

Syllabus

Astronomy 181: Introduction to Observational Astronomy

Department of Physics and Astronomy

Instructor - **Aidan Madden-Watson**

Phone/Voice Mail - Ask me if you really need it :)

E-mail - aom37@nau.edu

Office - Peterson 313

Office Hours - 1pm - 2:30 pm on Monday or by appointment

Meeting Times -

181L - Section 1: 7:30 to 10:00 p.m. on Monday

181L - Section 4: 7:30 to 10:00 p.m. on Thursday

Meeting Place

This class will meet either in Physical Science (Building 19, room 218 or 232) or at the Campus Observatory. **Check your email before class to see where we are meeting!**

Pre-requisites

This course has Astronomy 180 as a co-requisite. This means that you must have already taken AST 180, or be taking it concurrently with this class.

Required Materials

A copy of the AST 181 lab manual, pencil, calculator, and a red-lens flashlight. Other items will be outlined on the lab itself

Course Description

This one-hour course serves as an introduction to observational astronomy. We will be concentrating on the night sky and the use of small telescopes when the sky is clear, and on exploring the motions of astronomical objects and other key concepts when the sky is cloudy. When paired with the three-hour lecture course, Astronomy 180, the pair of courses meets the four-hour laboratory science component for liberal studies. The thematic focus of this course is Technology and its Impact, since we will be examining how the use of telescopes changes the way we see the sky. The skills we will be concentrating on are the use of technology, specifically that of the telescopes and/or computers; the logic of scientific inquiry, which is at the heart of each laboratory exercise; quantitative reasoning as developed during your analysis

of your observations; and spatial reasoning as developed during studies of the celestial sphere and the motions of the sun and planets.

Course Objectives

After successful completion of this course, you will be able to:

- (a) Point out the basic stars and constellations in the night sky.
- (b) Use a small telescope to examine planets and other bright objects.
- (c) Sketch the daily and annual motions of the sun and other astronomical objects.
- (d) Use a variety of computer programs to illustrate basic astronomical concepts.
- (e) Use the method of scientific inquiry to explain observational phenomena.

Course Structure

We will meet outside at the Campus Observatory almost every time that it is clear. Please DRESS WARMLY; standing still in the cold is very different than walking around in the cold. Observatories are never heated because the rising of warm air blurs astronomical images.

Lab ordering

Labs will not necessarily be completed in the order that they are listed in the manual. Outdoor labs will be done when the weather and seeing permit. Your lab instructor will set up a way to inform you of the night's scheduled lab, whether indoors or outdoors, based on sky conditions.

Lab Reports

Virtually all lab projects will involve lab reports. The lab reports should be turned in at the end of the lab period; however, if you need extra time, you may turn them in as late as 5:00 p.m. on the Friday following that lab project. There will be some lab assignments given as take-home projects; these are to be completed outside of class and turned in as directed.

Quizzes

Typically, there will be a weekly quiz on the material covered in the previous week's lab. Each quiz will consist of one or two short essay questions on the most important concepts.

Final Exam

The final exam will have questions very similar to those on the quizzes. The final will be given during finals week at 8:00 p.m. on the same day of the week as your class, in room 218 of the

Physical Science Building.

Grading System

Your grade will be weighted as follows:

Lab Reports 60%

Weekly Quizzes 20%

Final Exam 20%

The instructor will drop your single lowest lab grade, and your two lowest quiz grades.

The approximate grading scale will be:

A \geq 90%

B \geq 80%

C \geq 70%

D \geq 60%

The instructor can lower the curve but not raise it.

Make-ups

There will be no make-up outdoor laboratories. Some indoor labs can be made up, but only with prior permission of the instructor. If you have an institutional excuse and the missed lab cannot be made up, the instructor will substitute the average of all your other lab grades for that lab. Make-up quizzes will be given only with an institutional excuse, or at the discretion of the instructor. (Please note that being ill does not constitute an institutional excuse. An institutional excuse is one that has been signed by the Dean of a college for academic reasons, or by the Dean of students for a non-academic reason.)

Academic Integrity

The Department of Physics and Astronomy has a zero-tolerance policy for academic dishonesty. Please see section G of the NAU Student Handbook for a description of all the types of academic dishonesty and the penalties. Please note that although in lab you collect data and discuss the experiment with your lab group, your write-up must be your own original work. Answers that are word for word identical to those of your lab partners are considered an act of collusion. If you are suspected of collusion, your group will receive one warning. If it happens again after the first warning, everyone will receive a score of zero on the lab in question. This zero cannot be dropped at the end of the semester, and this act of academic

dishonesty will be reported to the Provost's office. For any other form of academic dishonesty, e.g. cheating, plagiarism, inventing data without actually doing the experiment, there will be no warning. Even the first instance will cause the student to earn a score of zero on the lab in question. As above, this zero cannot be dropped at the end of the semester, and this act of academic dishonesty will be reported to the Provost's Office. The following are some examples of unacceptable behavior that will be considered a form of cheating (Note that this is not meant to be a comprehensive list).

- x Copying and/or seeking information from other lab groups without the express permission of the lab TA.
- x Doing any portion of the lab write-up prior to class.
- x Bringing into class completed or partially completed labs or facsimiles.
- x Having material on your desk or in your work area, other than the lab write-up for that week, for which your TA has not given you specific approval.
- x Using a cell phone, PDA, personal computer, etc. during the lab period.

Tips for Succeeding in this Course

- ☆ The key to succeeding in this class is making a real effort to understand the material, rather than mechanically filling out lab reports.

- ☆ Don't stand by and watch your lab partner figuring out the answers.

- ☆ If you receive less than a perfect score on the weekly quiz, you should discuss the quiz material with the instructor to make sure you understand it.

- ☆ In addition, attendance is crucial.

- ☆ Missing lab reports will make a huge difference in your grade.