46830 AST 301 - Introduction to Astronomy
MWF 11:00 – 12:00• WEL 3.502

Instructor: Judit Györgyey Ries
Office hours: Monday 1:30 -3:00, Thursday 11:00 - 12:30 in RLM 13.134, or by appointment

Teaching Assistants
Mukul Bhattacharya: Friday 3:30 - 5:00 in RLM 17.304
Nicholas Miller: Wednesday 2:30 - 4:00 in RLM 13.126

Textbook: Investigating Astronomy, T.S. Slater and R.A. Freedman (2nd or 1st edition, or e-book)

Course Description:

This course will provide an overview of astronomy, including basic physical concepts, planets, stars, galaxies, and cosmology. We will focus on conceptual understanding, rather than memorization of facts, although you do need to remember some fundamental ones. You will learn how science works, and develop critical thinking skills while you gain insight into how the Universe works. These skills should help you understand news about incredible scientific discoveries, whether they are true, or just a hoax.

I am an observational astronomer, and as such need to travel to McDonald Observatory to conduct my research. I expect to miss 4 classes, but the course schedule will not be interrupted.

Course requirements

There is no pre-requisite for this course. Some familiarity with interpreting formulas is necessary, but it is a skill we will practice in class. Attendance and participation is required, and they will count as part of your grade, as in-class, interactive learning activities will be an important part of this course. Research into how people learn shows that active discussions, verbalizing your thoughts helps you in understanding and retaining the material. You will be working in small groups of 2 to 4 people, discussing questions posed during the class. The course material will emphasize observation and theory which when combined gives us insight into the operation of the natural world. These interactive discussions will help you reinforce the concepts, help you complete your homework assignments and prepare for the exams.

You need to bring **3x5 index cards** into each class, and your **voting card,** which you need to download from Canvas and print.

Class Website: All class communication will be through Canvas at canvas.utexas.edu. Your student e-ID will give you access to the site. You can also send e-mail to me, your TAs, or you can start class related discussions. You will be submitting the essay type assignments through Canvas also.

Homework: There will be about 8 to 10 homework assignments including a Moon journal and one longer essay (2 pages). I encourage you to discuss the homework with classmates, and work on it together. However, you must write what you turn in on your own, using your own words. Duplicate works will not receive credit. Just because you missed the deadline do not give up on the homework. If you submit it until 2 days past the deadline you will receive 75% credit, if you are not more the 4 days late you still get 50%.

You will need to complete the homework through Sapling learning but submit the essays type questions through Canvas. See the instructions on how to register for Sapling below.

> **Moon Journal:** Go outside find and sketch the Moon for at least 10 clear nights over the space of one month. Draw the phase as accurately as you can and include any nearby stars. Do not forget to label the phase (waxing/ waning, new/quarter/full) for each drawing. Make sure you give the time of the observation, as well as the location of the moon in the coordinate system of your choice (i.e., high in the southern sky, low in the SW, etc.). Create a booklet of your drawings turn it in to complete your assignment.

Essay: Find a recent astronomy news item, not older then about half a year you would like to discuss. In your writing include an introduction to the topic; what is the importance of the new finding, how the new observations or analyses have led to the current discovery; and what are some of the remaining questions in this area. Your work should be two pages, use 12 point font, double spaced, with citations appearing on a third page. Add your name and EID at the top.

The Moon Journal and the recent news essay can be turned in anytime after completion, but the latest date is May 4.

Grading scheme:

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

Exams: There will be four in-class written exams, and a comprehensive final exam for the course. Make up exams will be given only under exceptional circumstances; however, you are allowed to miss one of the four exams (or drop the one with worst score). Before each test I scheduled a 1h 30min review session to help you with the preparation. I recommend that you send your questions to us through Canvas, so we can focus on what you really need.

You can expect some surprise quizzes during each lecture, except on exam days. The surprise is, when the quiz will be during the class. You need to turn in you answer on the index card. All quizzes and exams will be closed book and closed-note.

Grades: Grades will be based on attendance and in class participation (10% of the grade), home works (**25%**), and the three in class exams (**40%**) and the final exam (**25%**). Please note, that you need to pass the final exam to pass the course. Also, having perfect attendance can gain you a full grade. (You are allowed to miss 4 classes – including the exams - out of 44 without any explanation to have perfect attendance. You can make up for one missed class by attending a Star Party. See at the end of the syllabus).

Extra credit assignments will not be an option for this course, just come to class and participate. If you missed a class, or need to clear up some concepts, come to our office hours, we will be there for you.

Sapling Learning

To access the homework and to create an account, (and pay the $40 fee the first time), please follow the instructions from Sapling that are available here:

http://www2.saplinglearning.com/help/student-single-sign

In short, what you have to do is:

– Log into Canvas
– Go to the homepage for this course
– On the left side, click on the "Assignments" link
– Click on "AST 301 Homework"
– Click on the button "Load Sapling Homework in a new window"
– Follow instructions to create an account, or log in.

If you have any problem with registering, or not subject related problems with the homework please contact Sapling directly at support@saplinglearning.com

Course Conduct

Please put your cell phones on airplane mode before you enter the classroom, unless you have a legitimate reason to expect a phone call. Then set it on "vibrate", answering it only in case of an emergency. Also, as consideration for your fellow students stay till the end of the class early unless you have talked to me in advance about leaving.

Academic Dishonesty: The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Standards for Academic Integrity are posted at

http://deanofstudents.utexas.edu/sjs/conduct.php.
The penalty for cheating on an exam is serious; you will get a total score of zero.

Plagiarism: As a research university, the University of Texas at Austin takes plagiarism very seriously. The consequences of getting involved in a plagiarism infraction are simply not worth it. Always cite your sources, and when in doubt consult a professor or librarian. You may also read more about plagiarism at the Student Judicial Services website:

http://deanofstudents.utexas.edu/sjs/acamdemicintegrity.html

Documented Disability Statement: Please notify me of any modification/adaptation you may require accommodating a disability related need. The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact Services for Students with Disabilities at 471-6259 (voice) or 232-2937 (video phone) or

http://www.utexas.edu/diversity/ddce/ssd

Religious Holidays: By UT Austin policy, you must notify the professor of a pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

Department of Astronomy Ground Rules: The Department of Astronomy has ground rules for all of its undergraduate courses. They are described in the document "Memo to Undergraduate Astronomy Students Regarding Astronomy Courses," which is available online at

http://www.as.utexas.edu/astronomy/education/memo.html

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.

Course Schedule

Tentative date	Subject	Book chapter
January 20	Introduction - Getting acquainted	
January 22	Navigating the sky, Daily motion	Chapter 1
January 25	Yearly motion, Seasons	Chapter 1
January 27	Lunar phases/Eclipses	Chapter 1
January 29	Electromagnetic Spectrum Waves	Chapter 2
February 1	Spectrum and composition	Chapter 2
February 3	Spectrum and motion	Chapter 2
February 5	Telescopes	Chapter 2
February 8	The multicolor Universe	Chapter 2
February 10	**Exam 1**	
February 12	Ancient Astronomy	Chapter 3
February 15	Copernicus and Galileo	Chapter 3
February 17	Brahe and Kepler	Chapter 3
February 19	Newton's laws and gravity	Chapter 3
February 22	Solar System overview	Chapter 4
February 24	Small bodies	Chapter 4
February 26	Solar System Formation	Chapter 4
February 29	Spheres of Earth	Chapter 5
March 2	The structure of the Earth	Chapter 5
March 4	**Exam 2**	

Tentative date	Subject	Book chapter
March 7	Altering our planet	Chapter 5
March 9	Comparative planetology	Chapter 6
March 11	Altering our planet	Chapter 6
March 14-19	**Spring Break**	
March 21	Giant planets - Jupiter and Saturn	Chapter 7
March 23	Giants planets - Uranus and Neptune	Chapter 7
March 25	Satellite systems	Chapter 7
March 28	Life beyond Earth	Chapter 8
March 30	Search for other planets	Chapter 4
April 1	**Exam 3**	
April 4	The Sun's energy production	Chapter 9
April 6	Structure of the Sun	Chapter 9
April 8	Solar Activity - Space weather	Chapter 9
April 11	Measuring stellar distances	Chapter 10
April 13	Properties of distant stars	Chapter 10
April 15	Organizing the stars	Chapter 10
April 18	Basics of Stellar evolution	Chapter 11
April 20	Low and medium mass stars	Chapter 11
April 22	**Exam 4**	
April 25	High mass stars	Chapter 12
April 27	Stellar systems - our galaxy	Chapter 13
April 29	Surveying other galaxies	Chapter 14
May 2	Classifying other galaxies	Chapter 14
May 4	The evolving of the universe	Chapter 15
May 6	Evidence for our theories	Chapter 15
TDB	**Final Exam**	**Comprehensive**

Scheduled Review Sessions

Tuesday, February 09	5:00PM - 6:30PM	RLM 7.124
Thursday, March 03	5:00PM - 6:30PM	ETC 2.132
Thursday, March 31	5:00PM - 6:30PM	ETC 2.132
Wednesday, April 20,	5:00PM - 6:30PM	SZB 296

Stargazing at UT

The Astronomy Department provides opportunity for viewing the night sky from campus. You can improve your attendance record by participating in one of them. If you like it, you can go back again but you can make up only for one missed class. All you need to know can be found at:

http://outreach.as.utexas.edu/public/viewing.html