



## **Astr 120-01W Life in the Universe**

COURSE SYLLABUS: FALL 2021

### **INSTRUCTOR INFORMATION**

Instructor: Jeff Wilson, Adjunct Faculty

Office Location: None - Off campus

Office Hours:

YouSeeU-Virtual Classroom in D2L, [Wed, 8:30p-9:30p](#).

Office Phone: None. We will use features in myLeo for communication

University Email Address: [Jeffrey.Wilson@tamuc.edu](mailto:Jeffrey.Wilson@tamuc.edu)

Preferred Form of Communication: **email**

Communication Response Time: Before the end of the following business day

### **COURSE INFORMATION**

#### **Materials – Textbooks, Readings, Supplementary Readings**

##### **Required Books:**

- Life in the Universe, 4th Ed. by Bennett and Shostak, Pearson, eText version, ISBN 9780134287621, 9780134081656 or (Optional format: Loose-leaf) ISBN 9780134287621
- Access to Mastering Astronomy will be used and is required.

##### **Software Required:**

- Just a modern browser compatible with myLeo.

##### **Optional Texts and/or Materials**

Headphones for listening to online videos

### **Course Description**

*Hours: 3*

*The basic science of the search for evidence of life in the universe, including the origin and evolution of life on the Earth, terrestrial extremophiles, the history of the search for life in the*

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*Universe, the search for habitable environments in the Solar System, and the search for habitable (exo-)planets and signs of life around other stars.*

Are we alone in the Universe? In the 1500s, the Catholic Church executed a monk who dared to suggest the presence of other intelligent species living on other worlds, yet over the past century, popular culture has become littered with discussions of space faring civilizations being commonplace. But is life common? Is intelligent life common? What is intelligence, anyway? What is life?

Since the discovery of the first planets outside our Solar System in the mid 1990s, the science of astrobiology has grown by leaps and bounds. It is a very broad field that attempts to bridge biology, chemistry, geology, physics and astronomy under one monumental goal: the discovery of life elsewhere in the Universe.

In this course, we will explore the field of astrobiology. We will look at the necessary ingredients for life. We will learn about possible habitats for life in our own Solar System. We will explore how astronomers discover and study planetary systems around other stars. And we will end by discussing the probability of other civilizations in the Universe and how we might find them.

## **Student Learning Outcomes**

1. You will discuss the chemistry and origins of life on Earth.
2. You will employ knowledge of current and past life on Earth to identify criteria for habitability and life
3. You will identify potential habitats in our Solar System
4. You will calculate individual terms of the Drake Equation to estimate the number of intelligent civilizations in our galaxy
5. You will criticize proposed solutions to the Fermi Paradox

## **COURSE REQUIREMENTS**

### **Minimal Technical Skills Needed**

You will need to be able to access myLEO Online, the new learning management system, and be able to learn how to use it. You should also be able to read PDF documents. You should be able to create either Microsoft Word documents (.docx) or plain text files. You must be familiar with Internet usage and safe browsing. You need to be able to watch YouTube videos on a computer.

### **How To Get Started**

#### **myLEO Online Access Information**

This course uses myLEO Online, learning management system at A&M-Commerce. All materials, assignments, and resources will be made available through this system. To access this course, go to: <http://myleonline.tamuc.edu>. Log in with your myLEO account and password. Then click on the link to Fall 2021 – Life in the Universe to get to our course.

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## **How This Course Is Organized**

This course is organized by units. Some units will last just one week, but some units will cover multiple weeks. Some units cover one chapter in the text; some cover multiple chapters. You should check the course page on MyLeo Online often to see what Units and associated activities and assignments are coming due.

## **What Should You Do First?**

Review the course page on MyLeo and familiarize yourself with the structure, times/dates, resources, and read the entire syllabus. You should immediately get registered for Mastering Astronomy as this is sometimes a confusing and time consuming process. Finally, Look at the Unit 1 web page and consider digging in!

## **Instructional Methods**

### **Course pace**

While I realize that some online students prefer to complete a course as fast as possible and others like to wait several weeks and then do as much work as possible, these methods won't work with this course. This course has regularly scheduled due dates and late penalties will be applied to all work not submitted by the due dates.

The course is broken up into 12 units. *The onus is on you to keep up with deadlines through myLeo*. MyLeo has a Course Checklist tool to help you keep track of what you have and have not completed. If you go to the Course Home page and click on "Course Checklist" at the bottom you can access this tool.

### **Participation**

Because this course is an online course, participation options are limited. However, if the need arises, we may use threaded discussions or live meetings on D2L Brightspace. These will not be required but may help you to ask questions in an interactive manner. If email threads get too long, I may elect to move discussions to this forum.

### **SmartWork: Reading Quizzes and Homework**

SmartWork is an online astronomy homework and tutoring tool. Its advantages are that SmartWork will give you instant feedback on whether you got a question right or wrong and provide you with hints and tools to better learn the material.

I suggest the following strategy for learning the information: Skim the chapter in the text, looking at content not covered well in the textbook. Finally, re-read the chapter, in more depth this time.

### **Exams**

Three online exams will be given during the semester through D2L Brightspace and dates are already published in D2L. For the exams you may use whatever materials

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you like (text, homework solutions, internet searches, etc). However, the exams are *timed* and may only be taken once, so you will want to study the material well before taking the exam. The exams are not officially cumulative, but astronomy is a very intertwined science and topics covered on exam one will be required knowledge to answer questions on exam three.

*Makeup exams may only be taken under extenuating circumstances.* I will require documentation of the reason for the absence, and I reserve the right to reject any excuse. Do everything in your power take the exams during the scheduled time period or make arrangements before the exams close. There will be no makeup exam for Exam 3.

*If you are certified as needing special accommodations for examinations, please see me privately well before the exam with you letter of accommodation from the Student Disability Resources and Services office.*

### **Homework**

Homework will be assigned for each unit using Pearson's Mastering Astronomy.

Homework assignments will be assigned for each unit. These are intended to be the "capstone" of the unit; i.e. they should usually be the last thing you do in a unit. If you do the homework and find you still don't understand something, you definitely want to ask me about that topic in office hours or by email.

Each assignment carries the same weight as all other homework assignments. Late homeworks are penalized 10% per day, up to a maximum of 70%. After 7 days, any missing homework will receive a zero.

All assigned work is scheduled well in advance and are available to do and submit for extended periods of time. You are still responsible for completing all assignments on time, even if your absence is excused.

### **Quizzes**

Some units may have mini-lectures that you will be able to view. These videos are approximately 15 minutes each and will focus on one or two important points each.

Each video will be paired with a minilecture quizzes on D2L. The quizzes contain a few thought questions that allow you to check your learning to see if you understood the material and thought processes covered in the mini-lecture. These are an opportunity for you to begin to think about and work with the concepts before they show up on homework or exams without the pressure of getting a right or wrong answer. Some questions will be easy, some hard, and some will require you to put together more than one concept in order to figure out an answer.

The minilecture quizzes are not graded but allow you to check your learning in a no-

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pressure environment. Correct answers and brief explanations for the answers should be visible after you complete the response questions.

**There will be material covered in the reading that I will not cover in minilectures but yet will expect you to know. If a topic is not covered in a minilecture but appears on a reading quiz and/or homework, it may well appear again.**

### **Extra Credit:**

You have several options for extra credit. You may earn up to 5 points (i.e., 5%) credit that is added to your course average. Each item is weighted at 1 point, but some may earn additional credit based on effort (see specifics for each option).

**Visit a planetarium show:** The A&M-Commerce Planetarium exhibits several different shows every Friday night at 7pm and 8pm. Tickets are \$4 for children and university students (with ID), \$4.50 for senior citizens, and \$5 for adults. <http://www.tamuc.edu/planetarium/> has a current listing of shows. Family of any age is welcome to the planetarium shows; be sure to check on the age-appropriateness of shows (all are rated appropriate for all audiences, but typically the 7pm show is aimed at children and the 8pm show at teens and adults).

If you attend a show, tell the staff that you are a member of this class. The staff will have class rosters; you are responsible for making sure the staff mark down that you attended.

**Visit the Commerce Observatory:** You will have two opportunities for a visit to the Commerce Observatory (about 5 miles south of Commerce). On two evenings (dates to be announced), we will have telescopes set up to look at planets and other interesting objects in the night sky. At each session, there will be an activity you must complete in order to earn extra credit. One visit is sufficient. Times and transportation options will be announced closer to the event.

You may earn extra credit for each option above only once. In other words, if you do both options, you get 2% added on to your total calculated grade.

Additionally, there is a list of extra credit viewing exercises listed in a document called 'Observing Projects.doc' stored in the Doc Sharing folder on D2L Brightspace. Most will require at least minimal observations so you will need clear skies. Don't wait until the last days and expect clear skies – start early!

**All extra credit must be completed and turned by the last official class day before final exam week begins.**

### **Student Responsibilities and Tips for Success in the Course**

Students who do well in this course share most of the following common habits:

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- Arriving a couple minutes early for class and not leaving until class is dismissed.
- Not using phones, tablets, or computers during class
- Checking MyLeo often for announcements and assignments
- Completing all assignments on time
- Asking for help and advice early in the semester
- Taking responsibility for their own grade.

## GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

Grading is on an absolute scale with no competition. If you all earn an A, you all get an A. I may “curve” grades for specific assignments at my discretion; your percentage earned will never go down if I apply such a curve. Your current grades are available through the gradebook on myLEO Online – look for “Total Calculated Grade.” Any other gradebooks are not official.

Grades are based on a weighted system. The categories and weights are:

- Homework Assignments: 25% (lowest 2 scores dropped)
- Exams: 75% (25% each)

*If you miss assignments or quizzes:*

The following types of absences are excused if appropriate documentation is provided:

- Participation in a required/authorized university activity;
- Verified illness;
- Death in a student's immediate family;
- Obligation of a student at legal proceedings in fulfilling responsibility as a citizen

Additional absences may be valid at my discretion. All documentation for excused absences must be submitted via email. Work must still be turned in, but late penalties may be waived.

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# TECHNOLOGY REQUIREMENTS

## LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

[https://documentation.brightspace.com/EN/brightspace/requirements/all/browser\\_support.htm](https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm)

YouSeeU Virtual Classroom Requirements:

<https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

## ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or [helpdesk@tamuc.edu](mailto:helpdesk@tamuc.edu).

**Note:** Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

## COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

### Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

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## Interaction with Instructor Statement

### Email:

I can be reached by email at [Jeffrey.Wilson@tamuc.edu](mailto:Jeffrey.Wilson@tamuc.edu). Please put “Life in the Universe” in your email subject header. It may take me up to 24 hours to send you a response (48 hours on the weekend or holidays). If you don’t hear back from me in that time, please send another email.

**Office Hours:** Office hours are available only in virtual formats. Office hours are times that I set aside when I promise to be available real time so that you can talk to me. You can ask questions about the course material, ask about homework, see your current grade, or ask other questions about the class or astronomy in general. During virtual office hours, you’ll be free to ask questions when we get to that time.

It’s important to realize that office hours are *not* just for students who are having problems in the course. If you are uncertain about anything, please visit, email, phone or drop into virtual hours before your small problems grow into big ones. If you are worried about what might be on the test, stop in. If you are curious about astronomy jobs and research opportunities, come by.

Office hours work best if you have your textbook, notes, and homework with you.

If you want to talk but cannot come during office hours, please contact me by email in order to set up an individual appointment. By setting an appointment, you both guarantee that I will be in my office (or online) and that I will have plenty of time to talk with you. You may feel free to stop by my office any time my door is open, but if you do not have an appointment and if it is not my scheduled office hours, please understand if I’m not free to talk at that instant.

### Social Media:

Please don’t follow me on social media until after you’ve graduated. You’ll be disappointed anyway.

## COURSE AND UNIVERSITY PROCEDURES/POLICIES

### Course Specific Procedures/Policies

#### Academic integrity

A major goal of this and most every university course is for you to learn and appreciate subject material. Academic dishonesty (“cheating”) actively prevents you from achieving this goal. Academic dishonesty is taken seriously by the University and by me, and **will not be tolerated.** (See the TAMU-C Code of Student Conduct and the TAMU-C Procedures A 13.04, 13.12, 13.31, and 13.32.)

This conduct is not only considered wrong in this course and at this University, but also in the real world. Engaging in these activities will get you fired from a job and prevent

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you from getting another job.

Unethical student conduct includes:

- **Plagiarism**, or copying the words of others with the intent of making it look like your own. Whether you use someone else's phrase word for word, or whether you try and change a few words, or even if you just borrow someone else's original idea and don't give them credit, that's unethical. Use your own words whenever possible, give credit to wherever you got an idea, and put direct quotes inside quotation marks.
- **Cheating** involves trying to trick me or others into thinking you did work that you really didn't do, or into thinking you know what you really don't know. This can include stealing exams, changing your answers on a graded exam or assignment and claiming it was graded wrongly, putting your name on someone else's homework, and so on.
- **Searching the Internet for homework solutions and entering answers you find is considered cheating.** Searching the Internet for help on a topic is okay. For example, suppose a question asks, "Describe the life cycle of a star that has the same mass as the sun." Typing that phrase into Google and cutting and pasting the text in the answer box is considered cheating. Typing "star life cycles" into Google, reading a few web pages, and summarizing the information in your own words is not cheating.
- **Borrowing a previous student's homework, exams, or solution sets is considered cheating.** "Borrowing" includes looking at someone's submitted homework, screen shots, stealing returned homeworks, and so on.
- **Collusion** is working with another person to cheat. This can include copying someone else's answers to an exam or assignment, doing work for another student, buying or otherwise obtaining homework/exam solutions from any source online or off-line, or any other instance of multiple people engaging in some form of cheating or dishonesty. Working with other students on an assignment is fine as long as everyone contributes and each student does their own work.
- **Any other activity that, to a reasonable person, looks wrong.** If you have any doubt whatsoever whether a certain action is considered dishonest, please ask me *before* engaging in the activity. There is no need to be embarrassed about asking, and I won't penalize you for asking! In this class, if you follow the maxim "it's easier to beg forgiveness than to ask permission", don't expect forgiveness to be forthcoming.

***If you engage in academic dishonesty during any graded activity, you will receive no credit for that activity. More than one instance of dishonesty by a student will result in automatic failure of the course and referral of the student for disciplinary action.***

For further information, search the A&M-Commerce website for "academic integrity policy".

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Smartwork5 and myLEO Online provide me with tools that check for common forms of online cheating and collusion. These include, but aren't limited to: time stamps, location stamps, and automated comparison of essay answers. I will use these tools.

### **Administrative Withdrawal**

Although I have the right to drop you for excessive absences, I won't do so. You have a right to get an F if you decide to quit working but don't withdraw.

### **Assignment Policy and Due Dates**

Assignments and due dates will be posted in the MyLeo Online course calendar for each assignment. Submission requirements for each assignment will also be given on that page.

### **Dropping the Course**

You may drop this course by logging into your myLEO account and clicking on the hyperlink labeled 'Drop a class' from among the choices found under the myLEO section of the Web page.

### **Harassment Policy**

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here:

University Title IX Contact: James Vanbebber, 903-886-5996, <mailto:TitleIX@tamuc.edu>

### **University resource webpages:**

SAFE Team: <https://www.tamuc.edu/CampusLife/VictimAdvocacyandSupport/>

<http://www.tamuc.edu/CampusLife/CampusServices/studentRights/TitleIX.aspx>

<http://www.tamuc.edu/campuslife/campusServices/universityPoliceDepartment/crimePrevention/sexualAssault.aspx>

University Counseling Center: 903-886-5145,

<http://www.tamuc.edu/campusLife/campusServices/counselingCenter/default.aspx>

Campus police: <mailto:upd@tamuc.edu>, call 911 in emergency situations

### **External resources:**

Crisis center of NorthEast Texas: <http://www.ccnex.org>

Know your IX: <http://knowyourix.org>

End rape on campus: <http://endrapeoncampus.org>

Clergy Center for Security on Campus: <http://clerycenter.org>

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Not Alone: <http://changingourcampus.org/about-us/not-alone/>

### **Incompletes**

I only offer incompletes in extraordinary circumstances. Any student interested in an incomplete should contact me as soon as possible after the situation arises, and should keep in mind that I am not required to give you an incomplete and so may not offer you the opportunity. You should also know that you only have access to a myLEO Online course for two weeks following the final day of term.

### **Late Work**

Late assignments are penalized 10% for each day late (including weekends). After 7 days, late assignments will receive a zero. Exams may only be taken late by arrangement with the instructor and will also come the same penalty as assignments. Missed exams will receive a zero. The instructor has final discretion on whether to give a make-up exam. All work must be finished by the end of the day on the last day of classes.

### **Technical Issues**

Personal computer problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, many restaurants, Interstate Rest Areas, etc.

## **Syllabus Change Policy**

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

## **University Specific Procedures**

### **Student Conduct**

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx).  
<http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:

<https://www.britannica.com/topic/netiquette>

### **TAMUC Attendance**

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#).

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<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

### **Academic Integrity**

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

[Graduate Student Academic Dishonesty 13.99.99.R0.10](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

### **Students with Disabilities-- ADA Statement**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

#### **Office of Student Disability Resources and Services**

Texas A&M University-Commerce

Gee Library- Room 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: [studentdisabilityservices@tamuc.edu](mailto:studentdisabilityservices@tamuc.edu)

Website: [Office of Student Disability Resources and Services](#)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

### **Nondiscrimination Notice**

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

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## Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

## COURSE OUTLINE / CALENDAR

The course will cover many of the topics outlined below. The dates below may change. D2L will be the source of truth, so check with it often and watch your email for updates.

### 1<sup>st</sup> Block: Introductions and Life on Earth

- Unit 1: Introductions - Aug 30 – Sep 5 (with a Sept 12 due date)
- Unit 2: Does a Universe Full of Life Make Sense? (Chapter 1-3) – Sept 6 – Sep 12
- Unit 3: The Habitability of Earth (Chapter 4) – Sept 13 – Sep 19
- Unit 4: The Nature of Life on Earth (Chapter 5) – Sep 20 - Sep 26
- Unit 5: The History of Life on Earth (Chapter 6) – Sep 27 – Oct 3
- **Exam 1: 10/4-10/5**

### 2<sup>nd</sup> Block: Life in our Solar System

- Unit 6: Searching for Life in the Solar System (Chap 7) – Oct 4 – Oct 10
- Unit 7: Mars (Chapter 8) – Oct 11 - Oct 17
- Unit 8: Europa, Titan, and Enceladus (Chapter 9) – Oct 18 – Oct 24
- **Exam 2: 10/25-10/26**

### 3<sup>rd</sup> Block: Life Outside the Solar System

- Unit 9: Habitability (Chapter 10) – Oct 25 – Nov 3
- Unit 10: Detecting Exoplanets (Chapter 11) – Nov 4 – Nov 14

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- Unit 11: The Search for Extraterrestrial Intelligence (Chapter 12) – Nov 15 – Nov 23) (up to Thanksgiving Holiday)
- Unit 12: Interstellar Travel (Chapter 13) – Nov 24 – Dec 8 (extended duration due to Thanksgiving)
- **Exam 3: 12/9-12/10**

***All extra credit must be completed the Friday (12/10) of Exam 3 week.***

*Observatory Visits (Dates subject to change): See <https://new.tamuc.edu/planetarium/observatory/> for dates and times.*

Visits are optional and count as extra credit. Only one visit needs to be made to earn extra credit. Additional visits do not increase earned extra credit.

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