that students can answer in real time within the Zoom platform. Participation is voluntary but strongly encouraged. This activity is not graded.

## DISCUSSION SECTIONS

Please refer to the UCLA Registrar's Office [Schedule of Classes](#) for the time and location of your discussion section.

## ZOOM OFFICE HOURS

TAs	Zoom link	TBD
Jean-Luc Margot	Zoom link	R 2:30 – 3:30 pm
Tina Treude	Zoom link	W 10:30 – 11:30 am

## COURSE OBJECTIVES

- (1) To learn about our origins and our connection to the universe. To develop an appreciation for Earth as a fragile planetary body in a vast cosmos.
- (2) To understand key principles and processes that govern the natural world. How did the universe, solar system, and organisms get to be the way they are?
- (3) To become familiar with the scientific process. To develop critical thinking skills and acquire tools for further inquiry and learning.

## THE FINE PRINT

You are responsible for all material covered in lectures or reading. A PDF version of the lecture notes will be posted on the course web page before each lecture.

Please make use of lectures, discussion sections, office hours, and the CCLE forum to ask scientific questions. Email communications should be reserved for administrative questions only.

Homework assignments will be posted on CCLE and will be due one week after posting. Late homework is not accepted. The two lowest grades on your homework assignments will not count against your final grade.

You are responsible for completing assignments and exams on your own. Seeking or obtaining outside assistance or collaborating with others is not permitted. Interacting with TAs is permitted.

Take-home exams will be assigned after lectures 9 and 18. Exams will be timed and you will have control of the start time within a 3-day window. There are no make-up exams.

The deadline for submission of the extra credit submission is on Friday of Week 10 at 11:59 pm PST.

**If you have a documented religious conflict with one of the exams and wish to discuss accommodations, please contact us as soon as possible, and no later than Oct 20.**

**If you have a documented disability and wish to discuss academic accommodations, please contact us (in addition to contacting CAE Proctoring!) as soon as possible, and no later than Oct 20.**

Academic integrity is expected at all times and violations will be reported to the Dean of students. Collaboration between students is never permitted except when explicitly allowed by the instructor. All students enrolled in EPSS 3 are expected to have read the relevant policies at <http://www.deanofstudents.ucla.edu/Portals/16/Documents/StudentGuide.pdf>

Title IX prohibits gender discrimination, including sexual harassment, domestic and dating violence, sexual assault, and stalking. Students who have experienced sexual harassment or sexual violence can receive confidential support and advocacy at the CARE Advocacy Office for Sexual and Gender-Based Violence, 1<sup>st</sup> Floor Wooden Center West, [CAREadvocate@caps.ucla.edu](mailto:CAREadvocate@caps.ucla.edu), (310) 206-2465. You can also report sexual violence or sexual harassment directly to the University's Title IX Coordinator, Kathleen Salvaty, 2241 Murphy Hall, [titleix@conet.ucla.edu](mailto:titleix@conet.ucla.edu), (310) 206-3417.