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Fall 9-1-2021

### ASTR 134N.01: Planetary Astronomy Lab

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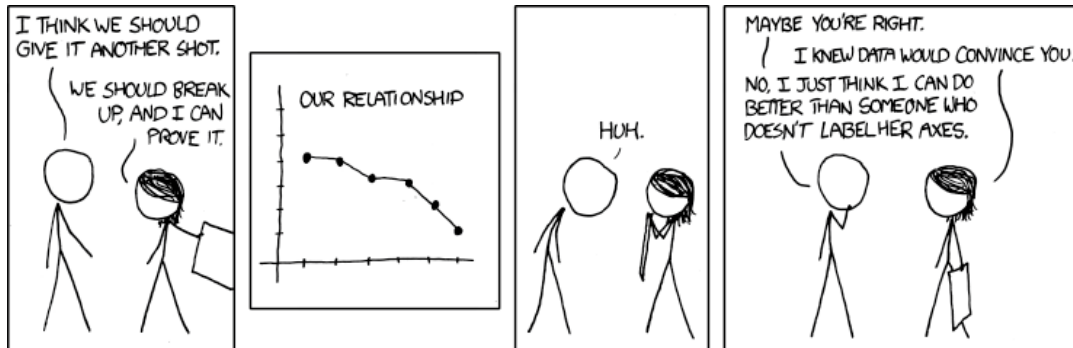
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<b>Instructor:</b> Mark Reiser	<b>Class Times:</b>
<b>Room:</b> CHCB 229	<b>Zoom:</b> <a href="https://umontana.zoom.us/j/935917675">https://umontana.zoom.us/j/935917675</a>
<b>My Office:</b> CHCB 120	<b>E-mail:</b> <a href="mailto:mark.reiser@umontana.edu">mark.reiser@umontana.edu</a>
<b>Office Hours (3):</b> Tues: 11-12 Wed: 10-11 Thur: 2-3	<b>(or appointment)</b>



Credit: XKCD

**Course Description**

This course is an optional supplement to the material from ASTR 131N. While the material in here is not required or expected for students taking ASTR 131N, it is our hope that these labs will help deepen your understanding of the lecture material. Hopefully, the overlapping of concepts will seem natural, as I have attempted to synchronize the topics and pacing of the lecture content with the labs you'll do here.

**Delivery**

This class is designated as *live, and in-person*, in Urey Lecture Hall (ULH 101). I am so pleased that we will be in person! While I **strongly encourage** you to get vaccinated if you haven't, the current status of the COVID pandemic requires us all to **wear masks in class at all times**. That may (hopefully) change as the semester continues, and I will update you as I can.

**Objectives**

Explore the topics of this course in a more hands-on fashion

- Utilize data, critical thinking, and inquiry to reach a deeper understanding of the material
- Actively collaborate with peers to further the learning of your entire group

**Required Materials**

- Lab manual: **ASTR 134N: Fall 2021** (ISBN-13: 9780137224357)  
**Note:** This book is unique to *this class* -- **must purchase** through UM Bookstore
- Calculator

**Grading**

We will have a total of 12 labs this semester. Your final grade will be taken out of 10 labs, so we will keep your best 10 scores. Ultimately, this means you can drop 2 labs from your final grade. This does not mean it's a good idea to skip a lab, but it allows a cushion if life circumstances arise, you get sick, etc. Upon finishing each lab, you will complete a 5-question Moodle quiz. These are designed such that, if you put forth reasonable effort on the lab, you should score very well! You can take the quiz twice if you like, with Moodle taking the mean of your two scores.

Each lab is graded out of 20 points, and thus the total points possible for the term is 200. Final grades will follow a 60/70/80/90 scale.

90-100%	A	60-69.9%	D
80-89.9%	B	0-59.99%	F
70-79.9%	C		

**PLEASE NOTE:** For each lab, you are expected to fill out each question in your lab manual, and your instructor may ask that you show your work at the end of session. However, we will only ask that one of you hand in the lab per group (3-4 students) per week, for grading purposes. Each week, your 10 lab points will be the composite of your **Lab Quiz (5 points)**, and your **Group/Indiv Lab Submission (5 points)**.

### Schedule

Week	Date/Week	Lab #	Topic
1	Sep 2-3	1	The North Star and Precession
2	Sep 9-10	2	<b>Planetarium Visit</b> (we'll walk over together)
3	Sep 16-17	3	What Causes the Seasons: Earth's Tilted Axis
4	Sep 23-24	4	Phases of the Moon
5	Sep 30-31	5	Gravity and Orbital Motion
6	Oct 7-8	6	Gravitational Interactions in the Solar System
7	Oct 14-15	7	Bulk Density and Planet Composition
8	Oct 21-22	8	Planetary Motions and the Night Sky
9	Oct 28-29	9	<b>Observing / TBD</b>
10	Nov 4-5	10	Rotation of the Sun
11	Nov 11-12	--	<b>NO LAB</b> (Veteran's Day Thursday)
12	Nov 18-19	11	Photometry and Exoplanets
13	Nov 25-26	--	<b>NO LAB</b> (Thanksgiving Week)
14	Dec 2-3	12	Final Lab (Student Projects)
15	Dec 9-10	--	<b>NO LAB</b> (or make-up, if needed)

### Accessibility Statement

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and the Office for Disability Equity (ODE). If you anticipate or experience barriers based on disability, please contact the ODE at: (406) 243-2243, [ode@umontana.edu](mailto:ode@umontana.edu), or visit [www.umt.edu/disability](http://www.umt.edu/disability) for more information. Retroactive accommodation requests will not be honored, so please, do not delay. As your instructor, I will work with you and the ODE to implement an effective accommodation, and you are welcome to contact me privately if you wish.

### Instructor's Note

In addition to the supplementary learning in this course, I look forward to the additional opportunity to get to know you in this lab setting. Given the smaller number of you in here, I greatly enjoy the chance to work with you more extensively and often in a one-on-one capacity.

I hope you gain some new insights into our course material in here, and also have a lot of fun with myself and your peers. We'll do some fun things in lab, and if we're lucky, maybe even do a little socially-distanced observing (hopefully!).