

Attendance & Absences:

The lecture/seminar meetings (MWF 3-4) are a vital component of the course – every meeting should be attended by each student. Chronic absence and/or late arrival impacts other students in the course negatively and is to be eschewed. Any student missing from, and/or late to, more than 20% of the lecture/seminar meetings will be failed in the course.

The lab meetings are intended to provide a time for more one-on-one training in computer and lab skills with the instructor. These meetings are optional and attendance will not be taken. However, the skills developed in the computer lab must be demonstrated in the homework, projects, and exams.

Operating the rooftop telescope to conduct astronomical observations is a required component of this course. Students will coordinate their schedules in order to meet the observing needs of their group observing efforts while allowing for the safe execution of the observations and the transport of students to and from the observatory. A reasonable “average” observing time load to expect during the semester is about 3-4 hours per student per week. Students who fail to operate the telescope/instrument system for the completion of their projects will fail the course.

Grading:

The course grade will be computed by weighting your performance in the following areas by the percentages listed.

Course Component	Percentage Weight
Reports [4 Observing, 2 Project] (6 total)	45%
Homework (7 total)	21%
Midterm Exam	15%
Final Exam	10%
Attendance and Participation	9%

Late Policy:

In the real world, missing deadlines has dire consequences (e.g., failure of a NASA mission to launch on time could make it unable to answer the questions it was designed to address – representing a tremendous waste of taxpayer dollars). Since we are practicing for the real world in this class, and trying to instill the highest work ethic, the late policy for homework, progress reports, and project reports this semester will be equally dire. *Failure to turn in an assignment on the designated date, at the designated time, in the designated format will result in a zero score for that assignment.*

Homework:

Homework will allow students opportunities to practice error propagation and statistics, spreadsheet programming, as well as other aspects of observational astronomy.

Homework must be written in **INK**, with only one problem per page (single sided only), must be highly legible, and must be written on ruled, 8.5x11” white paper, without “burstable” sides or spiral notebook holes.

Reports:

In many professional fields including astronomy, an enormous emphasis is placed on strong writing and communication skills. In order to foster the continued development of good writing habits, this class will contain a significant writing component in the form of observing and project reports.

Every writing assignment must be typed or typeset, in double-spaced format on white, 8.5x11" unlined paper.

All reports in this class will be collaborative efforts by a group of between three to five student members. The group memberships will change from project to project to give all students practice in working with others. Grades for each report will flow to each author of a given report.

Conduct Standards & Collaboration:

In this course, students will work in a variety of settings from pure independence, to small groups, to larger groups. It is important that students submit for evaluation work that is properly executed and attributed. I encourage you to study together, but you must write up and submit your homework assignments ("SS" and "HW," see below) separately. You may help each other to find how to solve a problem, but you must present your own discussion of the steps needed to achieve the solution. Do not copy from another student or from another student's work (including students not in this class).

When writing up observing and project reports ("OR" and "PR," see below), each group member must contribute to the project effort, each member must contribute text to the report, each member must be involved in editing the report, and each member must be listed in the author list. Students not in a particular group may be consulted for help related to the conduct of the project, but may not author or edit any aspect of the report. *Data may not be shared between groups*, unless sharing is specifically allowed by the instructor. *Data from the telescope instrument shall not be manufactured* or simulated, except as part of specific simulation exercises or projects.

Students are reminded that their behavior is governed by the CAS Academic Conduct Code, copies of which are available in CAS 105. I am required to state that cases of suspected academic misconduct will be referred to the Dean's Office.

Midterm Exam:

There will be one in-class Midterm exam on Friday, March 3rd. It is very important that you take the exam on this date. If you find yourself violently ill on exam day, you must call me (353-6140) and let me know *before* the exam time. If you show up at the following class meeting and give me an excuse then, you will receive a zero for the exam, and will not be given a make-up exam. All make-up exams will be one hour oral exams, taken in my office by appointment, and **must be completed within one class week (spanned by the next 3 class meeting days) of the missed exam**. Grading for oral exams will be whole grades, only, that is A, B, C, D, or F grades: there are no plus or minus grades for oral exams.

Final Exam:

The final exam will be from 9 – 11am on Tuesday, May 16th. It will be closed book, and cover all material in the course. Note that the final exam is not at the usual class meeting time. Also note that the final exam time and date cannot be changed for anyone, as per university rules.

Schedule:

In the schedule that follows, abbreviations are used to identify student assignments. These are as follows:

SS	Spreadsheet Homework Assignment	Done Individually by each student
HW	Homework – Analytic	Done Individually by each student
OR	Observing Report	Done, authored by student groups
PR	Project Report	Done, authored by student groups – students will participate in two of the five projects

Week of	Contents	Readings	Assignments due	Notes
1/10-1/14	Intro., Grand Challenge, Errors	Kitchin Chap 5 (5.1) B&R Chap 1		
1/17-1/21	Mean, probability, dates, combinations, coordinates	Kitchin Chap 3 (3.1) B&R Chap 2	• <u>SS#1</u> : Julian Date, LST	1/17=holiday
1/24-1/28	Populations, distributions	B&R Chap 3	• <u>SS#2</u> : <u>AzEl, Airmass</u>	
1/31-2/4	Distributions: binomial, gaussian, photometry	Kitchin Chap 4 B&R Chap 4	• <u>HW#1</u> : Statistics, probability • <u>PR#1</u> : Spectrograph Requirements Report	
2/7-2/11	Photometry, linear regression	B&R Chap 6	• <u>HW#2</u> : Error Propagation • <u>OR#1</u> : CCD Report	
2/14-2/18	Monte Carlo modeling	Kitchin Chap 1 (1.1) B&R Chap 5	• <u>SS#3</u> : Linear regression	
2/21-2/25	Function fitting, spectroscopy	B&R Chap 7	• <u>SS#4</u> : Monte Carlo Sim. • <u>PR#2</u> : Spectrograph Concept Design	2/21=holiday, 2/22=Monday
2/28-3/3	Spectroscopy	Kitchin Chap 2 B&R Chap 10		3/3 Midterm Exam
3/6-3/10	Spring Break			
3/13-3/17	Spectroscopy, Maximum likelihood	B&R Chap 11	• <u>OR#2</u> : Sky brightness & seeing report	
3/20-3/24	Testing fitting, radio techniques	Kitchin Chap 5 (5.2)	• <u>PR#3</u> : Voice operated observing report • <u>PR#4</u> : Spectrograph Detailed Design Report	
3/27-3/31	Polarimetry			
4/3-4/7	Polarimetry		• <u>OR#3</u> : Filter Bandpass Report	
4/10-4/14	Detectors	Kitchin Chap 1 (1.2-.6)	• <u>PR#5</u> : Spectrograph Operations Report	
4/17-4/21	Detectors			4/17=holiday
4/24-4/28	TBD			
5/1-5/3	TBD		• <u>OR#4</u> : Hubble Constant Report	
5/16	Final Exam 9-11am			