



UNIVERSITY of HAWAII®  
**WINDWARD**  
COMMUNITY COLLEGE

**ASTR 110L: Survey of Astronomy Laboratory**  
**Online, Synchronous**  
CRN 60388, 1 Credit  
Monday, 1:00 PM-3:45 PM

INSTRUCTOR: Marvin Kessler

OFFICE: online

OFFICE HOURS: Wednesday, 11:30am to 1:00pm or by appointment

TELEPHONE: please call instructor cell, 808 222-6573 EMAIL: mkessler@hawaii.edu

EFFECTIVE DATE: Fall, 2021

**WINDWARD COMMUNITY COLLEGE MISSION STATEMENT**

*Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai‘i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide the Ko‘olau region of O‘ahu and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.*

**CATALOG DESCRIPTION**

Demonstration of astronomical principles through laboratory observations and analysis of astronomical data. **Prerequisite:** ASTR 110; may be taking ASTR 110 concurrently.

**ONLINE INSTRUCTION**

**This is a synchronous lab.** That means that students join the Zoom class at 1:00 pm on Mondays and engage in the activities as directed by the Instructor until 3:30 pm. Students must complete the class activities by 3:30 pm. From 3:30 until 3:45 pm students must submit the laboratory report. Reports will not be accepted after 3:45 pm. Some reports will be submitted by email directly to the Instructor, and others will be submitted as an assignment on Lulima. Before the first scheduled class, on August 23, students will receive the necessary Zoom information to be able to join the class. Students do not need to have the Zoom Application on their computers. **They do need, however, to have “audio” and “video” access on their computers.**

**STUDENT LEARNING OUTCOMES**

As a result of taking this course, students can expect to attain the following outcomes:

1. Apply the scientific method to a selected group of topics in astronomy.
2. Collect, report, and analyze data obtained in a laboratory and/or observatory setting in a manner exhibiting organization, proper documentation and critical thinking.
3. Demonstrate a basic understanding of the use of standard astronomical instruments, especially the telescope
4. Perform image analysis, especially as related to astronomical photographic data
5. Identify environmental factors, which affect the outcome of an experiment or observation, and apply basic error analyses techniques.

6. Demonstrate a working knowledge of computer on-line and internet astronomical programs.

### ADDITIONAL INFORMATION

1. All course work is completed during the class time from 1:00-3:45 pm on Mondays. Mr. Kessler will be present in the Zoom classroom during this time in order to help students complete the course work. This means that there is no homework or other work to do outside of this class time. On the other hand, it also means that the work must be completed during the 1:00-3:45 time. **It is essential that students comply with this arrangement.**

2. If a student knows in advance that s/he will miss a class, they should notify Mr. Kessler before class. If the absence is due to a sudden event, like car problems, notify Mr. Kessler as soon as possible after the class. Absences that are out of the control of the student will not be counted as absences. However, if a student misses lab without explanation, s/he will receive a 0 for the lab.

3. Success in this course will be enhanced by:

- having a positive, inquiring attitude
- completing reports in a professional manner
- carefully following instructions on the computer and handouts
- seeking assistance from the instructor

4. A student can determine his/her current grade during any time of the semester by dividing his/her cumulative score by the cumulative points possible and converting into a percentage and referring to the table of Letter Grades.

5. The Imaginarium and the Aerospace Lab are temporarily closed due to the pandemic. When they are able to reopen, be sure to check them out. Imaginarium shows are advertised on the WCC website.

### LEARNING RESOURCES

WORKBOOK: *Lecture-Tutorials for Introductory Astronomy, Third Edition*, by Prather, Slater, Adams, and Brissenden.

The same workbook is required for ASTR 110, Survey of Astronomy Lecture. One copy can be used for both the lecture and the laboratory. It is available on line in paperback. There is not a digital version. Publisher is Pearson Higher Education.

OTHER REQUIRED ITEMS: calculator, metric and English ruler, protractor

### ASSESSMENT TASKS AND GRADING

• **Laboratory Reports:** Lab reports are completed according to the instructions given during each lab session. Reports are worth **20 points** each. There will be 12 reports. This makes a possible point total of 240.

• **Final Semester Grade** will be based on the total points that the student earned, as follows:

Letter Grade   Definition

A	90% - 100% of total possible points
B	80% - 89% of total possible points
C	70% - 79% of total possible points
D	60% - 69% of total possible points
F	below 60% of total possible points

The grading standards, given in the online Windward Community College Catalog, will be followed. The Catalog allows for other assigned grades. **Students are encouraged to consult the instructor at any time about their grade.** Grades also are reported in confidence on Laulima

## **DISABILITIES ACCOMMODATIONS**

If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Accessibility Counselor to discuss reasonable accommodations that will help you succeed in this class. Roy Inouye can be reached at (808) 235-7448, [royinouy@hawaii.edu](mailto:royinouy@hawaii.edu), or you may stop by Hale Kāko‘o 106 for more information.

## **TITLE IX**

Title IX prohibits discrimination on the basis of sex in education programs and activities that receive federal financial assistance. Specifically, Title IX prohibits sex discrimination; sexual harassment and gender-based harassment, including harassment based on actual or perceived sex, gender, sexual orientation, gender identity, or gender expression; sexual assault; sexual exploitation; domestic violence; dating violence; and stalking. For more information regarding your rights under Title IX, please visit: [https://windward.hawaii.edu/Title\\_IX/](https://windward.hawaii.edu/Title_IX/).

Windward Community College is committed to the pursuit of equal education. If you or someone you know has experienced sex discrimination or gender-based violence, Windward CC has resources to support you. To speak with someone confidentially, contact Karla Silva-Park, Mental Health Counselor, at 808-235- 7468 or [karlas@hawaii.edu](mailto:karlas@hawaii.edu) or Kaahu Alo, Designated Confidential Advocate for Students, at 808-235- 7354 or [kaahualo@hawaii.edu](mailto:kaahualo@hawaii.edu). To make a formal report, contact the Title IX Coordinator at 808-235-7393 or [wcctix@hawaii.edu](mailto:wcctix@hawaii.edu).

## **ACADEMIC INTEGRITY**

Work submitted by a student must be the student’s own work. The work of others should be explicitly marked, such as through use of quotes or summarizing with reference to the original author.

All cases of academic dishonesty are referred to the Vice Chancellor for Student Affairs.

## **ALTERNATE CONTACT INFORMATION**

If you are unable to contact the instructor, have questions that your instructor cannot answer, or for any other issues, please contact the Academic Affairs Office:

Location: Alakai 121

Phone: 808-235-7422

Email: [wccaa@hawaii.edu](mailto:wccaa@hawaii.edu)

[CONTINUED ON NEXT PAGE](#)

## CALENDAR FOR LABORATORY SURVEY OF ASTRONOMY

DATE	TITLE	SOURCE	CHAPTER IN TEXT
8/23	<b>Orientation:</b> syllabus, class roster, Zoom, Laulima, etc. <b>Video:</b> “Scientific Method”	Handouts, Zoom, Laulima Online link	NA
8/30	<b>Reading the Sky:</b> “Introducing Stellarium” Activity 1:”Motion of the Celestial Sphere”	Handout	2
9/6	<b>LABOR DAY</b> ---no class		NA
9/13	<b>Reading the Sky:</b> Activity 2: “Stars and Constellations”	Handout Handout	2
9/20	<b>Reading the Sky:</b> Activity 3: Identifying Stars and Constellations	Handout LT: pp.19-20	2
9/27	<b>PRESIDENT’S DAY</b> ---no class		NA
10/4	<b>Reading the Sky:</b> “The Seasons”	“Lecture-Tutorials for Intro Astronomy”: 93-98	2
10/11	<b>Solar System:</b> “Greenhouse Effect”	LT: 105-110	4
10/18	<b>Solar System:</b> “Observing Retrograde Motion” “Parallax and Distance”	LT: 99-100 LT: 41-44	4
10/25	<b>Light:</b> “Light and Atoms” “Types of Spectra”	LT: 65-69 LT: 63-64	8
11/1	<b>Light:</b> “Black body Radiation”	LT: 59-62	8
11/8	<b>Light:</b> RSpec Explorer Demonstration	RSpec Explorer	8
11/15	<b>Stars:</b> “Stellarium”	Handout	8
11/22	<b>Stars:</b> “Doppler Shift”	LT: 75-80	7
11/29	<b>Galaxies:</b> “Milky Way Scales: “Galaxy Classification”	LT: 135-137 LT: 139-142	11
12/6	<b>Cosmology:</b> “Making Sense of the Universe & Expansion” “Expansion, Look Back Times, Distance”	LT: 151-154 LT: 163-164	12