

<b>Course Number</b> <b>Course Name</b>	<p style="text-align: center;"><b>ASTR 1115L</b>  <b>Introduction to Astronomy Lab</b></p>
<b>Instructor &amp; Class information</b>	<p>Instructor Name: Lorraine Bowman  Email: lbowman3@unm.edu</p> <p>Lab: Asynchronous</p> <p>Office Hour: Wednesdays 8 - 9 AM on Teams - link below:  <a href="https://teams.microsoft.com/l/meetup-join/19%3aY61RXoZZMUoUKPjsT_DgXKK34GMf3BopedLWEcoTeFw1%40thread.tacv2/1673657841160?context=%7b%22Tid%22%3a%2225aa9830-e0f9-482b-897e-1a3b3c855e5c%22%2c%22Oid%22%3a%22e503648d-6fc9-40a3-bd8a-270db950fb63%22%7d">https://teams.microsoft.com/l/meetup-join/19%3aY61RXoZZMUoUKPjsT_DgXKK34GMf3BopedLWEcoTeFw1%40thread.tacv2/1673657841160?context=%7b%22Tid%22%3a%2225aa9830-e0f9-482b-897e-1a3b3c855e5c%22%2c%22Oid%22%3a%22e503648d-6fc9-40a3-bd8a-270db950fb63%22%7d</a></p>
<b>Lab Description</b>	<p>The labs are designed to complete your understanding of the course material and to solidify your understanding of the mathematics and mechanics of astronomy. It is delivered in an entirely online modality over 17 weeks during the Spring 2023 semester.</p> <p>You will have a week to complete each lab assignment. There will also be one Naked-Eye Observation Lab where you will have to go outside and observe the Moon over 4 weeks to complete the project.</p>
<b>Time Expectation</b>	<p>Please plan for a minimum of 3 hours per week to complete the lab activity.</p> <p><b>Late work will not be accepted. Don't wait until the last minute before an assignment is due to start working on it!</b></p> <p>Support: <a href="#">Center for Academic Program Support (CAPS)</a>. Many students have found that time management workshops can help them meet their goals (consult <a href="#">(CAPS)</a> website under "services").</p>
<b>Textbook</b>	<p>No textbook is required, but you might find Astronomy by Fraknoi et al, Openstax, helpful. Free dl of the pdf here: <a href="https://openstax.org/details/books/astronomy">https://openstax.org/details/books/astronomy</a></p>

<p style="text-align: center;"><b>Student Learning Outcomes</b></p>	<ol style="list-style-type: none"><li>1. Students will discuss the night sky as seen from Earth, including coordinate systems, the apparent daily and yearly motions of the sun, Moon, and stars, and their resulting astronomical phenomena.</li><li>2. Students will list and apply the steps of the scientific method.</li><li>3. Students will describe the scale of the Solar System, Galaxy, and the Universe.</li><li>4. Students will explain telescope design and how telescopes and spectra are used to extract information about Astronomical objects.</li><li>5. Students will describe the formation scenarios and properties of solar system objects.</li><li>6. Students will describe gravity, electromagnetism, and other physical processes that determine the appearance of the universe and its constituents.</li><li>7. Students will describe methods by which planets are discovered around other stars and current results.</li><li>8. Students will describe the structure, energy generation, and activity of the sun.</li><li>9. Students will compare our sun to other stars and outline the evolution of stars of different masses and its end products, including black holes.</li><li>10. Students will describe the structure of the Milky Way and other galaxies and galaxy clusters.</li><li>11. Students will describe the origin, evolution, and expansion of the universe based on the Big Bang Theory and recent Astronomical observations.</li><li>12. Students will describe conditions for life, its origins, and possible locations in the universe</li></ol> <p>These outcomes align with the College Wide outcomes of Critical Thinking.</p>
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<p><b>Course Requirements and Grading Policy</b></p>	<p><b>COURSE GRADES:</b></p> <p>A = 90 - 100 points B = 80 - 89 points C = 70 - 79 points D = 60 - 69 points F = 0 - 59 points</p> <p><b>Lab Reports:</b> For each lab you will need to turn in a lab report or worksheet. Each lab (except for the observation lab - see below) will be due a week after it is posted. <b>Each must be in your own words, even if you worked with a lab partner or found some answers online.</b> Your final grade will be the average of all your lab report grades.</p> <p><b>Observation Lab:</b> One of your labs will be a naked-eye project. This project will require you to go outside and do some observations of the Moon with your naked eye. This project will start on 02/20 and will be due 4 weeks later.</p> <p><b>Late work will not be accepted. Don't wait until the last minute before a worksheet is due to start working on it!</b></p> <p><b>End of semester grade bumps are a violation of academic integrity. I will not respond to such requests.</b></p>
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**Student  
Conduct and  
Academic  
Integrity**

Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or otherwise fails to meet the standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course. Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.

Respectful and Responsible Learning: We all have shared responsibility for ensuring that learning occurs safely, honestly, and equitably. Submitting material as your own work that has been generated on a website, in a publication, by an artificial intelligence algorithm, by another person, or by breaking the rules of an assignment constitutes academic dishonesty. It is a student code of conduct violation that can lead to a disciplinary procedure. *Please ask me for help in finding the resources you need to be successful in this course. I can help you use study resources responsibly and effectively.* Off-campus paper writing services, problem-checkers and services, websites, and AIs can be incorrect or misleading. Learning the course material depends on completing and submitting your own work. UNM preserves and protects the integrity of the academic community through multiple policies including policies on student grievances (Faculty Handbook D175 and D176), academic dishonesty (FH D100), and respectful campus (FH CO9). These are in the *Student Pathfinder* (<https://pathfinder.unm.edu>) and the *Faculty Handbook* (<https://handbook.unm.edu>).

<p><b>COVID-19 Health and Awareness</b></p>	<p>UNM is a mask friendly, but not a mask required, community. To be registered or employed at UNM, Students, faculty, and staff must all meet UNM's <a href="#">Administrative Mandate on Required COVID-19 vaccination</a>. If you are experiencing COVID-19 symptoms, please do not come to class. If you have a positive COVID-19 test, please stay home for five days and isolate yourself from others, per the <a href="#">Centers for Disease Control (CDC) guidelines</a>. UNM faculty and staff know that these are challenging times. Please let me, an advisor, or another UNM staff member know that you need support so that we can connect you to the right resources. Please be aware that UNM will publish information on websites and email about any changes to our public health status and community response.</p> <p>Support:  <a href="#">PASOS Resource Center</a> (505) 925-8546, <a href="mailto:pasos@unm.edu">mailto:pasos@unm.edu</a>. The Resource Center is an on-campus center that serves as a “one-stop” for all non-academic needs of UNM-Valencia students.</p> <p><a href="#">Student Health and Counseling (SHAC)</a> at (505) 277-3136. If you are having active respiratory symptoms (e.g., fever, cough, sore throat, etc.) AND need testing for COVID-19; OR If you recently tested positive and may need oral treatment, call SHAC.</p> <p><a href="#">LoboRESPECT Advocacy Center</a> (505) 277-2911 can offer help with contacting faculty and managing challenges that impact your UNM experience.</p>
<p><b>Accomodations</b></p>	<p>UNM is committed to providing equitable access to learning opportunities for students with documented disabilities. As your instructor, it is my objective to facilitate an inclusive classroom setting, in which students have full access and opportunity to participate. To engage in a confidential conversation about the process for requesting reasonable accommodations for this class and/or program, please contact Accessibility Resource Center at <a href="mailto:arcsrvs@unm.edu">arcsrvs@unm.edu</a> or by phone at 505-277-3506.</p> <p>Support: Contact <a href="https://arc.unm.edu/">Accessibility Resource Center</a> (<a href="https://arc.unm.edu/">https://arc.unm.edu/</a>) at <a href="mailto:arcsrvs@unm.edu">arcsrvs@unm.edu</a> (505) 277-3506.</p>

<p style="text-align: center;"><b>Title IX Statement</b></p>	<p>Our classroom and our university should always be spaces of mutual respect, kindness, and support, without fear of discrimination, harassment, or violence. Should you ever need assistance or have concerns about incidents that violate this principle, please access the resources available to you on campus. Please note that, because UNM faculty, TAs, and GAs are considered "responsible employees" by the Department of Education, any disclosure of gender discrimination (including sexual harassment, sexual misconduct, and sexual violence) made to a faculty member, TA, or GA must be reported by that faculty member, TA, or GA to the university's Title IX coordinator. For more information on the campus policy regarding sexual misconduct, please see: <a href="https://policy.unm.edu/university-policies/2000/2740.html">https://policy.unm.edu/university-policies/2000/2740.html</a>.</p> <p>Support: <a href="#">LoboRESPECT Advocacy Center</a> and the support services listed on its website, the <a href="#">Women's Resource Center</a> and the <a href="#">LGBTQ Resource Center</a> all offer confidential services and reporting.</p>
<p style="text-align: center;"><b>Land Acknowledgement</b></p>	<p>Founded in 1889, the University of New Mexico sits on the traditional homelands of the Pueblo of Sandia. The original peoples of New Mexico Pueblo, Navajo, and Apache since time immemorial, have deep connections to the land and have made significant contributions to the broader community statewide. We honor the land itself and those who remain stewards of this land throughout the generations and also acknowledge our committed relationship to Indigenous peoples. We gratefully recognize our history.</p>
<p style="text-align: center;"><b>Lab Schedule (tentative and subject to changes during the semester)</b></p>	<p>Week 1 (Jan 17) - Scientific Notation &amp; Orders of Magnitude</p> <p>Week 2 (Jan 23) - Stellarium</p> <p>Week 3 (Jan 30) - Stellarium: Seasonal Changes</p> <p>Week 4 (Feb 6) - Spectroscopy</p> <p>Week 5 (Feb 13) - Kepler's Laws</p> <p>Week 6 (Feb 20) - Moon Observation Lab (due late March)</p> <p>Week 7 (Feb 27) - Stellarium: Moon</p> <p>Week 8 (March 6) - No lab</p> <p>Week 9 (March 13) - <b>Spring Break</b></p> <p>Week 10 (March 20) - No lab</p>

Week 11 (March 27) - Properties of Planets
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Week 12 (April 3) - No Lab
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Week 13 (April 10) - No lab
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Week 14 (April 17) - Properties of Stars
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Week 15 (April 24) - Drake's equation
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Week 16 (May 1) - No lab
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Week 17 (May 8) - <b>Finals Week</b>
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