

# Syllabus For Astr 202

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Welcome to Astronomy 202

## Life in the Universe

Spring 2018, section 1, *Honors Only*

**Professor:** Laird Close, N428 Steward Observatory,  
email [lclose@as.arizona.edu](mailto:lclose@as.arizona.edu)  
(when emailing please add Astr 202 in the subject line)  
Office hours MW 3-4 PM in my office after class

**TA:** Melissa Halford, office Dome 215 Steward Observatory Dome, ground floor  
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Office hours Tuesdays 3-4 and Thursdays 10-11

## Introduction to the Course

This course satisfies the Gen. Ed. Natural Sciences Tier 2 requirement and is intended for mainly non-science majors.

In this course we will explore how the Universe, Sun, and Earth were formed. How the first life on Earth started. How this life evolved into complex multi-celled species. We will outline, what appear to be, the necessary conditions for life to exist and thrive. We will study where in our solar system there could be life. We will learn about other planets outside our solar system orbiting other stars. We will examine these new worlds for possible habitable zones. We will also estimate how likely it is that we could communicate with another intelligent civilization, and how such communication could be possible. We will also examine issues such as space travel, terraforming, and the evolution of civilizations. **The emphasis of the course is on understanding**, not on pure memorization.

## Background Preparation

Recommended Prerequisites: either Gen. Ed. Natural Sciences (NATS) 170 level (like Astr 170A, B, or C). Students that have not taken a tier 1 Gen-Ed science course might have difficulty with this material. Students that have taken Astr 170A or 170B "The Physical Universe" will be more familiar with some of the material in this course, but it is not required to take "The Physical Universe" before this course.

The concepts of simple geophysics, basic chemistry, and astronomy are fundamental to understanding the information presented in this course. *If you have not been*

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*exposed to these concepts before, you might wish to study them immediately in a general textbook like that used at the Gen Ed. Astr 170A1 or 170B1 or 170B2 level. You should also be familiar with very basic algebra, fractions, and scientific notation. This course will also require frequent out of class work, as well as independent research. **A strong interest in the course material is the best prerequisite!** You should have a small inexpensive calculator at your disposal (one that does powers, roots, and trigonometric functions). *Please seek help in-class (or office hours) when you encounter a concept that you do not understand.**

### **Textbook**

The textbook for this course is the course guide for Professor Close's "[Life in Our Universe](#)" that also has a set of 24 high-quality lectures on a set of DVDs or internet streaming. All available for purchase from the Great Courses website. *Students that are enrolled in Astr 202 can purchase these DVDs at a much reduced (70% off) rate – written instructions on how to do this will be given first day of class.* You must order these DVDs (in order to receive the printed textbook) to attend this class (you can also choose to stream the lectures on-line if you don't have a DVD player). **These lectures will form the core lectures of the course. Students are expected to watch the relevant lecture and complete the (straightforward) lecture homework before coming into class.** The homework is due at the very start of class (**no late homework will be accepted**). In this manner class time will be used to help you really learn the material at a deeper level with personal help "coaching" from the Professor and the TA during class time (unlike what is possible in your other large classes at Arizona). This allows everyone to do better in this course than just a classical lecture class could allow.

### **Evaluation**

Your grade in this course will strongly depend on your participation/attendance in class. The exact breakdown is:

Observing/writing/group project (20%),  
Monday and Wednesday homework exercises (25%),  
Friday in-class quizzes (25% in total),  
Midterm 1 exam (15%),  
Midterm 2 exam (15%).

There is no FINAL EXAM in this section of Astr 202

Both exams are closed-note and will consist of multiple-choice and short written answer questions. Your grades will be available always throughout the course on the "desire-to-learn" D2L server (logon from student link). The final course grades:

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≥90% of the total number of points available you will receive an A,  
≥75% B,  
≥60% C,  
≥50% D,  
below 50% an E.

### **Group Project: Astronomical Observing on the 21 inch Campus Telescope**

The observing project (using groups of 2 students each) will be detailed later in the semester.

The grades for this project will be based mainly on individual effort. Students that do not help their group (or use copied text in their work without quotations and citations) will be awarded a grade of Zero. Grades will be strongly based on the individual efforts, observing work, and individual report.

### **Policies**

- *Do your own work.* Modern science is collaborative, and people learn from talking to each other. Feel free to talk to the instructor, TA, or other students about homework assignments. But the work you turn in must be your own -- **don't ever copy assignments.** Copying is cheating and will be handled according to university policies. The instructor subscribes to the University's Code of Academic Integrity. The Code prohibits all forms of academic dishonesty, including cheating, plagiarism, and facilitating dishonesty by others. The repercussions for all of those found guilty of violating the Code will include loss of credit for the work (grade=0) and may include failure of the course or more extreme measures as needed.
- *Attendance, participation, and conduct.* Attendance and participation in class and in your group are an important part of your class grade. **Students who are absent will have difficulty passing this course -- attendance of all the classes is critical in this class since it is this work that counts for much of your grade.** You should participate in class by asking questions. Eating or drinking is not permitted in the lecture hall. Talking is also prohibited unless you want to ask a question during lecture or unless you are preparing a presentation with your group during the discussion sessions. People talking during lectures will be asked to leave. *No cell phone use, reading newspapers, or surfing the web allowed during class. Students that break these rules will be asked to leave. Cell phones will be returned at the of the class.*

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- *Late Assignments. No credit, WITH NO EXCEPTIONS, will be given for late work.* Because we want to be fair to those that turn in work on time, we will not accept late work. The “lecture homework” is due **at the start of class** – no late work will be accepted. There is an absolute deadline for homework. If you are concerned about not being able to turn in your work, feel free to turn it in early! We will accept homework at any class meeting prior to the deadline. Please do not email homework, only the paper copies handed out will be graded (do not email homework it will not be graded). Your lowest quiz and lowest homework will be dropped from your final grade.
- *Missed Quizzes and exams. No makeup quizzes, WITH NO EXCEPTIONS, will be administered.* The exams/quizzes are already scheduled and posted on the class schedule. If you know that you will miss an exam (before the exam), you must make arrangements (only for extremely rare circumstances) for an oral exam at a time and date prior to the written exam. If you can see a conflict for religious reasons please tell the professor within the first 3 weeks of class, all the quizzes, midterms, and finals are clearly scheduled below, after the first 3 weeks have passed no exceptions will be made.
- *Students requiring special accommodation* in testing or note taking must notify Prof. Close and must deliver to Prof. Close the Disability Resource Center faculty letter within the first few days of the course
- *Grading.* You have one week from the time an assignment or exam is returned to challenge any perceived errors. Although rare, there are occasions when grading errors occur, and you should review your returned work. Note that the lowest quiz and lowest homework grade will be dropped from your final grade.

### Web Site

The course website in on D2L it includes the active syllabus, schedule, special announcements, and other course materials.

Other Important Notes about this class:

### Absence and Class Participation Policy

The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at: <http://catalog.arizona.edu/2015-16/policies/classatten.htm>

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, <http://policy.arizona.edu/human-resources/religious-accommodation-policy>.

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Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See:

<http://uhap.web.arizona.edu/policy/appointed-personnel/7.04.02>

Participating in this course and attending lectures and other course events are vital to the learning process. As such, attendance is required at all lectures and discussion section meetings. Students who miss class due to illness or emergency are required to bring documentation from their healthcare provider or other relevant, professional third parties. Failure to submit third-party documentation will result in unexcused absences.

## Threatening Behavior Policy

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See <http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>.

## Accessibility and Accommodations

Our goal in this classroom is that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcome to contact the Disability Resource Center (520-621-3268) to establish reasonable accommodations. For additional information on the Disability Resource Center and reasonable accommodations, please visit <http://drc.arizona.edu>.

## Code of Academic Integrity

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: <http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>.

The University Libraries have some excellent tips for avoiding plagiarism, available at <http://www.library.arizona.edu/help/tutorials/plagiarism/index.html>.

*Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent.* Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA e-mail to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.

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## **UA Nondiscrimination and Anti-harassment Policy**

The University is committed to creating and maintaining an environment free of discrimination; see <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

## **Subject to Change Statement**

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor. The most current version will always be posted on D2L.

Sun	Mon	Tue	Wed	Thu	Fri	Sat
7	8	9	10	11	12	13
			<p>First Class</p> <p>2pm - Class rm</p> <p>3pm - Prof. Office</p>	10am - Melissa (TA)	<p>Astronomy review</p> <p>2pm - Class rm</p> <p>3pm - Prof. Office</p>	
14	15	16	17	18	19	20
	<p>no Class</p> <p>2pm - Class rm</p> <p>3pm - Prof. Office</p>	3pm - Melissa Office	<p>Lecture 1</p> <p>2pm - Class rm</p> <p>3pm - Prof. Office</p>	10am - Melissa (TA)	<p>Quiz 1</p> <p>2pm - Class rm</p> <p>3pm - Prof. Office</p>	
21	22	23	24	25	26	27
	<p>HW2 DUE</p> <p>Lecture 2</p> <p>2pm - Class rm</p> <p>3pm - Prof. Office</p>	3pm - Melissa Office	<p>HW3 DUE</p> <p>Lecture 3</p> <p>2pm - Class rm</p> <p>3pm - Prof. Office</p>	10am - Melissa (TA)	<p>Quiz 2</p> <p>2pm - Class rm</p> <p>3pm - Prof. Office</p>	
28	29	30	31	1	2	3
	<p>HW4 DUE</p> <p>Lecture 4</p> <p>2pm - Class rm</p> <p>3pm - Prof. Office</p>	3pm - Melissa Office	<p>HW5 DUE</p> <p>Lecture 5</p> <p>2pm - Class rm</p> <p>3pm - Prof. Office</p>	10am - Melissa (TA)	<p>Lecture 6</p> <p>Quiz 3</p> <p>2pm - Class rm</p> <p>3pm - Prof. Office</p>	

Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30	31	1	2	3
	HW4 DUE Lecture 4 2pm - Class rm 3pm - Prof. Office	3pm - Melissa Office	HW5 DUE Lecture 5 2pm - Class rm 3pm - Prof. Office	10am - Melissa (TA)	Lecture 6 Quiz 3 2pm - Class rm 3pm - Prof. Office	
4	5	6	7	8	9	10
	HW7 DUE Lecture 7 2pm - Class rm 3pm - Prof. Office	3pm - Melissa Office	HW8 DUE Lecture 8 2pm - Class rm 3pm - Prof. Office	10am - Melissa (TA)	HW9 DUE Lecture 9 midterm review NO QUIZ 2pm - Class rm 3pm - Prof. Office	
11	12	13	14	15	16	17
	Midterm review 2pm - Class rm 3pm - Prof. Office	3pm - Melissa Office	MIDTERM 1 2pm - Class rm 3pm - Prof. Office	10am - Melissa (TA)	HW10 DUE lecture 10 2pm - Class rm 3pm - Prof. Office	
18	19	20	21	22	23	24
	HW 11 DUE lecture 11 2pm - Class rm 3pm - Prof. Office	3pm - Melissa Office	HW12 DUE lecture 12 2pm - Class rm 3pm - Prof. Office	10am - Melissa (TA)	midterm results Quiz 4 2pm - Class rm 3pm - Prof. Office	
25	26	27	28	1	2	3
	HW13 DUE lecture 13 2pm - Class rm 3pm - Prof. Office	3pm - Melissa Office	HW14 DUE lecture 14 2pm - Class rm 3pm - Prof. Office	10am - Melissa (TA)	Quiz 5 Start Group Projects 2pm - Class rm 3pm - Prof. Office	



Sun	Mon	Tue	Wed	Thu	Fri	Sat
25	26	27	28	1	2	3
	HW13 DUE lecture 13 2pm - Class rm 3pm - Prof. Office	3pm - Melissa Office	HW14 DUE lecture 14 2pm - Class rm 3pm - Prof. Office	10am - Melissa (TA)	Quiz 5 Start Group Projects 2pm - Class rm 3pm - Prof. Office	
4	5	6	7	8	9	10
	No Class		No Class		No Class	
11	12	13	14	15	16	17
	HW15 DUE lecture 15 2pm - Class rm 3pm - Prof. Office	3pm - Melissa Office	HW16 Lecture 16 2pm - Class rm 3pm - Prof. Office	10am - Melissa (TA)	Quiz 6 2pm - Class rm 3pm - Prof. Office	
18	19	20	21	22	23	24
	HW17 DUE Lecture 17 2pm - Class rm 3pm - Prof. Office	3pm - Melissa Office	HW18 DUE Lecture 18 2pm - Class rm 3pm - Prof. Office	10am - Melissa (TA)	Quiz 7 2pm - Class rm 3pm - Prof. Office	
25	26	27	28	29	30	31
	HW19 DUE Lecture 19 2pm - Class rm 3pm - Prof. Office	3pm - Melissa Office	Lecture 20 no HW 20 2pm - Class rm 3pm - Prof. Office	10am - Melissa (TA)	Quiz 8 2pm - Class rm 3pm - Prof. Office	

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
	HW21 DUE Lecture 21 2pm - Class rm 3pm - Prof. Office	3pm - Melissa Office	HW22 DUE Lecture 22 2pm - Class rm 3pm - Prof. Office	10am - Melissa (TA)	Quiz 9 2pm - Class rm 3pm - Prof. Office	
8	9	10	11	12	13	14
	HW23 DUE Lecture 23 2pm - Class rm 3pm - Prof. Office	3pm - Melissa Office	Lecture 24 no HW24 2pm - Class rm 3pm - Prof. Office	10am - Melissa (TA)	Midterm 2 Review 2pm - Class rm 3pm - Prof. Office	
15	16	17	18	19	20	21
	Midterm 2 2pm - Class rm 3pm - Prof. Office	3pm - Melissa Office	Midterm 2 Results 2pm - Class rm 3pm - Prof. Office	10am - Melissa (TA)	invited Lecture 2pm - Class rm	
22	23	24	25	26	27	28
	Work on Group 2pm - Class rm	3pm - Melissa Office	Finish-up Group 2pm - Class rm	10am - Melissa (TA)	Questions on Group 2pm - Class rm	
29	30	1	2	3	4	5
	Hand in Projects! 2pm - Class rm	3pm - Melissa Office	last Class, group 2pm - Class rm			

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	1	2	3	4	5
	Hand in Projects! 2pm - Class rm	3pm - Melissa Office	last Class, group 2pm - Class rm			
6	7	8	9	10	11	12
					POST FINAL GRADES	
13	14	15	16	17	18	19