Astr 120 Life in the Universe
COURSE SYLLABUS: FALL 2019

INSTRUCTOR INFORMATION

Instructor: Dr. Kurtis A. Williams, Associate Professor
Office Location: Room 145, McFarland Science Building
Office Hours:
   Science 111: M 2:00-2:50
   Science 145: T 9:30-10:30
   W 9:30-10:30
Office Phone: (903) 886-5516
University Email Address: Kurtis.Williams@tamuc.edu
Preferred Form of Communication: email or Remind chat
Communication Response Time: Before the end of the following business day
Preferred Pronouns: He/his

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings

Required Books:
   • Life in the Universe, 4th Edition by Jeffrey O. Bennett and Seth Shostak. Access to Mastering Astronomy will not be used or needed.

Software Required:
   • Registration for Remind, FREE

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

The syllabus/schedule are subject to change.
*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, the new 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://myleoonline.tamuc.edu. Log in with your myLEO account and password. Then click on the link to Fall 2019 – 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 listen in class and check the course page on MyLeo Online often to see what activities and assignments are coming due.

What Should You Do First?
After attending class and reading this syllabus, you should proceed to the course page on MyLeo Online and familiarize yourself with the resources. Next, order the course materials if you haven’t yet. Get signed up for Remind. Finally, Look at the Unit 1 web page and consider digging in!

Remind Text Messaging
I have set up an SMS (text and/or email) account for brief messages, like reminders of due dates, updates on class events, and other crucial messages. You can also use this service to text message me during the semester. I expect you to subscribe to this service.

To register for text (SMS) updates, test "@astr120" (without quotes) to 81010 or (754) 333-5306. The service is free, but any standard messaging fees charged by your mobile provider will apply. To get email copies of any texts, such as if you don’t have texting or don’t want to pay for the messages, send a blank email to: astr120@mail.remind.com. The service is also private: nobody (including myself) will see your phone number or email, and only I can send messages to you.

Instructional Methods

Attendance and Participation
Research into how people learn shows that the best learning comes from interaction. Simply reading material and listening to me drone on won’t help you learn anything useful. To learn, you must take the material, work with it, and make it your own. I therefore will require you to participate actively in the course.

At times, the classwork in this course may be significantly different than those in many courses you have taken. Each class will consist of short lectures focusing on important concepts interspersed with various interactive activities. Your participation in these are key to your success in understanding the material.

For these reasons, attendance and class participation are mandatory and will count toward your final grade. I realize that most of you are not comfortable speaking up in front of a large group of people, so class participation will come in a variety of forms, including interactive polling, small group discussions, and short in-class assignments. These in-class activities are graded primarily on whether you make an effort to participate. There is no penalty if you get an answer wrong, but correct answers may receive a small amount of extra credit.

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Attendance and participation grading policy:
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 the appropriate link on D2L.

You are still responsible for completing all assignments on time, even if your absence is excused. You should complete any in-class activities within a reasonable time frame, and you are responsible for all material we cover in class while you are gone.

Merely maintaining a corporeal presence in the classroom does not you credit for attendance and participation. If you do not participate in in-class activities, or if you are not paying attention in class, or if you are disruptive to class, then you will not earn attendance credit for the day.

Exams
Two midterm exams will be given during the semester; dates for these will be announced in class well in advance. The midterms will focus on material covered since the previous exam, but many topics are interrelated, so topics from previous exams will come up again. There will also be a cumulative final exam during the scheduled final exam slot.

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 to be present for an exam. There is no makeup exam possible for the final exam.

For all exams, you may also bring a “cheat sheet” up to a half page of 8.5x11 inch paper in size with whatever hand-written information you’d like. No other books, backpacks, calculators, computers, iPods, headsets, cell phones, PDAs, tricorders, etc. will be permitted. Using any aids other than your cheat sheet will result in you being removed from the exam and a grade of a zero.

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. Homework will be distributed in class; due

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dates will be announced when it is distributed. 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.

The following are considered cheating and will not be tolerated: Searching for answers on the internet, obtaining copies of solutions to homework questions (whether from past students or other sources), directly copying another student’s work, etc. See the section on “Academic Integrity” below for full details.

Quizzes
Short in-class quizzes will be held at the start of the class period whenever pre-class reading and/or videos are assigned. Missed quizzes cannot be made up.

Extra Credit:
The only extra credit available in this course are the two options below. If you fully complete an option, you will earn 1% extra credit on your total calculated grade. You may earn extra credit for each option only once. In other words, if you do both options, you get 2% added on to your total calculated grade. There are no other options for extra credit. All extra credit must be completed and turned in by 11:59pm on Friday, November 29.

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.

Student Responsibilities and Tips for Success in the Course
Students who do well in this course share most of the following common habits:
• Arriving a couple minutes early for class and not leaving until class is dismissed.
• Not using phones, tablets, or computers during class

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• 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.” The gradebook on Smartwork5 is not official.

Grades are based on a weighted system. The categories and weights are:
• Classroom Participation: 15%
• Homework Assignments: 30% (lowest score dropped)
• Quizzes: 10% (lowest score dropped)
• Midterm Exams: 25% (12.5% each)
• Final Exam: 20%

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

YouSeeU Virtual Classroom Requirements:

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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.

**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

**Interaction with Instructor Statement**

**Email:**
I can be reached by email at Kurtis.Williams@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 or give me a call.

**Texts and Email Announcements:**
I have set up an SMS (text and/or email) account for brief messages, like reminders of due dates, updates on class events, and other crucial messages. I expect you to make use of this service.

To register for text (SMS) updates, test “@astr120 (without quotes) to 81010 or (754) 333-5306. The service is free, but any standard messaging fees charged by your mobile provider will apply. To get automated email copies of any texts (like if you don’t

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Office Hours: Office hours are available in both real-world and virtual formats. Office hours are times that I set aside when I promise to be in my office so that you can come by and talk to me. During real-world office hours, 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 sets 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 you from getting another job.

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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/Victim Advocacy and Support/
http://www.tamuc.edu/CampusLife/CampusServices/studentRights/Title IX.aspx
http://www.tamuc.edu/campuslife/campusServices/universityPoliceDepartment/crimePrevention/sexualAssault.aspx


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

**External resources:**
Crisis center of NorthEast Texas: http://www.ccnetx.org
Know your IX: http://knowyourix.org
End rape on campus: http://endrapeoncampus.org
Clery 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, otherwise 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.

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

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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/academic/13.99.99.R0.01.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
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, so pay attention to announcements for final due dates.

1st Block: Introductions and Life on Earth

- Unit 1: Does a Universe Full of Life Make Sense?
  - Bennett and Shostak Chapter 1-3
- Unit 2: The Habitability of Earth
  - Bennett and Shostak Chapter 4
- Unit 3: The Nature of Life on Earth
  - Bennett and Shostak Chapter 5
- Unit 4: The History of Life on Earth
  - Bennett and Shostak Chapter 6
- Exam 1

2nd Block: Life in our Solar System

- Unit 5: Venus and the Runaway Greenhouse
- Unit 6: Mars
  - Bennett & Shostak Chapter 8
- Unit 7: Europa, Titan, and Enceladus
  - Bennett & Shostak Chapter 9
- Exam 2

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3rd Block: Life Outside the Solar System

- Unit 8: Habitability
  - Bennett & Shostak Chapter 10
- Unit 9: Detecting Exoplanets
  - Bennett & Shostak Chapter 11
- Unit 10: The Search for Extraterrestrial Intelligence
  - Bennett & Shostak Chapter 12
- Unit 11: Interstellar Travel
  - Bennett & Shostak Chapter 13

All extra credit must be completed by Friday November 29.

FINAL EXAM: TUESDAY DEC 10TH, 10:30AM-12:30PM

Observatory Visits (Dates subject to change):
- Thursday Oct 3, 8:00-9:30pm
- Tuesday Nov 5, 6:30-8:00pm
- Thursday Nov 7 (if necessary), 6:30-8:00pm

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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