

# Astronomy 301: Introduction to Astronomy

## *Course Information*

### Contact Information

<b>Instructor:</b>	Prof. Stella Offner 15.312A PMA (RLM) Help Hours: Tu/Th 11 am	
<b>Teaching Assistants:</b>	Jinsong Liu 16.304B PMA (RLM) Wed 11-noon or by appointment	Nandhini Kumar 6.304B PMA (RLM) Mon 10-11 or by appointment
<b>Class Time/Location:</b>	Tu/Th 2-3:30, PAI 3.02	
<b>Course Website:</b>	<a href="http://canvas.utexas.edu">http://canvas.utexas.edu</a>	
<b>Course Email:</b>	UTastro301@gmail.com	

### Description

*Astronomy 301* is a course about the Universe, including planets, stars, galaxies and cosmology. We will see how physical principles can be used to study places that we may never visit and to understand events billions of years in the past and future. There are three main goals in the course:

- that you learn where, when and what we are in the cosmic scheme of things,
- that you understand how science works and how we know what we know, and
- that you gain skills in critical thinking and science to evaluate new ideas.

One question we cannot answer is *why* the Universe is the way it is. But we hope that you gain some new insights into this ultimate question and decide what it means to you.

*Prerequisites:* This course has no prerequisites. AST 301 is intended to meet the requirements for the Core Component Area Natural Science and Technology and may be combined with AST 309G, 309L, 309N, 309R, or 309S for a six-hour Core sequence. The concepts will be primarily qualitative, though there will be a small amount of algebra. This course is for non-science majors. See the “Memo for Undergraduate Astronomy Students Regarding Astronomy Courses”: <http://www.as.utexas.edu/astronomy/education/memo.html>. It is also uploaded to Canvas.

### Textbooks

- Required:
- (1) *Lecture-Tutorials for Introductory Astronomy* (LT) by Prather, Slater, Adams & Brissenden, 3rd Edition
  - (2) *Astronomy* by Franknoi, Morrison & Wolff.

Each class you will complete a lecture-tutorial from LT. I do not recommend renting LT, because you will be writing directly on the pages.

*Astronomy* is a **FREE** introductory astronomy textbook. A low-resolution version is available on Canvas. Or you can download it from:

<https://openstax.org/details/books/astronomy>

*Astronomy* covers a wide variety of material and contains links to additional learning resources. We will cover a subset of the chapters, but I encourage you to take advantage of the supplementary content.

If you would like a printed copy of the textbook, you may buy one from the University Co-op “print on demand” that includes the chapters for which there is assigned reading. A black & white printed copy is \$44.00 and a copy with color images but black & white text is \$104.15. Purchasing either of these from the co-op is **OPTIONAL**.

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## Class Structure

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*Overview:* The semester is divided into five parts, with a quiz at the end of each:

1. The View from a Spinning Rock (Lectures 1-5)
2. Exploring the Solar System (Lectures 6-10)
3. The Lives of Stars (Lectures 11-15)
4. Anybody else out there? (Lectures 16-19)
5. The Cosmic Web (Lectures 20-24)

This course combines short lectures with discussions and group activities. You will learn better if you participate so *attendance is required*. A typical class will contain:

- Astronomy “Coffee”: some interesting astronomy fact, quick activity or news item to wake you up.
- Brief review of the previous class and Q&A
- 20-30 minute lecture on new material
- Lecture tutorial carried out in groups of 2-3, followed by class discussion.
- Two-minute paper and quiz question: what did you learn? what questions do you still have?

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## Grading

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*Grading Components:*

- **Homework** (30%). Each assignment will be completed or submitted online through *Canvas*.
- **Class Participation** (18%). Grades are computed based on in-class “two-minute” paper completion and a daily quiz question.
- **Quizzes** (52%). There will be five in-class quizzes, each worth 13%. The lowest quiz score will be dropped.

*Extra Credit:* Extra credit opportunities will be announced throughout the semester.

This class will **not** be graded on a curve. The average percentage in each of these grade components will be weighted by the above percentages to derive the final course grade, which will be assigned as follows (where the numbers represent the percentage of total points):

93-100 = A	90-92.9 = A-	
87-89.9 = B+	83-86.9 = B	80-82.9 = B-
77-79.9 = C+	73-76.9 = C	70-72.9 = C-
67-69.9 = D+	63-66.9 = D	60-62.9 = D-
	< 59.9 = F	

Grades will not be rounded.

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## Homework

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There will be 6 homework assignments. The first and last homeworks are comprehension surveys to find out what you know (HW1) and what you have learned (HW6) about astronomy. The first is graded on completion not correctness; the final survey grade (HW6) is graded 50% for completion and 50% for correctness (for example if you get half correct, your HW score will be 75%). Homeworks 2-5 are observing and writing activities related to the material we cover in class. See lecture schedule for deadlines.

*Homework Grading:* Homeworks 1-5 will be graded on a scale of 3 with possible values of 3 (exceeds expectations), 2 (meets expectations), 1 (below expectations) or 0 (no credit). A score of either **2 or 3** receives *full credit*. A score of 1 corresponds to half credit and a score of 0 receives no credit. In other words: a score of 2 or 3 earns 100% (5% of the class grade) and a score of 1 earns 50% (2.5% of the total class grade). Here are some examples:

<b>You have:</b>	<b>HWs 1-5:</b>
Five HWs with a score of 2 or 3	100%
Four HWs with a 2 or 3, one HWs with a 1	90%
Three HWs with a 2 or 3, two HWs with a 1	80%
Four HWs with a 2 or 3, one HW with a 0	80%
Three HWs with a 2 or 3, three HWs with a 1	70%
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## Class Participation

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*Class will be interactive and we will be working in small groups on short activities.* I will not collect these. However, each lecture will include **one collaborative quiz question** on the class material and a **two-minute paper** in which you summarize the main things you learned. You will complete these **on an 3x5 inch index card you hand in**. Each will be worth 3 points: 1 point for the quiz question and 2 points for the two-minute paper questions. There are no right or wrong answers on the two-minute papers, so everyone who completes it will receive a 2 out of 2. *Bring an index card with you each class!* Starting week 2, two-minute papers not on index cards will *not be accepted*.

The two-minute papers allow you reflect on the class material and practice *retrieval*, which education research shows helps retention and reinforces new concepts. Your two-minute paper responses are also helpful to me – they allow me to identify the main points you learned and areas of confusion you have. I will answer two-minute paper questions in the Q&A in the following class.

I will drop the three lowest in-class participation scores (this includes absences). In-class participation will begin for credit the third lecture (the second week of class).

During class we will also use the flash cards handed out in the first class. *Please bring your flash card with you to each class!* If you loose your flash card, you can download a new one from Canvas.

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## Quizzes

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*Quiz Format:* There will be **five in-class quizzes**. They will be non-cumulative and there will be no final. Quiz questions are multiple choice, although I reserve the right to add a short answer question. The quizzes will cover 4 or 5 lectures as indicated on the lecture schedule. I will drop the lowest quiz score.

A practice quiz will be posted beforehand. There will be a short review and opportunity to ask questions in the first 30 minutes of class the day of the quiz. Education research shows that more frequent, low-stakes testing is more effective for student learning.

**Bring an ID and #2 pencil to each quiz.** No baseball caps or hats will be allowed. All tests will be closed-book.

*How should I study?* To do well on the quizzes it is important that you study effectively – see “Make it Stick” summary video. A module has been posted with concrete suggestions for effective quiz studying. Check it out!

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## Absences and Make-Ups

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*Missing Lectures:* In class activities are a central part of the class, so **participation is required**. No adjustments will be made for missing a regular class. However, a few absences will not effect your grade because I drop the 3 lowest scores. In the case of extended absences, you must provide official documentation within a week of returning from the absence.

*Missing Homework:* **Late homeworks will not be accepted**, since they can be completed over a range of dates. If you do not complete an assignment for emergency reasons, complete the assignment within 3 days of the due date and contact us by email to explain the circumstances. I may accept the late work with or without a penalty at my discretion.

*Missing Quizzes:* **There will be no makeup quizzes**, so if you miss one, that is the one dropped. If you miss two quizzes, one will count as a zero.

*Religious Observances:* By UT policy, you must notify me of your pending absence at least 14 days prior to the date of observance of a religious holy day. If you must miss a quiz or homework deadline in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time.

*Emergencies and University Closings:* If an emergency occurs (death in the family, hospitalization), you must contact me as soon as possible and provide documentation within one week. In case the University closes on the date of an in-class quiz, the quiz will take place during the next regularly scheduled class period.

*Floating Class Vacation Day:* One class in April has been reserved as a transition day to allow time for the substitute teaching instructor to prepare once I begin family leave. The specific date will be announced through Canvas. It *will not* take place on a scheduled Quiz day – with the exception of University closings all Quizzes will take place on the day noted in the lecture schedule.

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## Posting of Grades

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To protect the privacy of your grades, they will be posted to Canvas.

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## Class Policies

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*Communications:* The course webpage on the Canvas system will be updated with course announcements, supplementary resources and deadlines. *It is your responsibility to check these on a regular basis.*

It is your responsibility to keep track of the **administrative deadlines** for dropping the course, changing to Pass/Fail etc.

*Email is recognized as an official mode of university correspondence;* therefore you are responsible for reading your email for university and course-related information and announcements. Please

check your email regularly and frequently.

All inquires you have should be directed to *our class email address UTastro301@gmail.com or through Canvas (cc the TA)*, which reaches both myself and the TAs.

*Courtesy:* Do not pack up or leave class early unless you have talked to me in advance, as a consideration to me and your fellow students.

*Phone use and texting during lecture and group activities will not be tolerated.* Make sure your phones are silenced before class begins. Students using their phones will be asked to leave and will not earn participation that day.

*Laptops and tablets* will be permitted for taking notes electronically. However, it is *not permitted to use laptops for non-class activities* – this is a distraction to nearby students. Students found to be using their computers for non-class activities will be asked to leave and will not earn participation that day. If laptop distraction becomes a problem, I reserve the right to reverse this policy.

*Travel:* As part of my duties as a professor I am a professional research astronomer, which sometimes requires travel during the semester. I will do my best to minimize the impact of this travel and maintain communication while away from Austin. When I am gone, another UT astronomer will lead the class in my place.

*Syllabus Changes:* I reserve the right to make changes to the syllabus and class schedule if necessary. If any changes are made they will be announced through Canvas and new versions will be uploaded.

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## Academic Honesty

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*Cheating* is highly destructive. It corrodes the academic environment and cheapens the value of your education. I will not tolerate cheating, nor should you. If you are aware of any cheating, or if you are unsure if a practice is academically honest, speak to me. Cheating on a quiz will result in a zero for that quiz.

*Plagiarism* is defined as using another's words or ideas without credit. This includes copy-pasting text from a source without using quotation marks *and* including the source reference. Written assignments (e.g., the homeworks) will be evaluated by turnitin.com, which compares the uploaded document with internet sources, past student papers, and other common information resources. Plagiarized assignments will receive a zero.

The University of Texas policy on academic honesty and plagiarism can be found on the **Student Conduct and Academic Integrity website**: <http://deanofstudents.utexas.edu/conduct>

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## Students with Disabilities

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Students with documented disabilities are encouraged to request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities (512-471-6259). <http://diversity.utexas.edu/disability/>. Please provide proper documentation from the SSD Office at the **beginning** of the semester.

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## Diversity, Equity and Inclusion

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**Astronomy belongs to all people**, independent of race, religion, gender, gender identity, gender expression, or sexual orientation. Incidents of discrimination, assault, harassment, threats, intimidation, profiling, or coercion based on membership or perceived membership will not be tolerated.

Please see <https://cmhc.utexas.edu/wellbeing/universityresources.html> for a list of student resources. Note all faculty members, including myself and your undergraduate major advisors, are also resources.

The University of Texas President's statement of community values can be found here: <http://equity.utexas.edu/presidents-statement/>