



UNIVERSITY of HAWAII*

WINDWARD
COMMUNITY COLLEGE

ASTR 110L SURVEY OF ASTRONOMY – LAB

CRN = 61280 1 Credit

Term Dates - 16 October to 8 December 2023

Asynchronous Online Course – Check in Daily

INSTRUCTOR:	Sean P. Moroney, Ph.D.	
OFFICE HOURS:	WCC CAMPUS - Imiloa 112B	TBD
	ONLINE – Lulima / Zoom	Saturday 7:00 – 7:55 PM
TELEPHONE:	(808) 236-9117	EMAIL: moroney@hawaii.edu
EFFECTIVE DATE:	Fall 2023	

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 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. Not required for ASTR 110.

Activities Required at Scheduled Times Other Than Class Times

No additional activities

PREREQUISITES

Credit for or registration in ASTR 110 or consent of instructor.

ONLINE ACCESS

This course may be found at lulima.hawaii.edu.

ATTENDANCE & PARTICIPATION

Checking in regularly and interacting with the Instructor and the class is expected. A number of our Assignments require some level of interaction with the Instructor and with other class members. It will be important to observe the Due Dates for the course. A steady progress forward will get us all successfully to the goal.

ANNOUNCEMENTS

The Announcements section in Lulima is a critically important section for the transmission of rapidly changing information about the course. The Announcements should be checked frequently.

STUDENT LEARNING OUTCOMES

The Student learning outcomes for the course are:

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.
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.

LEARNING RESOURCES

Software:

Starry Night College Textbook

To access the Starry Night College Textbook, please follow these directions:

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Step 1. Obtain a Product Code

Purchase directly from the publisher:

Go to the online store - <https://bit.ly/astrotextbook> - and follow the instructions.

You can purchase a Product Code with a credit card or PayPal; the one-time cost is \$29.99.

Your 7-digit Product Code will be immediately emailed to you following purchase.

Check your Spam/Junk folder. The email will come from store@simulationcurriculum.com.

Step 2. Sign In to the Starry Night Learning Platform

Go to <https://learn.simcur.com>

Click the Sign In button. Sign in using the login information and 8-digit password provided by your instructor. Press Continue.

A new window will load requesting access to your account. Press Authorize Access.

You will then be automatically signed into the Starry Night learning platform.

Step 3. Using Your Product Code

After you sign into the Starry Night Learning Platform, you will need to redeem the Product Code to use the Starry Night College Textbook.

Click the Redeem a Product Code button and enter your redeem code.

The Starry Night College Textbook will then be unlocked.

Click on the Assignments Tab to view all exercises assigned by your instructor.

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Course Laulima site:

www.laulima.hawaii.edu: It is here that the course comes alive. Explore this site and ask Questions about its features.

COMMUNICATION

Students are expected to attend class regularly, to participate in class discussions, and to stay current with the course material. They are also expected to behave politely, respectfully, and professionally while communicating with their peers and with the Instructor in online discussions, email, video conferencing, and in other forms of interactions. The UH Internet Etiquette (i.e., “Netiquette”) is available for review in Laulima / Resources / Course Docs.

OTHER CENTRALIZED COURSE INFORMATION

Information on many other aspects of this course may be found in the various documents in Laulima’s Left Menu / Resources / Course Docs. This information is considered as an extension of this Syllabus.

COURSE MODULES & CONTENT

This course is structurally divided into 4 Modules, each of which is composed of 2 Weeks, within which various Course Tasks are to be carried out and completed. The Lab Exercises overlap by one Week, allowing for 7 Lab Experiments to fit into a 18-Week Semester. For example, the second Week of Module 1 overlaps with the first Week of Module 2; the pattern then continues, like stair-stepping, through to the end. The Course Calendar below identifies those time segments.

The theme developed in this course is how the science of Astronomy has developed, with particular attention given to our planetary Solar System. Our companion course, ASTR 110 - Survey of Astronomy, develops the coverage of the discoveries with reference to the universe as a whole. Here we consider some early models people used to make sense of the near Cosmos. We study how the heliocentric model provides simple explanations for how basic astronomical phenomena work and we look at how the guidance from Kepler’s Laws permits us to understand the motions of the planetary bodies. We make use of computer technology to study the motions of Solar System bodies as seen from Earth. We continue with some actual exploration of our real Solar System by studying the findings of some recent spacecraft data. We finally continue with some exploration of the space beyond the small confines of the Solar System.

MODULE 1 - 16 OCTOBER TO 29 OCTOBER 2023

In this Module, we focus on the Basics of Astronomical investigation, such as the movements of celestial bodies in the sky; these are phenomena that the earliest people, before any technology was available, would have noticed. The use of a computer simulation will enable us to analyze the motions of the planets and of the Sun. (SLOs 1, 2, 3, 5, & 6)

MODULE LEARNING OBJECTIVES (MLOs):

Upon completion of this Module, the Student will be able to:

- 1.1 - Use a simulation to locate the main bodies of the Solar System in the sky, as seen from any point on the Earth and at any time within a century of the present time.
- 1.2 - Set up and demonstrate the use of a natal horoscope in Astrology.
- 1.3 - Explain how the experience of the sunrise will be different for observers at different Earth latitudes.
- 1.4 - Explain the terrestrial and the celestial Coordinate Systems.
- 1.5- Describe the differences between the Geocentric and the Heliocentric view of the Solar System.

MODULE 2 - 30 OCTOBER TO 12 NOVEMBER 2023

The focus turns, in this Module, to basic cyclical annual and monthly experiences that all humans have had from the deep past up to the present day. The phenomena studied here are the cycle of the seasons and the cycle of lunar phases. (SLOs 1 & 3)

MODULE LEARNING OBJECTIVES (MLOs):

Upon completion of this Module, the Student will be able to:

- 2.1 - Explain how the Horizon (Alt-Az) Coordinate System is used and how it is related to the Celestial Coordinate System.
- 2.2 - Describe how the Seasons are related to the Zodiac.
- 2.3 - Discuss how the combination of the elliptical orbit and the tilt of the Earth give rise to the meteorological and climatic phenomena we call the seasons.
- 2.4 - Recognize that other worlds can have periodically changing environmental conditions that, although nothing like those on Earth, can be called seasons.

MODULE 3 - 13 NOVEMBER TO 26 NOVEMBER 2023

The ruling force of gravity and its manifestations in Kepler's Laws of Planetary Orbits guides the work in this Module. The common behavior of all the bodies in Kepler's 3 Laws is seen as a unifying factor. The Student gets to design interesting varieties of Solar Systems; these may be put on display in a Viewing Gallery for the enjoyment of the whole class. (SLOs 1, 2, 3, 5, & 6)

MODULE LEARNING OBJECTIVES (MLOs):

Upon completion of this Module, the Student will be able to:

- 3.1 - Explain the role of changing velocities in the determination of the types of orbits that can be possible.
- 3.2 - Compare the effects on planetary orbits of changes in the mass of the Sun and/or the masses of the planets.
- 3.3 - Explain the effects of Kepler's 2nd Law.

- 3.4 - Generalize the findings of Kepler's 3rd Law to the planets of our Solar System.
- 3.5 - Identify Newton's Three Laws of Motion.
- 3.6 - Describe the characteristics of what makes a Solar System stable and unstable.

MODULE 4 - 27 NOVEMBER TO 10 DECEMBER 2023

Using datasets collected by NASA in its exploration of nearby worlds, specifically the Moon and Mars, the final Lab Exercise will involve a simulated exploration of the surfaces of the Moon and Mars (SLOs 1, 2, 3, 4, & 6)

MODULE LEARNING OBJECTIVES (MLOs):

Upon completion of this Module, the Student will be able to:

- 5.1 - Summarize the effects of the lunar motion and the Moon-Sun-Earth geometry that gives rise to the phases of the Moon.
- 5.2 - Identify and explain the nature of selected surface features of the Moon.
- 5.3 - Examine, in a simulation, and comment upon selected surface features of Mars.
- 5.4 - Interpret the differences between these two worlds as we visited them virtually.

COURSE TASKS

The Course Tasks (also called Assignments) described here rely considerably upon active involvement and participation by all course members.

The availability of each Course Task will be made known by an Announcement, which will also be emailed. Three days before a Course Task is Due, an Announcement to that effect will be posted and emailed.

Further details on all these course tasks will be by the Announced placement of labeled documents in the Course Docs section of the Left Menu.

In all Course Tasks, submissions will be inspected for errors or flaws in spelling, grammar, and sentence structure. If necessary, it will be useful to have someone with good language skills function as a proofreader for each Assignment.

- **First Week Introductions (FWI) (1% of the Course Grade (as Extra Credit)):**
 - In the first nine days of the Course, each Student is to post, in the appropriate Forum, complete Answers to five introductory Questions. Each Student should then review the postings of the other Students and should then reply, abiding by the Netiquette protocols posted on the Course website, to a minimum of two (2) of the fellow Students.
 - Out of 100 points, the initial posting, if complete, is worth 70 points. Each reply, to a maximum of 2, is worth 15 points. Additional replies are welcome, since this builds a camaraderie and facilitates teamwork.
 - By the Due Date; the postings should be all complete. **WCC has linked any absence of postings or responses here to the possibility of being disenrolled from the course.**

- **Starry Night (SN) Exercises (25% of the Course Grade):**
 - The Starry Night College Textbook will be available through a weblink to an outside source. Students will have a login/passcode to have access. The subscription price will cover one year's access.
 - The SN website will host the Exercises to be done during the term. The focus of these Exercises will be the Solar System and its contents. The Learning Management System Laulima will be operating in the background, keeping track of the grades and linking them into the Laulima GradeBook.
 - The number of SN Exercises varies from Chapter to Chapter in the Starry Night textbook. A Calendar will be made available for the opening and closing dates of each Chapter. When a Chapter closes, the accumulated scores from all the Chapters used will be tallied. This will be entered into the Laulima Gradebook.
 - The SLOs and MLOs for the Course apply to these Assignments.

- **Lab Exercises (40% of the Course Grade):**
 - In each Module, Students will perform various experimental tasks using the Lab Exercises provided and will complete a Lab Report on each.
 - A document discussing the structure of a Lab Report may be found in the Left Menu / Resources / Course Docs folder.
 - Insights gained from the Starry Night Exercises should be included in the Lab Reports.
 - There will be eight (8) such Lab Reports during the term. The Lab Reports will have Due Dates that are listed in the Table below. Announcements regarding the opening of Lab Reports and their Due Dates will be posted at regular intervals in the Course Laulima site.
 - The **best 7 of the 8 Lab Exercise scores** will be counted toward the Final Grade.
 - The SLOs and MLOs for the Course apply to these Assignments.

- **Ask the Student (AskS) (10% of the Course Grade):**
 - In each Module, in a Forum set up for this purpose, the Instructor will pose one or more thought-provoking Questions on subject matter relevant to the current Module.
 - The Questions may have parts; each Question-part must be answered fully. Students are expected to explore these topics in some detail and then to post considered and thoughtful responses.
 - Basic AskS Instructions are available for the AskSs in their Text Headers in the Assignments Section of the Left Menu. There is also a document on the AskS and the AskP Assignments in the Resources / Course Docs folder.
 - Students must copy the Question block into the Answer space and compose each Answer directly beneath its Question. This facilitates the grading process. If the Questions are not included with their Answers, there will be a request to resubmit; a temporary grade of zero (0) will be applied. This will be corrected with a proper resubmission.
 - Answers previously posted will not be visible to an answering Student until that Student submits his/her own Answer.

- Answers to the Questions must be given in short essays of an appropriate length. The Answers should go into sufficient depth and may bring in related ideas and information from current Astronomical News items or from other sources. Answers should include a Reference Section if information was drawn from an outside source.
 - Grades given for the Answers will depend on the Answer quality, with minimalist Answers getting lower grades and well-thought-out Answers getting higher grades.
 - In addition, each Student must offer a critique to two (2) Answers from fellow Students. All critiques must have an objective basis in the Science.
 - Critiques may be positive (adding in supporting information) or negative (pointing out or correcting errors). The existence of errors in an Answer being critiqued must not be ignored; the critique should be helpful in pointing out errors if any such exist.
 - Critiques must be substantive and must add to the knowledge base being built in the class. While compliments, and like comments, are acceptable, they will not count toward the Assignment Grade. A critique that is purely complimentary or that just repeats what has just been said is informationally empty and will earn a grade of zero (0).
 - **The rules and behavior of Netiquette are to be observed at all times in all our online interactions.**
 - For additional detail on the full procedure here, please review the document, The AskS and AskP Assignments, found in Lulima's Left Menu under Resources / Course Docs.
 - There will be four (4) AskS assignments in total.
 - The **best 3 of the 4 AskS scores** will be counted toward the final grade.
 - The SLOs for each Module apply to these Assignments.
- **Ask the Professor (AskP) (10% of the Course Grade):**
 - In each Module, in a Forum set up for this purpose, each Student will be asked to pose a Questions on Module-related topics, which the Instructor will then explore in some detail.
 - Basic AskP Instructions are available for the AskPs in their Text Headers in the Assignments Section of the Left Menu. There is also a document on the AskS and the AskP Assignments in the Resources / Course Docs folder.
 - The Questions asked must be thought-provoking Questions, exploring the information, and the implications thereof, presented in the Module.
 - Thought-provoking Questions do not include asking for the Instructor's opinions or beliefs on any subject. Such Questions will be set aside and will receive the grade of 0.
 - Questions may be corrected and resubmitted. The most recently asked Question will be the one graded. Please review the wording of any Question posed. A maximum of three (3) resubmissions is possible for any AskP Assignment.
 - Unacceptable Questions are those which require simply looking up the answer in the text or online; these Questions will earn the grade of zero (0).
 - There must be some depth to any Question asked. The Questions asked must make sense and must not contain errors in the Science. Improper spelling, grammar, and/or sentence structure can disqualify a Question. If a Question is rejected, it may be reworked and

resubmitted for credit without penalty, except for any relevant Lateness Deduction. If a Question is rejected and not resubmitted, its grade will be zero (0).

- The Grade given for an accepted Question will depend on the quality of the Question, with a trivial Question getting a lower grade and a profound thought-provoking Question getting a higher grade.
 - Follow-up Questions from the same Student and/or from different Students are welcome.
 - After a Module closes out, the Questions asked, along with their Answers, will continue to be visible; no new Questions may be posted after that time.
 - There will be four (4) AskP assignments in total.
 - The **best 3 of the 4 AskP scores** will be counted toward the final grade.
 - The SLOs for each Module apply to these Assignments.
- **Weekly Reflections (WRs) (5% of the Course Grade):**
 - There is a lot of interesting information in the news from space in this era.
 - In the WR assignments, we'll be sharing the things we thought were most stunning about what the class has covered.
 - In a short paragraph, let us all know what new facts and insights you thought most remarkable. Then comment on the thoughts of two of your fellows.
 - Each WR is counted as worth 20 points. The initial posting will be worth a maximum of 14 points. The two (2) related comments are worth 3 points each. Other comments on the thoughts of other of your fellows are welcome and will add to the dialogue.

GRADING OF COURSE TASKS

The course grade will be computed as follows:

	Number	Max. Score
First Week Interactions	1 (Extra Credit)	1%
Starry Night Exercises	All	25%
Lab Experiments*	Best 7 of 8	40%
Ask the Student*	Best 4 of 5	10%
Ask the Professor*	Best 4 of 5	10%
Weekly Reflections (WR)*	15	5%
	Total =	100%

Course work submitted after specified Due Dates (marked with *) will be subject to a Lateness Deduction, which will generally be 5% per calendar day late, or fraction thereof, after the Due Date. Lateness Deductions may be excused for a valid documented reasons.

Assignment Grading will be completed within one week after the Due Date for each Assignment.

If a Grade is disputed, that dispute must be originated within three (3) weeks after the Due Date.

GRADING SCALE

The final letter grade will be based on the total percentage that the Student has earned from all the course tasks. Each letter grade and its respective level of achievement is provided in the following table:

Letter Grade	Definition
A	90.0% - 100% of cumulative points possible
B	80.0% - 89.9% of cumulative points possible
C	65.0% - 79.9% of cumulative points possible
D	50.0% - 64.9% of cumulative points possible
F	below 50.0% of cumulative points possible

Computed grades will not be rounded up.

Other grades may be assigned as listed in the WCC Catalog.

DISABILITIES ACCOMMODATION STATEMENT

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, royinouye@hawaii.edu, or you may stop by Hale Kākō'o 106 for more information.

SEX DISCRIMINATION/GENDER-BASED VIOLENCE RESOURCES (TITLE IX)

Windward Community College is committed to providing a learning, working, and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking.

If you or someone you know is experiencing any of these, WCC has staff and resources to support and assist you. To report an incident of sex discrimination or gender-based violence, as well as receive information and support, please contact one of the following:

Kaahu Alo, Student Life Counselor & Designated Confidential* Advocate for Students
 Phone: (808) 235-7354
 Email: kaahualo@hawaii.edu
 Office: Hale 'Ākoakoa 232
 *confidentiality is limited

Desrae Kahale, Mental Health Counselor & Confidential Resource
 Phone: (808) 235-7393
 Email: dkahale3@hawaii.edu
 Office: Hale Kākō'o 101

Karla K. Silva-Park, Title IX Coordinator
 Phone: (808) 235-7468
 Email: karlas@hawaii.edu
 Office: Hale 'Ākoakoa 220

As a member of the University faculty, I am required to immediately report any incident of sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title IX Coordinator and I cannot guarantee confidentiality, you will still have options about how your case will be handled. My goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need.

For more information regarding sex discrimination and gender-based violence, the University's Title IX resources and the University's Policy, Interim EP 1.204, go to manoa.hawaii.edu/titleix/

INCOMPLETE GRADE PROCEDURE

Incomplete grades are reserved for cases of illnesses and other emergencies that cause a Student to be unable to complete the course by the Last Day of Instruction. In such cases, if requested, the instructor has the option of issuing an "Incomplete" grade at the end of the semester. Requests for an "Incomplete" must be accompanied, in a timely manner, by substantive documentation. The Instructor must be notified of such issues in the shortest time; requests for an Incomplete grade must be made before the course is completed.

If granted, the "Incomplete" grade will then require a written agreement between the Instructor and the Student clearly defining the remaining course requirements and the time frame within which they are to be completed. The College will review "I" grades six months subsequent to their posting. Unresolved "I" grades will be converted to "F" grades subsequent to the review.

Be aware that active duty military can be charged for tuition for not completing a course as soon as 90 days after the end of the course if the "I" is not changed to a passing grade. Therefore, completing the course in a timely manner is prudent.

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 quotes or summarizing with reference to the original author.

In this class, Students who commit academic dishonesty, cheating, or plagiarism will have the following consequence(s):

- Students will receive failing grades for plagiarized assignments.
- 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: Alaka'i 121
- Phone: (808) 235-7422

ADDITIONAL INFORMATION

- **Instructor Bio - Sean Moroney, PhD**
 - I've had a life-long interest in the sciences, with physics as a particular favorite. I've taken a BS in Physics, a MS in Physics, and a PhD in Engineering Mechanics, with a specialty in Biomechanics. Astronomy, as exemplified in all of our space-age discoveries, has been a source of continued wonderment as everyone learns more and more about the cosmos we are in.

- **Attendance and Participation**
 - Checking in regularly and interacting with the Instructor and the class is expected. It will be important to observe the Due Dates for the course. A steady progress forward will get us all successfully to the goal.
- **Communication Expectations**
 - Students are expected to behave politely, respectfully, and professionally while communicating with their peers and the Instructor in online discussions, email, video conferencing, and in other forms of interactions. The UH Internet Etiquette (i.e., “Netiquette”) is available for review in Laulima / Modules / Course Docs.
- **Work Submitted Late**
 - Work submitted after the Due Date will receive a Lateness Deduction of 5% per calendar day (or fraction thereof) for each day late. This will happen during the Grace Period which begins directly after the Due Date is past. Grace Periods tend to be no more than three (3) days in duration. If there are extenuating circumstances that can be documented, the Lateness Deductions may be waived, in whole or in part; however, the Instructor must be notified about the circumstances in the shortest possible time.
- **Missed Work**
 - Generally, work not submitted will receive the grade of zero. It is the Student’s responsibility to stay current with the Assignments and to keep track of upcoming Due Dates. If there are extenuating circumstances that interfere with this orderly progression, the Instructor must be notified at the earliest date, so that accommodations can be made. If an overly long time period has passed in which a sizable amount of coursework is not submitted, It may not be possible to request that more than a small fraction of that work may be eligible for completion.
- **Extra Credit**
 - Extra Credit is not generally offered in this course. However, a small number of the lowest-graded assignments in most of the categories will be removed from the pool of scores contributing to the Final Grade. This will happen at the end of the term.
- **MySuccess**
 - Students may receive extra help or advising through the MySuccess program. These resources can be explored at MySuccess.hawaii.edu and at windward.hawaii.edu/MySuccess.

OTHER RESOURCES

Course Technology:

Learning Management System utilized by this course is Laulima, accessible from the [WCC main web site](http://WCC.main.web.site), under “Services for Students” tab.

Hardware and Software Expectations:

Students should be comfortable operating a computer browser, such as Mozilla Firefox or Safari, using email, downloading and uploading files. In addition, Students should be comfortable using Adobe Acrobat Reader ([download the free software here](#)) and basics programs within Microsoft Office package (Word, Excel and PowerPoint). Microsoft Office can be obtained via University of Hawai'i's [Information Technology Services](#). In addition, Students should make sure they have the free Adobe Acrobat Reader.

It is recommended that you:

- Use a more recent model desktop or laptop (2014 or later), either Windows or Mac.
- Have access to reliable high-speed Internet connection.
- Use Mozilla Firefox as your web browser, as Lualima is designed to work best with it. Note: that we do not recommend using Internet Explorer for submitting work or taking tests in Lualima.
- Depending on your browser settings, PDF files may open in a new window or tab or automatically download to your download folder

Other technical support:

University of Hawai'i's [Information Technology Services Help Desk](#) is available 24 hours a day, 7 days a week (including holidays) either via email (help@hawaii.edu) or by phone (808-956-2669).

Accessibility at UH and software accessibility information:

- University of Hawai'i's accessibility policies and services are available at the following link: [Accessibility at UH](#).
- To access the accessibility information for each software used in the course, follow the links below:
 - [Macintosh Accessibility Info](#)
 - [Mozilla Firefox Accessibility Info](#)
 - [Microsoft Office Accessibility Info](#)
 - [Adobe Acrobat Reader Accessibility Info](#)

ACADEMIC SUPPORT SERVICES

Tutorial services

Tutorial services are offered free of charge and are open to all WCC Students currently enrolled. Tutoring may be long-term, short-term, or single visit, depending upon the needs of the Student. To sign up for a tutor, refer to one of the many programs listed below:

- **Tutor.com:** The University of Hawaii Community Colleges offers free online, on-demand tutoring, through [Tutor.com](#).
- **TRiO Student Support Services (TRiO SSS):** The purpose of [TRiO SSS](#) is to provide services (everything from tutoring to filing taxes to financial aid and food) and to foster an institutional climate supportive of the success of low-income, first-generation, and/or disabled college Students.

- **Ho‘onui Ike:** [Ho‘onui Ike](#) is an academic assistance program that utilizes peer-assisted study and coaching sessions.
- **Ka Piko Student Success Services:** [Ka Piko Student Success Services](#) are free to all WCC Students and consist of the following resources (please follow the links below for more information):
 - [Math Lab](#)
 - [Writing Center](#)
 - [Speech Lab](#)
 - [Supplemental Instruction](#) (SI)
 - [Peer Mentoring Center](#)

Other Student services

- [WCC Library](#), located in Hale La‘akea, provides access to printed and digital books, periodicals, articles and more. In addition, it provides access to video and audio resources, as well as computers, individual and group study areas and rooms.
- [WCC Bookstore](#): textbooks, computers, software, food items and more can be purchased here.
- [Testing Center](#) (located in Hale La‘akea) provides test proctoring services for placement tests, distance education online and written tests and make-up tests for campus courses.
- WCC [Counseling and Advising](#) department, located in Hale ‘Ākoakoa 212, is comprised of college counselors, faculty and support staff who work to support Students’ personal and academic growth and development.
- WCC [Mental Health and Wellness](#) provides a range of counseling services and activities on campus to support Students’ life goals and academic goals.
- [Disabilities Services](#), located in Hale La‘akea 232, provides information and services to Students with disabilities in order to perform functions that might otherwise be difficult or impossible. Testing and academic accommodations can include the following: tape recorded material, note takers, use of adaptive equipment and more.

COURSE DOCS IN LAULIMA

The Course Docs section in the Modules section of the Left Menu in Laulima is another critically important section that contains some necessary information about the Assignments and other aspects of the Course.

The Course Docs section should be reviewed carefully in the early Weeks of the Course.

CALENDAR OF ASSIGNMENTS

FIRST WEEK INTRODUCTIONS (FWI)

The FWI Assignment is DUE by the EOD
on 23 October 2023.

This is a WCC requirement. If not done,
there is a possibility of being dropped from the course.

STARRY NIGHT EXERCISES (SN)

Because the SN Exercises are not equal in size,
there will be a separate schedule for those.
Grading for completed SN Assignments will be done
on a special schedule.
Information on this will be posted as it is developed.

Starry Night will open on 16 October at 12:01 AM.
The last availability of the Starry Night Assignments will be at
11:59 PM on Sunday, 10 December.

CALENDARS OF DUE DATES

LAB EXERCISES

MODULE	WEEK	LAB	OPEN	DUE	CLOSE
1	1	01	16 Oct	22 Oct	25 Oct
	2	02	23 Oct	29 Oct	1 Nov
2	3	03	30 Oct	5 Nov	8 Nov
	4	04	6 Nov	12 Nov	15 Nov
3	5	05	13 Nov	19 Nov	22 Nov
	6	06	20 Nov	26 Nov	29 Nov
4	7	07	27 Nov	3 Dec	6 Dec
	8	08	4 Dec	10 Dec	12 Dec

ASK THE STUDENT/PROFESSOR (Ask-S/Ask-P)

MODULE	ASK#	OPEN	DUE	CLOSE
1	1	16 Oct	29 Oct	1 Nov
2	2	30 Oct	12 Nov	15 Nov
3	3	13 Nov	26 Nov	29 Nov
4	5	27 Nov	10 Dec	12 Dec

CALENDARS OF DUE DATES

WEEKLY REFLECTIONS (WRs)

WEEK	FROM	DUE	CLOSE
01	20 Oct	22 Oct	23 Oct
02	27 Oct	29 Oct	30 Oct
03	3 Nov	5 Nov	6 Nov
04	10 Nov	12 Nov	13 Nov
05	17 Nov	19 Nov	20 Nov
06	24-Nov	26 Nov	27 Nov
07	1 Dec	3 Dec	4 Dec
08	8 Dec	10 Dec	11 Dec

COURSE CALENDAR

ASTR 110L OL – Fall 2023**Schedule of Modules**

<u>Modules</u>	<u>Topics</u>	<u>Week</u>	<u>Date</u>
Module 1	Simulation Analysis of the Sky with Positions of Planets and Dwarf Planets. The Geocentric Model; The Heliocentric Model	1	16 – 22 Oct
		2	23 – 29 Oct
Module 2	Terrestrial Coordinates (Latitude and Longitude); Celestial Equatorial Coordinates (Declination and Right Ascension). Seasons and the Ecliptic. The Horizon Coordinate System and the Apparent Rotation of the Sky.	3	30 Oct – 5 Nov
		4	6 – 12 Nov
Module 3	Sidereal and Synodic Time; the Seasons and the Zodiac; Daily Motion with Seasonal Effects; Motions of the Sun. Kepler’s Laws of Planetary Motion; Newton and Planetary Motion; Simulation of Planetary Orbits.	5	13 – 19 Nov
		6	20 – 26 Nov
Module 4	Earth-Sun-Moon Geometry and the Phases of the Moon. Simulation of Lunar Phases. NASA’s MoonTrek and MarsTrek	7	27 Nov – 3 Dec
		8	4 - 10 Dec
CONCLUSION and SUMMATION		11- 15 Dec	
Fall Semester Ends		15 Dec 2023	