

Course Syllabus

Contact Information

You might need to contact me, Dr. Stacy Palen. My office is SL209. My office phone number is 626-7030, and my email is spalen@weber.edu (<mailto:spalen@weber.edu>). The course website, where homework and lecture notes will be posted, can be found on Canvas, in your portal.

The Point

There are two main goals for Principles of Observational Astronomy. The first is to familiarize you with the Universe in which you live, using mathematics as a descriptive and analytical tool. The second is to teach you how we know these things, and give you the tools to further advance our knowledge.

The Points

Your grade in this class will be determined in the following way:

25% Homework;

25% Research Notebook;

25% In-class participation and discussion

25% Final

Homework: Homework is due each Friday. Each assignment is worth 100 points, and contains roughly 1 reading assignment and 10 questions. Each question will be graded out of ten points. The remainder of the points will be given as "collective marks", which are divided among:

20%: neatness

20%: spelling

20%: sentence structure and grammar

20%: units and significant figures

20%: completeness

So, for example, if there are 9 questions, each will be graded independently for accuracy. The final ten points will constitute a cumulative score for the assignment on all the OTHER qualities of professional work that are important, such as those listed here. Of course you should, by now, be stating your thoughts in complete sentences. And of course you should, by now, always include units. And so on... These points should be more or less free for you, if you habitually show care for your work.

Research Notebook: Throughout this class, (and it's a good idea for every research project you do!), you will be keeping a research notebook. This notebook should contain all your work for the class. Your notes from the text, questions that occur to you, things to follow up on. All your calculations, drafts of work, reminders of instructions for how to do things, notes from class, etc. There are several ways to organize this so that it works for you. For myself, I start a new page every day. At the top, I write a sentence or two about what I expect to accomplish that day. At the bottom, I summarize what I did that day, and where I left off working (so the next day, I don't have to rely on a faulty memory!) This notebook must be neat, legible and well-organized. Why? Because you might make a discovery! Or invent a new way to think about a problem! Or think of a patent-able idea! In all of these cases, you will want to be able to walk others through your thought process, and find things when you need them.

In-class participation and discussion: This class has been "flipped". That means that you will be doing most of the content acquisition (reading, doing homework, etc.) outside of the classroom. I will not be lecturing to you, most of the time. You will read the textbook, cover to cover. We will have class discussion about particular chapters each week, on Monday. You MUST read the chapters assigned BEFORE this discussion. Otherwise, we will all sit there and stare at each other, and that's awkward and uncomfortable, and doesn't make any learning happen.

Final: The final is oral short-answer and problem based. Questions will include hands-on demonstrations that you understand the techniques you have learned. In the last week of class, you will sign up for a time block to take the final.

The Text

Observing the Universe, edited by Andrew J. Norton. Open University Press. This title is out of print, so the bookstore has made copies for us.

You will likely want to also have a basic astronomy text. I can recommend [Understanding Our Universe](#) by Palen, et al., but any introductory text from the library or elsewhere will do.

Other materials will be supplied as the need arises.

Any student requiring accommodations or services due to a disability must contact Services for Students with Disabilities (SSD) in Room 181 of the Student Services Center. SSD can also arrange to provide course materials in alternate formats if necessary.

Date	Day	Details	
Aug 30	Fri	Assignment 1: The Night Sky (https://weber.instructure.com/courses/252741/assignments/1163684)	due by 11:59pm
Sep 6	Fri	Assignment 2: Telescopes (https://weber.instructure.com/courses/252741/assignments/1163696)	due by 11:59pm
		Angles and Parallax (https://weber.instructure.com/courses/252741/assignments/1313154)	due by 11:59pm
Sep 13	Fri	Assignment 3: Spectrographs and Imagers (https://weber.instructure.com/courses/252741/assignments/1163861)	due by 11:59pm
Sep 20	Fri	Assignment 4: Reducing CCD Data (https://weber.instructure.com/courses/252741/assignments/1163972)	due by 11:59pm
Sep 27	Fri	Assignment 5: Finish the Photometry Lab (https://weber.instructure.com/courses/252741/assignments/1327799)	due by 11:59pm
		Spectral Classification (https://weber.instructure.com/courses/252741/assignments/1334300)	due by 11:59pm
Oct 4	Fri	Assignment 6: The H-R Diagram (https://weber.instructure.com/courses/252741/assignments/1327801)	due by 11:59pm
		Cepheid Variables: Distance (https://weber.instructure.com/courses/252741/assignments/1340935)	due by 11:59pm
Oct 9	Wed	Mass of Jupiter (https://weber.instructure.com/courses/252741/assignments/1340940)	due by 11:59pm
Oct 14	Mon	Assignment 7: Literature Review (https://weber.instructure.com/courses/252741/assignments/1340886)	due by 11:59pm
Oct 21	Mon	Age and Distance of a Stellar Cluster (https://weber.instructure.com/courses/252741/assignments/1346314)	due by 11:59pm
		Assignment 8: Planning an Observing Run (https://weber.instructure.com/courses/252741/assignments/1340945)	due by 11:59pm
Oct 25	Fri	Asteroid Rotation (https://weber.instructure.com/courses/252741/assignments/1356363)	due by 11:59pm
Oct 28	Mon	Assignment 9: Random Uncertainty (https://weber.instructure.com/courses/252741/assignments/1349738)	due by 11:59pm
Oct 30	Wed	Curve Fitting (https://weber.instructure.com/courses/252741/assignments/1356365)	due by 11:59pm
Nov 1	Fri	Curve Fitting AND Asteroids (https://weber.instructure.com/courses/252741/assignments/1356366)	due by 11:59pm

Nov 8	Fri	Size and Shape of the Galaxy (https://weber.instructure.com/courses/252741/assignments/1374633)	due by 11:59pm
Nov 15	Fri	Galaxy Classification (https://weber.instructure.com/courses/252741/assignments/1374636)	due by 11:59pm
Nov 18	Mon	Assignment 10: Making Use of Graphs (https://weber.instructure.com/courses/252741/assignments/1367848)	due by 11:59pm
Nov 22	Fri	Dark Matter (https://weber.instructure.com/courses/252741/assignments/1374638)	due by 11:59pm
Dec 4	Wed	Hubble Law (https://weber.instructure.com/courses/252741/assignments/1374639)	due by 11:59pm
Dec 6	Fri	Final (https://weber.instructure.com/courses/252741/assignments/1392335) Participation (https://weber.instructure.com/courses/252741/assignments/1392334)	due by 11:59pm due by 11:59pm