

Class Syllabus – Ast 399 – Spring 2003

No.	Dy	Date	Time	Loc	Due	Topic	Reading
1	Fr	1/24	15:00-16:30	WAT416		Introduction	1
2	Tu	1/28	15:15-17:15	IFAC221		Celestial Sphere, Obs Plan	2
3	Mo	2/3	15:15-17:15	IFALib	hwk1	Starlab Planetarium	
4	Fr	2/7	15:15-17:15	IFAC221		Tel Basics, Catalogs & Tools	
5	Fr	2/14	15:15-17:15	IFAC221	hwk2	Tel basics, Detectors, Obs Labs	3
6	Fr	2/21	15:15-17:15	IFAC221		Unix, Statistics	
7	Fr	2/28	15:15-17:15	IFAC221		Data Reduction	
8	Fr	4/4	15:15-17:15	IfAC221		IRAF Image Processing	
9	Mo	4/7	15:15-17:15	IfAC221		IRAF Image Processing	
10	Mo	4/14	15:15-17:15	IfAC221		Photometry	
11	Fr	5/2	15:15-17:15	IfAC221		Possible Make up	

Notes: Feb 14, 21, 28 - be prepared to possibly stay for a couple hours past class for telescope orientation, pending good weather. We will provide pizza for dinner.

Observing Dates at Dillingham - Sat 2/22, 3/1, 3/29, 4/5, 4/26, 5/3. Bring sack dinner, warm clothes, and lab materials. (Significant others are welcome).

Reading Assignments

1. Section on magnitude systems and Julian dates in notebook
2. Celestial sphere notes in notebook
3. Detector Section in notebook
- 4.

1 Description

Students will learn to use a small telescope and instruments (CCD and photomultiplier) by conducting a series of observing projects. The projects will involve observations of variable stars, and possibly searching for extra solar planet transits. This will be part of the process of setting up the new UH observing facility on campus, and students will have input into the observing labs. Meetings will be scheduled with the instructor on a regular basis, and the observing will be conducted at night from the UH Manoa campus. Students should have a solid background in math through trigonometry and algebra.

2 Misc Course Particulars

Instructor – Karen Meech Institute for Astronomy (2680 Woodlawn Drive, B110, 956-6828). meech@ifa.hawaii.edu.

Requirements – Astronomy 110 or equivalent and a solid background in mathematics through trigonometry and algebra.

Textbook – There is no text, so I will be providing extensive handouts and suggested readings as necessary.

Grading – There will be 2 in-class quizzes, several homeworks, 1 oral presentation, a lab report and a final exam. All exams will be closed book, consisting of multiple choice and short answer. The grades will break down as follows: quizzes (20%), homework (20%), oral session and participation (15%), lab report (25%) and final exam (20%). The homeworks are due at the beginning of the class period in which they are due. Students may collaborate on homeworks, but not copy them directly. All exams are closed book. The final exam will consist of a 1-hour exam similar to the semester quizzes.

3 Course Topics

3.1 Observing & Basics

- Magnitude Systems, Brightness, Filters
- Time and Julian Date
- Star Catalogs and Other Useful Tools
- The Celestial Sphere and Coordinate Systems

3.2 Telescope Basics

3.3 Detectors

- Photoelectric Photometers
- Charge Coupled Devices
- Photography
- Spectroscopy

3.4 Observing Projects

- Atmospheric Extinction
- Variable Star photometry
- CCD Spectroscopy
- Extrasolar Planets

3.5 Data Reduction

- Computer Skills
- Basic Statistics
- Airmass and Extinction
- Image Processing
- Photometry
- Spectroscopy