



## General Astronomy ASTR 2110

### Instructor Info —



Prof. Diana Dragomir



PAIS 3226



[exoplanets.unm.edu](http://exoplanets.unm.edu)



[dragomir@unm.edu](mailto:dragomir@unm.edu)

### Course Info —



Math 1230 or 1250. Physics 1230 or higher. We will learn some physics concepts and make use of high-school level algebra and trigonometry, but will not use calculus.



Tue & Thu



11:00am - 12:15pm



PAIS 1100

### Office Hours —



By appointment (or after class, time permitting).



PAIS 3226

### TA Info —



Mallory Harris



TBD



TBD



[malharris19@unm.edu](mailto:malharris19@unm.edu)

### Course Overview

Astronomy 2110 is a general astronomy course at a greater level of detail than is covered in Astronomy 101. ASTR 2110 and 2115 are also the first required ASTR classes for BS Astrophysics majors. This spring course will begin with a review of positional astronomy, celestial motion, and the electromagnetic spectrum. We will then explore the Solar System from its inner to its outer regions, what we know so far about planets around other stars (exoplanets), and life elsewhere. We will use math and physics as we explore the Universe.

This is a three credit-hour course. Class meets for two 75-minute sessions of direct instruction for fifteen weeks during the Spring 2023 semester.

### About Me

I am an observational astronomer whose focus is on exoplanets. I aim to measure the properties of exoplanets (particularly, but not exclusively, sub-Jovian exoplanets), and how these properties correlate to the planets' formation and evolution. Therefore I also have a keen interest in planetary science, and I look forward to sharing that with you.

### Material

#### Required Text

*Universe*, Freedman, Geller and Kaufmann, 11th edition. University Science Books. 2019. (ISBN: 9781319039448, eBook ISBN: 9781319227975)

#### Required Other Material

Zoom app.

### Grading Scheme

The details of the grading scheme and grading components could be subject to minor changes, but if so I will inform the class ahead of time during lectures and via email, and ensure that all students agree with the changes.

15%	<b>Attendance and Zoom questions</b>
21%	<b>Homework Assignments</b>
24%	<b>Quizzes</b>
20%	<b>Test x 2 (10% each)</b>
20%	<b>Final Exam</b>
+10%	<b>Extra credit: Research Experience</b>

Note: If you take this class "Credit/No Credit", according to university policy, your final grade must be a "C" or better in order to receive credit.

### Attendance and Zoom Questions

Every class there will be one or more multiple choice questions that you will answer through Zoom. These questions are for both you and I to gauge how well specific concepts taught in that class were understood. If you answer the questions in at least 25 classes (correctly or not), you will get 10% of your final grade. Answering those questions correctly will earn you up to the remaining 5%, for a total of 15% of the final grade for the in-class Zoom questions. Note that there are 30 classes in the spring term. Given that two classes will be taken up with tests, this means you may miss up to three classes and still potentially get full marks for the Zoom questions.

## Homework Assignments

There will be 6 to 8 homework assignments spread out over the course of the semester. They will be due every ~2 weeks. They will be posted on the course webpage/UNM Canvas. Homeworks are to be submitted either in class or online on UNM Canvas using the appropriate link provided there, but do not split your homework between the two. If using Canvas, upload the entire homework in a single file. **Credit for late homeworks will drop by 15% for every day late within a week, and no credit thereafter.**

Please note the AI policy below.

## Quizzes, Tests and Final Exam

The rest of the grade will be split between six quizzes lasting no more than 15 minutes each (for a total of 24% of your grade); two tests lasting a full class each (10% each); and a final exam (worth 20%). Note that for the quizzes, only your best four out of six quizzes will count.

## Research experience for extra credit

Students will be able to earn up to 10% extra credit toward their final grade by participating in a research project. The project requires visually vetting exoplanet candidate transit signals. There will be training for this project (details to come). Passing the training is a requirement to be able to participate in the project. If you do not pass the first time, you may participate in one additional training. Participating in **all of the training and vetting 1000 new signals** throughout the semester will earn you the 10% extra credit. Vetting 2000 new signals (in total) will earn you authorship on a scientific manuscript within my research group.

## Learning Goals

Upon successful completion of this course, students should be able to:

- Learn and construct physical models of astronomical objects to explain observations.
- Understand the properties of (exo)planets and their moons, and how we measure them.
- Demonstrate an understanding of the modern theories about the origins, structure and evolution of the solar system.
- Apply the "scientific method" to the study of the Solar System and exoplanets.

## Course Materials Access

Your digital course materials are directly available now on the My Shelf link in Canvas. Your physical course materials, such as books and required lab/studio course kits, are available at the UNM Bookstore, and you will receive an email about how to pick them up. To simplify your course materials access, you are automatically enrolled in a Complete option at a flat rate of \$279 per semester. This will show up on your bursar bill. The Complete option covers all your required course materials for all your Albuquerque campus courses, including any graduate courses you may be taking (branch campus course materials are billed and available separately). If you are interested in course materials access for only selected courses, or if you want to opt out entirely, you will need to select the option you want in the My Shelf link in Canvas. You can change your selected option in the My Shelf link in Canvas until the registrar's "Last Day to Drop Without a 'W' Grade and 100% Tuition Refund". Make sure that you review the [video](#) and [information](#) here to understand cost and the options for Complete (automatic enrollment), Select (take action), and Opt-out (take action).

## Accommodations

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 [arcsrvs@unm.edu](mailto:arcsrvs@unm.edu) or 505-277-3506.

If you need an accommodation based on how course requirements interact with the impact of a disability, you should contact me to arrange an appointment as soon as possible. At the appointment we can discuss the course format and requirements, anticipate the need for adjustments and explore potential accommodations. I rely on the [Accessibility Resource Center](#) for assistance in developing strategies and verifying accommodation needs.

UAP 2720 and 2740: Our classroom and university should foster mutual respect, kindness, and support. If you have concerns about discrimination, harassment, or violence, please seek support and report incidents. Find confidential services at LoboRESPECT Advocacy Center, the Women's Resource Center, and the LGBTQ Resource Center. UNM prohibits discrimination on the basis of sex (including gender, sex stereotyping, gender expression, and gender identity). All instructors are "responsible employees" who must communicate reports of sexual harassment, sexual misconduct and sexual violence to Compliance, Ethics and Equal Opportunity. For more information, please see UAP 2720 and UAP 2740.

## Respectful behavior and absences

Respectful Conduct Expectations: I am committed to building with you a positive classroom environment in which everyone can learn. I reserve the right to intervene and enforce standards of respectful behavior when classroom conduct is inconsistent with University expectations and classroom community agreements. Interventions and enforcement may include but are not limited to required meetings to discuss classroom expectations, written notification of expectations, and/or removal from a class meeting. Removal from a class meeting will result in an unexcused absence. The University of New Mexico ensures freedom of academic inquiry, free expression and open debate, and a respectful campus through adherence to the following policies: D75: Classroom Conduct, Student Code of Conduct, University Policy 2240 - Respectful Campus, University Policy 2210 - Campus Violence.

## Academic honesty and AI use

Responsible Learning and Academic Honesty: Cheating and plagiarism (academic dishonesty) are often driven by lack of time, desperation, or lack of knowledge about how to identify a source. Communicate with me and ask for help, even at the last minute, rather than risking your academic career by committing academic dishonesty. Academic dishonesty involves claiming that work created by another source is your own original work. It is a [Student Code of Conduct](#) violation that can lead to a disciplinary procedure. When you use a resource in work submitted for this class, document how you used it and distinguish clearly between your original work and the material taken from the resource.

Policy on Artificial Intelligence (AI) tools: As future professionals, familiarity with AI tools is an asset; however, as physics students, your goal is to develop a coherent mental model of the universe. AI can act as a tutor to help explain difficult steps, or it can act as a crutch that removes the need for critical thinking.

For this course, AI use is permitted on homework **only if** used to deepen understanding, not to produce answers. If you choose to use AI, you must practice transparency by documenting the **tool used** and the **prompt provided**. Be aware that Large Language Models frequently generate confident but incorrect physics derivations.

**Warning:** Using AI without declaration constitutes academic dishonesty. AI tools are banned from all tests, quizzes and other in-class examinations.

## Health

**If you are ill, please do not come to class.** However, please communicate with me at [dragomir@unm.edu](mailto:dragomir@unm.edu); I can work with you to provide alternatives for course participation and completion.