

 UNIVERSITY OF NORTH TEXAS®	University of North Texas College of Science Physics PHYS 1062 Section 400 Stars and the Universe
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Instructor and Course Contact Information

Instructor	Ohad Shemmer
Office	EESAT-220C
Email	ohad@unt.edu
My Online Office Hours	Thursdays, 10:00am – 11:00am Zoom Link: https://unt.zoom.us/j/3613706301
Lab Contact	TA: Harum Ahmed TA Email: HarumAhmed@my.unt.edu
TA Tutoring Hours	Wednesday 2:00 – 3:00
Technical Support UIT Helpdesk	940-565-2324 Sage Hall 130 helpdesk@unt.edu
University of Mars Support	Direct Support: info@theastroventure.com

Course Description

This introductory astronomy course offered by the UNT Physics Department provides a brief history of astronomy, gives an overview of the techniques and principles important in astronomy, and examines the life cycle of stars and galaxies in the known universe.

The course includes projects and laboratory exercises and may be used to satisfy the University Core Curriculum requirement for Life and Physical Sciences.

Core Category: Life and Physical Sciences

TCCN: PHYS 1404

Credit: 3 hours (3; 2)

Pre-requisites

None

Course Objectives

To engage students in an investigation of astronomy in a more active way so that they will achieve a greater understanding. To cultivate in students a heightened sense of excitement about recent developments in the field at the same time as teaching basic concepts. To convey the idea that astronomy has relevance to many people, through appreciation of beauty of astronomical objects.

By the end of this course, students will be able to:

- describe the position of the Earth in the Universe, in orbit around the Sun which is one of many stars traveling around the center of the Milky Way galaxy that is one of billions and billions of galaxies in the Universe
- describe why the Sun shines and why stars come in different colors
- give a brief history of the universe from the beginning of the Big Bang expansion to the formation of galaxies, stars, and planets
- assess the connections between human life and the universe as a complex, orderly system
- apply basic scientific principles to explain everyday phenomena
- recognize science as a process through which we seek to understand the world around us
- apply the critical thinking, empirical and quantitative skills needed to solve scientific problems
- express their scientific ideas in clear, logical, organized, and concise ways
- effectively communicate within small groups
- evaluate scientific validity as life-long learners
- to understand and have interest in newspaper and magazine articles on astronomy written for the public.

Required Materials

Text, Homework, and Study Guide: *University of Mars* through University of North Texas *Canvas* system.

Projects: Access to Slooh telescopes and Quests through University of North Texas *Canvas* system.

University of Mars assistance: info@theastroventure.com or via Zoom between 9am and 11pm seven days a week at:

<https://us06web.zoom.us/j/9390303105?pwd=ZW1BL3o3dnNhVGM1amZCS2Z6UTIxUT09>

Access to a Computer or Laptop: You will need access to a computer (desktop or laptop only; no tablets) to complete this course. Some computers will be available on campus during Tutoring/Open Lab. Please contact the TA for access to an on-campus computer.

This section of Stars and the Universe follows the same course outline as other sections of PHYS 1062, but covers all of the course content through an interactive video game organized in the following units:

Unit 1: Basic Astronomy and the Nighttime Sky — topics: basics of motion & gravity; seasons; phases of the Moon & eclipses; the night sky & constellations; properties of light, spectroscopy; telescopes; differences in everyday experiences, environmental conditions and geological forms, if one were living on another planet (Mars).

Unit 2: Solar System Basics— topics: laws of planetary motion and Jupiter's moons.

Unit 3: Stars — topics: The Sun & properties of stars (how they work, mass, luminosity, temperature, color, etc.); stellar birth and death; white dwarfs, neutron stars, black holes; extrasolar planets and astrobiology.

Unit 4: Galaxies and Cosmology — topics: Structure and composition of the Milky Way Galaxy, including star clusters, nebulae, and stellar remnants; different types and sizes of galaxies; galaxy evolution; dark matter & dark energy; the Big Bang & history of the Universe.

Technical Skill Requirements

To be successful in this course, you will need to be proficient in the following:

- Using Canvas
- Downloading and uploading files
 - Includes downloading and installing software on your computer
 - Scanning or taking pictures of documents and uploading them to Canvas
- Sending and receiving emails
- Using *University of Mars* platform
- Using *Slooh* platform

Course Communication and Assistance

Announcements

Announcements will be posted on Canvas as needed. Make sure you read these announcements. These announcements may include changes in due dates, ways to resolve problems, or hints for success.

Email

Since this is an online course, email will be our main point of contact. I will generally respond to emails within 24 hours unless it's the weekend, in which case I will get back to you on Monday.

IMPORTANT: For any emails you send, make sure to 1) send it ONLY from your UNT email account, and 2) include PHYS 1062 in the subject of the email. This will help me prioritize your email so I can get back to you quickly.

Office Hours

During my online office hours, I will be available to answer any questions via my Zoom Personal Meeting room. The link for this can be found at the top of the front page of this Syllabus and under “Office Hours, Tutoring, and Other Student Support” on the course Canvas page. We can also schedule a meeting if you email me 24 hours in advance so we can coordinate a time. Please only access the room at the times listed as other meetings might be held for different purposes at other times.

Tutoring

Astronomy tutors also will be available to assist you over the course of the semester. The times they will be available and the links to their Personal Meeting Rooms will be posted after the first week of class under “Office Hours, Tutoring, and Other Student Support” on the course Canvas page.

Technical Support

The UIT Helpdesk will provide support with any issues you might have with Canvas and they may be able to help you troubleshoot other computer issues. 940-565-2324 or helpdesk@unt.edu

University of Mars Support

For help with the University of Mars platform for Canvas, go to: info@theastroventure.com

or via Zoom between 9am and 11pm seven days a week at:

<https://us06web.zoom.us/j/9390303105?pwd=ZW1BL3o3dnNhVGM1amZCS2Z6UTIxUT09>

Course Outline, Assignments, and Grades

You will begin the semester by downloading the “University of Mars Video Game” program from the AstroVenture website (links and README file with instructions in Canvas). You will begin your work by getting started with the game to learn the core astronomy concepts that will inform later lessons, reflections, and projects that will be due later in the semester.

There are individual deadlines for completing portions of the game, about one “Part” per week. There will be periodic reminders through Canvas Announcements about the beginning of each of the parts of the game, and these dates are also listed in the [Physics 1062 Due Dates Fall 2025](#) which you can find near the top under “Home” on Canvas.

To go along with your work with the University of Mars game, there will be three short “Reflection” assignments. Each of these will ask you to take on the part of your main character from the game, and either write a short piece or record yourself reflecting on the material most recently covered.

Three astronomy subject tests will be given — each test covers the material presented in Unit 1, Units 2 and 3, and Unit 4 of the video game. There is no final exam in this class. The testing periods for the tests you will take on Canvas will be:

- **Test 1:** Thursday, February 12 through Sunday, February 15
- **Test 2:** Thursday, March 19 through Sunday, March 22
- **Test 3:** Thursday, April 16 through Sunday, April 19

Three “Reflection” assignments will allow you to be creative and write a short essay based upon your character's experience in the University of Mars game. You will have a chance to share these with your classmates and participate in a ranking assignment for fun. The due dates for these are:

- **Reflection 1:** Monday, February 2
- **Reflection 2:** Monday, March 30
- **Reflection 3:** Monday, April 20

There will also be four “Projects” offered through the Slooh platform ([slooh.com](#))

- **Project 1 — Slooh Quest – Lunar Phases:** due Thursday, February 19
- **Project 2 — Slooh Quest – Galilean Satellites:** due Thursday, March 5
- **Project 3 — Slooh Quest – Stellar Evolution:** due Thursday, March 26
- **Project 4 — Slooh Quest – Hubble Tuning Fork:** due Thursday, April 9

Your overall grade — out of 100% — will be calculated based on the following:

- 21% for completion of the University of Mars video game (the sum of all 4 Units' parts — a little more than 2% each, for 9 parts)
- 18% total for three “Reflection” posts based on the game's lessons and story (audio/video or written; the posts themselves are worth 4% each, and two stages of peer rankings together worth 1% each)
- 28% total for the four Projects (7% each)
- 33% for the three Unit Tests (11% each)

Your final letter grade will follow this rule:

A ≥ 89 B ≥ 79 and < 89 C ≥ 69 and < 79 D ≥ 59 and < 69 F = below 59

IMPORTANT: Except in cases of documented emergency, authorized absence, etc., assignments are expected to be completed by their respective due dates.

Course Expectations

As the instructor in this course, I am responsible for

- Providing course materials that will assist and enhance your achievement of the stated course goals.
- Providing timely and helpful feedback within the stated guidelines.
- Assisting in maintaining a positive learning environment for everyone.

As a student in this course, you are responsible for

- Reading and completing all requirements for the course in a timely manner.
- Working to remain attentive and engaged in the course and interact with your fellow students.
- Assisting in maintaining a positive learning environment for everyone.

Taking an online course is very different from taking an on-campus course. The students are responsible for their own learning. We have provided tools that you can use to facilitate this learning, but it will require self-discipline and motivation as well as effective time management to get the most out of this course and have the best shot at getting a good grade.

How to Succeed in this Course

Play through the University of Mars video game, completing “Parts” of the game's four “Units” by their respective due dates. The game's Units are divided into 1 – 3 parts each, and there are intermediate deadlines for completing each part. You can see the complete schedule of due dates in Canvas, just below the “Welcome” message near the top of the Home/Modules page.

Please set aside ample time to play the game, so that you can proceed through it thoughtfully and not in a rush. As a rough estimate, anticipate each “Part” requiring an hour or two of work to go through, thoroughly; some Units or Parts may take less time, and others a little more.

The in-game lessons, questions, and mini-games are designed to help give you an introduction to each astronomy subject in a logical progression — more complex topics later, building on the earlier ones — and to give you some practice applying that knowledge. We strongly encourage you to re-play sections of the game for additional practice or study. A “Repeat a Lesson” menu option in the game gives you access to review any previously-completed section, and an in-game robot character (“Copper”) can give you practice quizzes.

Take the three Tests. Test 1 covers Unit 1 of the University of Mars game, Test 2 covers Units 2 and 3 of the game, and Test 4 covers Unit 4 of the game. Some of the questions on these tests are pulled directly from quiz questions given in the game; others are very similar but slight variations on ones in the in-game quizzes. Other kinds of questions may ask you to identify an astronomical object in a picture, or choose the correct point on a plot, and so on — similar to the mini-games and exercises you go through in University of Mars.

A set of Review Notes is given for each Test, in Canvas. You can find them all near the bottom of the Home/Modules page. We suggest getting a copy early for each test, to look over as you go through the game. The Review Notes will give a good impression of what are the key points in each lesson.

There is also a set of practice test questions given for each Test. You might try these out as if it were the real test, going through them without notes or other references. Score yourself, paying attention to which questions you missed, and also which you may have gotten correct but were unsure of or guessed; this will help you target your further study towards subjects that may be more challenging.

Your instructor is also available to answer any questions you have — whether to explain one of the practice questions, or work through additional examples.

Complete the four Projects through the Slooh platform — including readings and questions relating to the four assigned quests, and submitting the quest and associated poster on Canvas.

You should expect to spend one or two weeks to schedule and obtain telescope observations and complete each Project, with the central subjects of each one aligned generally with the astronomy topics you are studying at that time.

You should look over the Introduction to each Project as soon as it becomes available in Canvas, to get a sense of its scope and what you may need to set aside extra time to complete. The Projects should not be onerous, but I highly advise not putting off starting any of them until close to their due dates.

If you find yourself stuck at any point on the Slooh quest Projects, please reach out to your instructor.

Submit a response to each of the three “Reflection” assignments. Each of these begins with a different prompt related to the subjects covered around the same time. Take these as opportunities to:

Synthesize what you have learned in the preceding game unit, in ways that make the material familiar enough that you could readily explain it to someone else.

Consider the relevance of the subjects to your own life, or think of whether something you learned changed a previous misconception or otherwise left a lasting impression.

Further exercise creativity, in that your reflection entries can take a few different forms depending on what appeals to you — perhaps writing, or audio/video recordings.

Other Policies

Netiquette: Netiquette is a set of rules for appropriate online interaction. For a basic set of guidelines, click the link below and read Albion’s “The Core Rules of Netiquette”:

<http://www.albion.com/netiquette/corerules.html>

Academic Integrity: <https://policy.unt.edu/policy/06-003>

Dropping a Course: Drop information is available in the schedule of classes at
<http://registrar.unt.edu/registration/schedule-of-classes>

UNT Policies

Academic Integrity Policy

Academic Integrity Standards and Consequences. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

Students should not use generative artificial intelligence (GenAI) tools in this course to help compose the Reflections, Projects, or Tests. Applications may be used to check original written student work for grammar/clarity. The expectation is that content submitted by a student in this course is a student’s original work. Students substituting their original work with GenAI content without proper credit are undermining the learning process and are violating academic integrity.

ADA Policy

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one’s specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as

early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the [ODA website](https://disability.unt.edu/) (<https://disability.unt.edu/>).

Prohibition of Discrimination, Harassment, and Retaliation (Policy 16.004)

The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

Emergency Notification & Procedures

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

Retention of Student Records

Student records pertaining to this course are maintained in a secure location by the instructor of record. All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Canvas online system, including grading information and comments, is also stored in a safe electronic environment for one year. Students have the right to view their individual record; however, information about student's records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University's policy. See UNT Policy 10.10, Records Management and Retention for additional information.

Acceptable Student Behavior

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. Visit UNT's [Code of Student Conduct](https://deanofstudents.unt.edu/conduct) (<https://deanofstudents.unt.edu/conduct>) to learn more.

Access to Information - Eagle Connect

Students' access point for business and academic services at UNT is located at: my.unt.edu. All official communication from the University will be delivered to a student's Eagle Connect account. For more information, please visit the website that explains Eagle Connect and how to forward e-mail [Eagle Connect](https://it.unt.edu/eagleconnect) (<https://it.unt.edu/eagleconnect>).

Student Evaluation Administration Dates

Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13, 14 and 15 of the long semesters to provide students with an opportunity to evaluate how this course is taught. Students will receive an email from "UNT SPOT Course Evaluations via IASystem Notification" (no-reply@iasystem.org) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey they will receive a confirmation email that the survey has been submitted. For additional information, please visit the [SPOT website](http://spot.unt.edu/) (<http://spot.unt.edu/>) or email spot@unt.edu.

Sexual Assault Prevention

UNT is committed to providing a safe learning environment free of all forms of sexual misconduct, including sexual harassment sexual assault, domestic violence, dating violence, and stalking. Federal laws (Title IX and the Violence Against Women Act) and UNT policies prohibit discrimination on the basis of sex, and therefore prohibit sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking, and/or sexual assault, there are campus resources available to provide support and assistance. UNT's Survivor Advocates can assist a student who has been impacted by violence by filing protective orders, completing crime victim's compensation applications, contacting professors for absences related to an assault, working with housing to facilitate a room change where appropriate, and connecting students to other resources available both on and off campus. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-565- 2648. Additionally, alleged sexual misconduct can be non-confidentially reported to the Title IX Coordinator at oeo@unt.edu or at (940) 565 2759.

Important Notice for F-1 Students taking Distance Education Courses

Federal Regulation

To read detailed Immigration and Customs Enforcement regulations for F-1 students taking online courses, please go to the [Electronic Code of Federal Regulations website](http://www.ecfr.gov/) (<http://www.ecfr.gov/>). The specific portion concerning distance education courses is located at Title 8 CFR 214.2 Paragraph (f)(6)(i)(G).

The paragraph reads:

(G) For F-1 students enrolled in classes for credit or classroom hours, no more than the equivalent of one class or three credits per session, term, semester, trimester, or quarter may be counted toward the full course of study requirement if the class is taken on-line or through distance education and does not require the student's physical attendance for classes, examination or other purposes integral to completion of the class. An on-line or distance education course is a course that is offered principally through the use of television, audio, or computer transmission including open broadcast, closed circuit, cable, microwave, or satellite, audio conferencing, or computer conferencing. If the F-1 student's course of study is in a language study program, no on-line or distance education classes may be considered to count toward a student's full course of study requirement.

University of North Texas Compliance

To comply with immigration regulations, an F-1 visa holder within the United States may need to engage in an on-campus experiential component for this course. This component (which must be approved in advance by the instructor) can include activities such as taking an on-campus exam, participating in an on-campus lecture or lab activity, or other on-campus experience integral to the completion of this course.

If such an on-campus activity is required, it is the student's responsibility to do the following:

- (1) Submit a written request to the instructor for an on-campus experiential component within one week of the start of the course.
- (2) Ensure that the activity on campus takes place and the instructor documents it in writing with a notice sent to the International Student and Scholar Services Office. ISSS has a form available that you may use for this purpose.

Because the decision may have serious immigration consequences, if an F-1 student is unsure about his or her need to participate in an on-campus experiential component for this course, s/he should contact the UNT International Student and Scholar Services Office (telephone 940-565-2195 or email internationaladvising@unt.edu) to get clarification before the one-week deadline.

Student Verification

UNT takes measures to protect the integrity of educational credentials awarded to students enrolled in distance education courses by verifying student identity, protecting student privacy, and notifying students of any special meeting times/locations or additional charges associated with student identity verification in distance education courses.

See [UNT Policy 07-002 Student Identity Verification, Privacy, and Notification and Distance Education Courses](https://policy.unt.edu/policy/07-002) (<https://policy.unt.edu/policy/07-002>).

Use of Student Work

A student owns the copyright for all work (e.g. software, photographs, reports, presentations, and email postings) he or she creates within a class and the University is not entitled to use any student work without the student's permission unless all of the following criteria are met:

- The work is used only once.
- The work is not used in its entirety.
- Use of the work does not affect any potential profits from the work.
- The student is not identified.
- The work is identified as student work.

If the use of the work does not meet all of the above criteria, then the University office or department using the work must obtain the student's written permission.

Download the UNT System Permission, Waiver and Release Form

Transmission and Recording of Student Images in Electronically-Delivered Courses

1. No permission is needed from a student for his or her image or voice to be transmitted live via videoconference or streaming media, but all students should be informed when courses are to be conducted using either method of delivery.
2. In the event an instructor records student presentations, he or she must obtain permission from the student using a signed release in order to use the recording for future classes in accordance with the Use of Student-Created Work guidelines above.
3. Instructors who video-record their class lectures with the intention of re-using some or all of recordings for future class offerings must notify students on the course syllabus if students' images may appear on video. Instructors are also advised to provide accommodation for students who do not wish to appear in class recordings.

Example: This course employs lecture capture technology to record class sessions. Students may occasionally appear on video. The lecture recordings will be available to you for study purposes and may also be reused in future course offerings.

No notification is needed if only audio and slide capture is used or if the video only records the instructor's image. However, the instructor is encouraged to let students know the recordings will be available to them for study purposes.

Academic Support & Student Services

Student Support Services

Mental Health

UNT provides mental health resources to students to help ensure there are numerous outlets to turn to that wholeheartedly care for and are there for students in need, regardless of the nature of an issue or its severity. Listed below are several resources on campus that can support your academic success and mental well-being:

- [Student Health and Wellness Center](https://studentaffairs.unt.edu/student-health-and-wellness-center) (<https://studentaffairs.unt.edu/student-health-and-wellness-center>)
- [Counseling and Testing Services](https://studentaffairs.unt.edu/counseling-and-testing-services) (<https://studentaffairs.unt.edu/counseling-and-testing-services>)
- [UNT Care Team](https://studentaffairs.unt.edu/care) (<https://studentaffairs.unt.edu/care>)
- [UNT Psychiatric Services](https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry) (<https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry>)
- [Individual Counseling](https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling) (<https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling>)

Chosen Names

A chosen name is a name that a person goes by that may or may not match their legal name. If you have a chosen name that is different from your legal name and would like that to be used in class, please let the instructor know. Below is a list of resources for updating your chosen name at UNT.

- [UNT Records](#)
- [UNT ID Card](#)
- [Legal Name](#)

**UNT EUIDs cannot be changed at this time. The collaborating offices are working on a process to make this option accessible to UNT community members.*

Pronouns

Pronouns (she/her, they/them, he/him, etc.) are a public way for people to address you, much like your name, and can be shared with a name when making an introduction, both virtually and in-person. Just as we ask and don't assume someone's name, we should also ask and not assume someone's pronouns.

You can [add your pronouns to your Canvas account](#) so that they follow your name when posting to discussion boards, submitting assignments, etc.

Below is a list of additional resources regarding pronouns and their usage:

- [What are pronouns and why are they important?](#)
- [How do I use pronouns?](#)
- [How do I share my pronouns?](#)
- [How do I ask for another person's pronouns?](#)
- [How do I correct myself or others when the wrong pronoun is used?](#)

Additional Student Support Services

- [Registrar](#) (<https://registrar.unt.edu/registration>)
- [Financial Aid](#) (<https://financialaid.unt.edu/>)
- [Student Legal Services](#) (<https://studentaffairs.unt.edu/student-legal-services>)
- [Career Center](#) (<https://studentaffairs.unt.edu/career-center>)
- [Counseling and Testing Services](#) (<https://studentaffairs.unt.edu/counseling-and-testing-services>)
- [UNT Food Pantry](#) (<https://deanofstudents.unt.edu/resources/food-pantry>)

Academic Support Services

- [Academic Resource Center](#) (<https://clear.unt.edu/canvas/student-resources>)
- [Academic Success Center](#) (<https://success.unt.edu/asc>)
- [UNT Libraries](#) (<https://library.unt.edu/>)
- [Writing Lab](#) (<https://writingcenter.unt.edu>)