

NOTE: ASTR 200 STARTS ON JUNE 28TH

ASTRONOMY 200LG - SUMMER 2023 (ONLINE INSTRUCTION) PRELIMINARY SYLLABUS

***** Please make sure to contact me ASAP if you were not present on the first day of class or enrolled late for the course*****

Please note that all dates and times listed below are in Pacific Daylight Time (PDT), which is GMT-7 during the summer session

Prof. Vahé Perroomian

Email address: peroomia@usc.edu

Office hours: Mondays, Tuesdays and Wednesdays after class as necessary, *and by appointment*

Office Hours Zoom Meeting Room: <https://usc.zoom.us/my/peroomian> (or Meeting ID 972 4034 151)

Welcome to Astronomy 200: Life in the Universe! One of the oldest and most intriguing questions posed by humankind is “are we alone?” In the Twenty-First century, this question has gained new meaning and impetus as we find scores and scores of planets orbiting other stars, and begin in earnest to search for life not just in our Solar System, but in our galaxy and in the vastness of the Universe. As a first step, we will explore how the Universe came to exist, how our Solar System formed, and our place in the Universe. We will go beyond this, however, as we define life (as we know it), explore the necessary ingredients for the existence and persistence of life, and the evolution of life on Earth. Finally, we’ll examine the Solar System and nearby stars for the possibility of the existence of life, discuss interstellar travel, the Search for Extraterrestrial Intelligence, and the Fermi Paradox.

This course is designed specifically for those non-science majors who have very little, if any, background in the sciences and mathematics. The course is non-mathematical by prerequisite, but you will have to learn to do some calculations for the lab portion of the course.

1. TEXTBOOK AND OTHER RESOURCES

This course does not have a textbook. Instead, I will be providing PDFs of my lecture PowerPoints and detailed study guides for each topic we cover, in addition to sample exams for each of the midterms and final exam for this course.

Astronomy on the Internet

There is a vast amount of information (and lots of pretty pictures) on the internet. I’ve listed some of these sites on a separate list published on Blackboard. You can also find many more sites by simply Googling the specific topic you’re looking for. Also, Wikipedia is considered a (mostly) reliable source for astronomy, so don’t shy away from using Wikipedia in your web searches.

2. GUIDELINES.

2.1 Registration and administration

Your registration for this course consists of two separate parts: the lectures and the laboratory. You must register for each of them. *The Undergraduate Physics Office in ACB 439 deals with all administrative aspects of this class. Additional help regarding administrative issues is available in that office in person, by phone at (213) 740-1140 and by email at physics@dornsife.usc.edu.*

2.2 Disabilities

We want you to succeed in this course. Students who need to request accommodation based on disability are required to register each semester with the Office of Student Accessibility Services (OSAS). This office can be found at STU 301 with phone number 213-740-0776. A letter of verification to the instructor from OSAS is needed for the semester you are enrolled in. If you have any further questions please contact the OSAS office or the instructor. **Please note that you need to send the instructor a copy of your accommodation letter as the instructor doesn't automatically receive this information.**

2.3 Grading

Your grade will be determined according to the following key:

80% lectures:

10% Homework

40% Midterms (best two out of three, 20% each)

30% Final exam

20% laboratory

Broadly speaking, grading is done by the distribution curve of the combined scores of exams, homeworks and lab. No rigid percentage marks (such as, e.g., a rule that 90% corresponds to an A–, or similar) are used. Further details about the grading procedure are given in class. **You cannot pass the course if you do not earn a passing grade (14/20 or 70%) on the lab portion of the course.**

Students taking the course Pass / No Pass must reach a minimum overall score of 70% to pass the course, regardless of the manner in which letter grades are assigned to students taking the class for a letter grade.

2.4 Attendance

Attendance is **not** mandatory in this course. All lectures will be recorded and will be available via under “USC Zoom Pro Meeting” section of Blackboard, under the “Cloud Recordings” tab (you need to log in to usc.zoom.us with your USC credentials in order to watch the recordings).

2.5 Exams

There will be three 50-minute midterm exams and one 80-minute final exam. On the date of each exam, the exam will become available on Blackboard (under Assignments) from 8:00am to 8:00pm (Pacific). All exams are open book and open notes, and open Internet. You are not allowed to obtain the “live” assistance of others during exams.

Of the three midterms, only the scores of the two highest will be counted, and the score of the lowest of the three will be dropped. The midterms will cover the course material incrementally throughout the semester, and the final exam will cover the whole course. **Please note that makeup exams will only be given in case of a documented medical emergency.**

2.6 Homework

Homework will be assigned via Blackboard and will consist of review questions for each topic. Homework assignments will be due every week, at midnight on Fridays (Pacific time). Homework can be turned in up to 24 hours late for 50% credit. Please note that exceptions will not be made to homework deadlines, except for medical emergencies.

I expect that it will take a couple of hours to complete each of your homework sets. The homework sets are the central means by which to master the course material, and, consequently, to perform well in the exams

Homework will count for 10% of your total score. Each of the 5 assignments listed below will be worth 60 points, and a cumulative score of 240 out of the maximum 300 points will equate to a 100% homework grade (this is equivalent to, but better than, dropping one homework as you can use all 5 assignments to reach the 240 points).

Homework Schedule

Homework #1	Due: Friday, July 7, 2023
Homework #2	Due: Friday, July 14, 2023
Homework #3	Due: Friday, July 21, 2023
Homework #4	Due: Friday, July 28, 2023
Homework #5	Due: Friday, August 4, 2023

2.6 Laboratory

The course Astronomy 200 has a **mandatory** laboratory component, and you should already be signed up for one of the laboratory sessions. The purpose of the laboratory is to give you some feeling for making and interpreting observations, thereby reinforcing some of the course material by direct experience. Indeed, without such experience, some of the theoretical material could appear a little too abstract. Another purpose is that you can get some hands-on experience in using a telescope: Often one can see spectacular pictures taken from large telescopes around the world or from the Hubble Space Telescope (HST) and you might be curious about what is possible from a small, but good “amateur” telescope.

Note that late registration in the course will NOT excuse you from any labs you’ve missed, and you must contact the Lab Director, Joseph Vandiver (SGM 309; Phone: (213) 740-8889; Email: vandiver@usc.edu) IMMEDIATELY if you’ve signed up late for the course.

I hope that our laboratory will enhance your experience and enjoyment of this course. Please appreciate the great logistical complexity of arranging laboratories for so many people with such a broad variety of backgrounds: I therefore kindly request your good will and patience in this enterprise.

Questions concerning the laboratory should be referred to the Lab Director, Joseph Vandiver (SGM 309; Phone: (213) 740-8889; Email: vandiver@usc.edu).

All of the labs for this course will be conducted online. During your first lab meeting, on June 28 or 29, your lab TA will conduct a Zoom meeting and will go over the details and mechanics of the labs. The TA will also share the schedule for labs and their due dates.

A full lab schedule will be posted in the course syllabus before the class begins.

Labs become available at 8:00am on first day and must be completed and submitted via blackboard by midnight on the second day. For example; for the MW sections Experiment #1 becomes available on June 29th at 8:00am Pacific time and must be submitted via the lab Blackboard section by June 30th *before* midnight Pacific time. For the TT sections, Experiment #1 becomes available on June 30th at 8:00am Pacific time and must be submitted via the lab Blackboard section by July 1st before midnight Pacific time.

3. SUPPORT

You have a variety of opportunities for support available to you.

3.1 LECTURE

Do not underestimate the value of questions during the lecture period. In large lectures, many students are reluctant to pose questions that they fear might seem silly to their instructor or to their peers. Almost always, if one student asks a question, there are several other students who were wondering about the same issue. Often such questions tell the instructor what material might benefit from a more detailed discussion.

3.2 INSTRUCTOR OFFICE HOURS

I will have office hours at the end of lecture on Mondays, Tuesdays, and Wednesdays each week, and will meet with students as long as necessary. You can also make an appointment to talk to me if you cannot make it to any of the office hours listed on the first page of the syllabus. In this case, it is best to contact me by email at least one day before you’d like to meet, or see me immediately after class.

3.3 ELECTRONIC ASSISTANCE

Everyone registered in this course should find a link to the course in their *Blackboard* account. All information about the course will be posted on *Blackboard* at <http://blackboard.usc.edu>.

At this address, you will find this Syllabus, important announcements, homework sets, etc. Solutions to your homework sets (after the due date) will be placed on *Blackboard*.

4. OBTAINING YOUR GRADES

You will be able to access your grades in Astronomy 200 via *Blackboard* at <http://blackboard.usc.edu>.

5. FACULTY LIAISON

All courses in the Department of Physics & Astronomy have an assigned Faculty Liaison to serve students as a confidential, neutral, informal, and independent resource when they wish to discuss issues concerning their course without directly confronting their instructor. The Faculty Liaison for this course is Prof. Jack Feinberg (feinberg@usc.edu, 213-740-1134, SSC 327).

6. FEEDBACK

Feedback regarding all aspects of these lectures is very much appreciated and welcome at any time. Please get in touch with your instructor via email, after lectures, or during office hours.

7. STATEMENT ON ACADEMIC CONDUCT AND SUPPORT SYSTEMS

7.1 ACADEMIC CONDUCT:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

7.2 SUPPORT SYSTEMS:

Student Counseling Services (SCS) – (213) 740-7711 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. engemannshc.usc.edu/counseling

National Suicide Prevention Lifeline – 1 (800) 273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. engemannshc.usc.edu/rsvp

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: sarc.usc.edu

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class. equity.usc.edu

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. studentaffairs.usc.edu/bias-assessment-response-support

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations. dsp.usc.edu

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. studentaffairs.usc.edu/ssa

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. diversity.usc.edu

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible. emergency.usc.edu

USC Department of Public Safety – UPC: (213) 740-4321 – HSC: (323) 442-1000 – 24-hour emergency or to report a crime.

Provides overall safety to USC community. dps.usc.edu

8. SOME USEFUL DATES

June 28	Summer Session 051 classes begin
July 4	Independence Day (holiday, no classes)
July 6	Last day to add this class
July 11	Midterm 1
July 20	Midterm 2
August 1	Last day to drop class with mark of “W”
August 1	Midterm 3
August 8	Final Exam

9. COURSE SCHEDULE

Week	Start date	Required reading
1	6/28	Topic 1: A Universe of life? Topic 2: A brief history of astronomy
2	7/3	Topic 3: The scientific revolution Topic 4: Matter and light Topic 5: A tour of the Solar System
3	7/10	Topic 6: Formation of the Solar System Topic 7: Age of the Solar System Topic 8: Birth of the Universe Topic 9: The habitability of Earth Topic 10: Climate Change

4	7/17	Topic 11: Life on Earth Topic 12: Origin and evolution of life on Earth Topic 13: Searching for life in the Solar System
5	7/24	Topic 14: Mars Topic 15: The Sun and Space Weather Topic 16: Surveying the sun and stars Topic 17: The life cycle of stars
6	7/31	Topic 18: Extrasolar planetary systems Topic 19: The nature and evolution of habitability Topic 20: The search for extraterrestrial intelligenc
7	8/7	Topic 21: Interstellar travel Topic 22: The Fermi paradox