ASTR 110     SURVEY OF ASTRONOMY
CRN = 61239
3 Credits
Asynchronous Online Course – Check in Daily

INSTRUCTOR: Sean P. Moroney, Ph.D.
OFFICE HOURS: WCC CAMPUS - Imiloa 112B   TBD
              ONLINE - Canvas / Zoom   Sunday 7:00 – 8:00 PM
TELEPHONE: (808) 236-9117   EMAIL: moroney@hawaii.edu
EFFECTIVE DATE: Spring 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 O‘ahu’s Ko‘olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

CATALOG DESCRIPTION
Introduction to the astronomical universe for non-science majors.
No additional activities

PREREQUISITES
There are no prerequisites for this course.

ONLINE ACCESS
This course may be found at windwardcc.instructure.com.

ANNOUNCEMENTS
The Announcements section in Canvas is a critically important section for the transmission of rapidly changing information about the course. The Announcements should be checked frequently.
STUDENT LEARNING OUTCOMES (SLOs)

The student learning outcomes (SLOs) for the course are:

1. Outline the development of astronomy from ancient times to present and explain the role of the scientific method in this historical context.
2. Describe and explain the apparent motions of the celestial bodies, especially as related to naked-eye observations.
3. Identify the appropriate instruments used by astronomers to understand the universe.
4. Outline the origins of our solar system and appraise the leading cosmological theories of the origin of the universe.
5. Describe the physical and chemical properties of the objects in our solar system and apply the concept of comparative planetology.
6. Describe the physical and chemical nature of stars, and especially our sun, and apply the astronomical techniques used to measure stellar properties.
7. Outline the evolutionary stages in a star's life and compare and contrast the structure of our Milky Way and other galaxies.
8. Apply astronomical concepts to the search for extraterrestrial life.

LEARNING RESOURCES

Textbook:


Here is a direct link to the textbook: [https://openstax.org/details/books/astronomy](https://openstax.org/details/books/astronomy)

You can access the free online, phone app, and PDF formats of Openstax books by following these steps:

1. Go to [https://openstax.org/subjects](https://openstax.org/subjects)
2. Click on the cover of the book you would like to view. This will take you to its Details page
3. Under the **Get the book** heading on the left, select the format you would like to use.
   It's that easy!

In addition to the free formats, there are also low-cost print copies for all the Openstax books. Individual orders can be placed through [Amazon](https://www.amazon.com), and bookstores can order through [partnered suppliers](https://www.openstax.org/partnered-suppliers).

Course Canvas site:

**www.windwardcc.instructure.com**: It is here that the course comes alive. Explore this site and ask questions about its features.

Information on many other aspects of this course may be found in Canvas / Modules / Course Docs.
The course is structurally divided into 5 Modules, each of which has a 3-week window within which various Course Tasks are to be carried out and completed. The Course Calendar below identifies those time segments.

**Module 1:** Here we cover the basics. These include the overall view of the universe as it stretches through space and time, the development through time of the advances in the understanding of the things in the sky, the local phenomena we see from our perspective on a moving platform (Earth) within the solar system, the understanding of the types of radiation that inform us about the cosmos, and the technology that lets us actually detect interesting phenomena in deep space. (SLOs 1, 2, &3)

**MODULE LEARNING OBJECTIVES:**
Upon completion of this Module, the student will be able to:

1.1 - Discuss the spatial dimensions and the age of the universe.
1.2 - Identify the motions of the Earth and of the Sun, the stars, and all the galaxies.
1.3 - Describe the development of Astronomy from ancient days through to the present.
1.4 - Explain the ordinary celestial and terrestrial phenomena of day and night, the seasons, and the motions of the Moon and the planets, both as the ancients saw them and as we see them today.
1.5 - Discuss the various components of the electromagnetic spectrum and identify how these radiations relate to physical phenomena in deep space.
1.6 - Compare and contrast the types of modern telescopes and how they work together to give us a deeper understanding of celestial phenomena.
Module 2: The origin of the solar system is discussed. The various planetary and satellite bodies of the Solar System are then reviewed in detail. The current state of our knowledge of the terrestrial planets, the jovian planets, and their moons is examined. (SLOs 3, 4, & 5)

MODULE LEARNING OBJECTIVES:
Upon completion of this Module, the student will be able to:
2.1 - Describe how the Solar System formed according to the Nebular Theory.
2.2 - Describe Earth as a planet, explaining its various properties.
2.3 - Describe the other worlds of the inner Solar System - Mercury, Venus, Mars, and the Moon.
2.4 - Explain the differences of the jovian planets when compared with the terrestrial worlds.
2.5 - Describe the rings of the jovian planets, the differences among their many moons, and the orbiting body known as Pluto.

Module 3: The comets, asteroids, and meteorites in our Solar System are examined. The recent discoveries of other solar systems and of the varieties of planets orbiting distant stars is discussed. Then the nearest star, our Sun, and the other stars are compared and contrasted. The properties of stars of all types is reviewed. The H-R Diagram is introduced both as a tool for cataloging star types and as a way of displaying their evolutionary development. (SLOs 4, 5, & 6)

MODULE LEARNING OBJECTIVES:
Upon completion of this Module, the student will be able to:
3.1 - Discuss the differences between asteroids and comets and how these compare with meteorites.
3.2 - Integrate what has been learned so far into the current theory of how the Solar System formed.
3.3 - Describe the Sun, its cyclical activity, and its internal structure and composition.
3.4 - Explain the process of energy generation in the Sun by nuclear fusion.
3.5 - Explain how a star’s absolute luminosity and temperature are measured and how its size and motion may be determined.
3.6 - Demonstrate how the H-R Diagram classifies the stellar population.
**Module 4:** The measurement of the stellar distances and the contents of the space between the stars is investigated. The birth and aging of different types of stars is discussed. The end-stages of low- and high-mass stars (white dwarfs, neutron stars, and black holes) are then explored. (SLOs 6 & 7)

**MODULE LEARNING OBJECTIVES:**
Upon completion of this Module, the student will be able to:
4.1 - Describe the process of determining the distances to the stars.
4.2 - Describe the nature of the material that occupies the space between the stars.
4.3 - Describe the process of star formation.
4.4 - Explain the differences between our Solar System and the recently discovered Solar Systems around other stars.
4.5 - Describe how an aging star’s characteristics change, as seen on the H-R Diagram.
4.6 - Explain the differences between the events leading to the death stages of low-mass and high-mass stars.
4.7 - Compare and contrast the formation/properties of neutron stars and black holes.

**Module 5:** Galaxies, both the Milky Way Galaxy in which we are located and other types that we have measured, are examined. Their distances, along with their implications, are reviewed. The cosmology of the Big Bang, along with the current topics of dark matter and dark energy, are examined. We conclude with a discussion of life in the cosmos. (SLOs 4, 7, & 8)

**MODULE LEARNING OBJECTIVES:**
Upon completion of this Module, the student will be able to:
5.1 - Describe the structure of the Milky Way Galaxy.
5.2 - Identify the different types of galaxies.
5.3 - Explain how the distances to galaxies is determined.
5.4 - Describe the nature of quasars.
5.5 - Describe the distribution of galaxies within the universe.
5.6 - Describe the evidence for the existence of dark matter.
5.7 - Describe the evidence in favor of the Big Bang Theory.
5.8 - Explain the overall process of the Big Bang and how it resulted in today’s universe.
5.9 - Explain how dark energy is exerting its effects on the universe.
5.10 - Discuss the possibilities of life elsewhere in the universe.
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.

- **Projects (25% of the Course Grade):**
  - There will be two (2) Projects during the term. The Project Reports will have Due Dates that are, in general, independent of the Module Schedule.
  - Instructions will be available in the Info Text Headers in both the Project Topics and the Project Reports, located in the Assignments section of the Left Menu. Instructions will also be available in the Left Menu / Modules / Course Docs.
  - The Topic selected for each Project Report must be submitted for approval by a particular Due Date. Instructions for this are posted in the Assignment site; a reminder will be posted as an Announcement.
  - The Topic selection is valued as 10 points of the 100 points for the Project. The Topic may be resubmitted continuously during a Grace Period until it is approved. If no Topic is selected, any subsequent Report will not be approved.
  - The Project Report is valued as 90 points of the 100 points for the Project. Details of the formatting, etc., of the Project will be posted in the Course Docs section of the Left Menu.
  - All Project Reports will be placed in a Viewing Gallery for all to see and read. Students may, there, leave comments and questions for each other. The Instructor will also ask questions.
  - The Instructor will post some review comments and some questions in a Projects Discussion Forum. Follow-up discussion from the same student and/or from different students are welcome. As a graded part of the Assignment, each student is expected to meaningfully answer any and all questions posed by the Instructor and/or by other students.
  - In addition, each student must offer a critique of two (2) Projects from two (2) different fellow students. Critiques may be positive (adding in supporting information) or negative (pointing out or correcting errors). All critiques must abide by the rules of Netiquette and must be professionally phrased. Critiquing is part of our interactions; the critiques will be totaled into the Assignment grade.
  - Critiques must be substantive and must add to the knowledge base being built in the class. Comments such as praising fellow students, repeating what they said, saying how much you learned from them, or the like, are not substantive comments; any such comment will be ignored in the grading.
  - **The rules and behavior of Netiquette are to be observed at all times and in all our online interactions.**
  - The SLOs for the Course apply to these Assignments.
**Weekly Quizzes (WQs) (20% of the Course Grade):**
- In each of the 15 Weeks of the term, there will be two (2) Weekly Quizzes (WQs). Each WQ will be associated with a single Chapter in the text; for example, WQ9 will be focused on Chapter 9. There will be ten (10) randomly selected questions in each WQ.
- Each WQ has a specific date of availability and a specific Due Date; these are listed in the Calendar section of the Syllabus, below, and will also be Announced. Each continues to be available during a 4-day Grace Period, during which a 5%-per-day Lateness Deduction may be assessed; after each Grace Period, the WQ becomes unavailable.
- The WQs are timed, with each attempt being allotted thirty (30) minutes. A WQ may not be paused once it has begun.
- Each WQ may be taken a maximum of three (3) times; the best score of the three is the one that will be recorded.
- The **best 26 of the 30 WQ** scores will be counted toward the final grade.
- The SLOs and MLOs for each Module apply to these Assignments.

**Ask the Professor (AskP) (10% of the Course Grade):**
- During the timeframe of each of the five (5) Modules, in forums set up for this purpose, each student will be asked to pose two separate thought-provoking questions on specific Module-related topics, which the Instructor will then explore in some detail.
- Questions asked must not be simple look-up-the-answer-style questions; there must be some depth to each question. The AskP question must be related to the subject matter of the Chapters of its Module.
- Any question that is asked must make sense and must not contain errors in the science. Improper spelling, grammar, and/or sentence structure can disqualify a question. Any such questions will be rejected; the question may be reworked for credit to be earned.
- If a question has multiple sub-questions, each should be placed on separate lines and should be designated as a, b, c, etc. or as 1, 2, 3, etc. This guarantees that each sub-question is fully answered.
- Acceptable thought-provoking questions do not include asking for the Instructor’s opinion on any subject. This does not mean that a speculative question cannot be asked; speculations explore the edges of our knowledge and are quite welcome.
- The Instructor will give reasonably in-depth answers and will pose questions in response. Any such questions must be answered before the Grace Period ends.
- 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 more profound thought-provoking question getting a higher grade.
- Follow-up questions from the same student and/or from different students are welcome.
- After a Grace Period closes out, the questions asked, and their answers, will continue to be visible; no new questions may be posted after that time.
- There will be ten (10) AskP assignments in total. The schedule of the AskPs is given below.
- The **best 8 of the 10 AskP scores** will be counted toward the final grade.
- The SLOs and MLOs for each Module apply to these Assignments.
• **Ask the Student (AskS) (10% of the Course Grade):**
  o During the timeframe of the fifteen (15) Weeks, in forums set up for this purpose, the Instructor will pose thought-provoking questions on topics relevant to the current Module. There will be two (2) such AskS questions in each Module.
  o Questions asked may have multiple sub-questions; these will be placed on separate lines and will be designated as a, b, c, etc. or as 1, 2, 3, etc. Answers given are required to use the a, b, c, etc. or as 1, 2, 3, etc. system. This guarantees that each sub-question is fully answered.
  o Students should just copy the question block into the answer space and compose each answer directly beneath its question.
  o Students are expected to explore the Module topics in some detail and to post considered and thoughtful responses.
  o Any answers previously posted will not be visible to an answering student until that student submits his/her own answer.
  o The answers to the questions must be given in a short essay of about 75 or more words. The answers should go into some depth and may bring in related ideas and information from current astronomical news items or from other sources.
  o If information is drawn from an outside source, the answer should include a Reference to the source. It is proper educational etiquette to give credit where credit is due.
  o The grade given for the answer(s) will depend on the quality of the answer(s), with a minimalist answer getting a lower grade and a well-thought-out answer getting a higher grade.
  o In addition, each student must offer a critique to two (2) answers from two (2) fellow students. Critiques may be positive (adding in supporting information) or negative (pointing out or correcting errors). All critiques must abide by the rules of Netiquette and must be professionally phrased. Critiquing is an important part of our interactions; the critiques will be totaled into the Assignment grade.
  o Critiques must be substantive and must add to the knowledge base being built in the class. Comments such as praising fellow students, repeating what they said, saying how much you learned from them, or the like, are not substantive comments; any such comment will be ignored in the grading.
  o **The rules and behavior of Netiquette are to be observed at all times and in all our online interactions.**
  o After a Grace Period closes out, the questions asked, and their answers, will continue to be visible; no new answers may be accepted after that time.
  o There will be ten (10) AskS assignments in total. The schedule of the AskSs is given below.
  o The **best 8 of the 10 AskS scores** will be counted toward the final grade.
  o The SLOs and MLOs for each Module apply to these Assignments.

• **Cosmic News Articles (CN-A) (1% of the Course Grade):**
  o During the timeframe of each of the five (5) Modules, in forums set up for this purpose, students will present a Cosmic News Report, based on a set of Cosmic News Articles. The Articles, retrieved from reputable web-based internet sources, must be related to the current Weekly topics in a particular Module.
In these Assignments, students are expected to find Articles of interest on a single topic, to read them carefully for relevance, and then to submit them for approval before continuing.

Instructions on each of these Assignments, and their related Cosmic News Reports, will be posted in Announcements and in the Info Text Header of each Assignment. Instructions will also be available in the Left menu / Modules / Course Docs.

The first step is to locate at least 2, but no more than 4, Cosmic News Articles of interest on a single topic and then to claim them by submitting a citation list of their titles, authors, and sources for approval in the appropriate location within Canvas, along with a one- or two-sentence summary of their contents.

The topic chosen must not be too broad or extensive. A topic like “Mars” is too large and ill-defined and will not be approved; a topic like “The Polar Ice Caps of Mars” is much more well-defined and is, therefore, more suitable.

No two students may use the same Article; it’s first-come, first-served on the Articles. These claimings of Articles have Due Dates (and Grace Periods), listed below.

Reputable online sources of Articles will be supplied by the Instructor; students may discover other sources on their own.

The Grace Period here is the 10 days following the Articles Due Date; the Lateness Deduction is 5% per day, or fraction thereof.

If Articles are not submitted by the end of their Grace Period, the related Cosmic News Report will not be accepted.

The Instructor will then review the Articles for significance and relevance; once approved, the CN-A score will be entered, the student will be so informed, and then he/she can then move on to preparing the Report.

The claiming of the Articles is worth 10 of the 100 points for the full CN-(A+R) assignment; the CN-A total score amounts to 1% of the Course Grade.

No new Article submissions may be accepted after the end of the Grace Period.

There will be five (5) CN-A assignments in total. The schedule of the CN-As is given below.

The best 4 of the 5 CN-A scores will be counted toward the final grade.

The SLOs and MLOs for each Module apply to these Assignments.

• Cosmic News Reports (CN-R) (9% of the Course Grade):
  o After having the Cosmic News Articles accepted, the next step is to compose a summary of the Articles and then to prepare a Report.
  o The Cosmic News Report must be factual; but it may conclude with the student’s own insights into the importance and relevance of the Articles. It should also connect with information being covered in the current Module of the course.
  o If Articles have not been submitted by the end of the Article Grace Period, the related Cosmic News Report will not be accepted.
  o The Grace Period here is the 4 days following the Report Due Date; the Lateness Deduction is 5% per day, or fraction thereof.
The grade given for each Report will depend on the depth and breadth of the Report and of any subsequent discussions, with minimalist Reports getting lower grades and well-thought-out Reports getting higher grades. Content is important; but the packaging of that content will also be considered in the grading.

The Report is worth 90 of the 100 points for the full CN-(A+R) assignment; this amounts to 9% of the Course Grade.

All Cosmic News Reports will be placed in a Viewing Gallery for all to see and read. Students may, there, leave comments and questions for each other. The Instructor will also ask questions.

After a Grace Period closes out, all of the Reports will continue to be visible; no new Reports may be accepted after the end of the Grace Period.

The Instructor will post some review comments and may ask some questions in a Cosmic News Reports Discussion Forum. Follow-up discussion from the same student and/or from different students are welcome. As part of the Assignment, each student is expected to meaningfully answer any and all questions posed by the Instructor and/or by other students.

In addition, each student must offer a critique of two (2) Reports from two (2) different fellow students. Critiques may be positive (adding in supporting information) or negative (pointing out or correcting errors). All critiques must abide by the rules of Netiquette and must be professionally phrased. Critiquing is part of our interactions; the critiques will be totaled into the Assignment grade.

Critiques must be substantive and must add to the knowledge base being built in the class. Comments such as praising fellow students, repeating what they said, saying how much you learned from them, or the like, are not substantive comments; any such comment will be ignored in the grading.

The rules and behavior of Netiquette are to be observed at all times and in all our online interactions.

There will be five (5) CN-R assignments in total. The schedule of the CN-Rs is given below.

The best 4 of the 5 CN-R scores will be counted toward the final grade.

The SLOs and MLOs for each Module apply to these Assignments.

• **Module Tests (MTs) (20% of the Course Grade):**
  
  Five (5) Module Tests (MTs), taken online through Canvas, will take place at approximately 3-week intervals, according to the Test Schedule listed below. Each MT will cover all of the Chapters/Sections in one of the five Modules of the course.

  Each MT will consist of 50 questions, randomly selected from a pool of multiple-choice and true/false questions.

  The time allowed for each MT will be 90 minutes. Once the MT is opened, it may not be paused or cancelled.

  Three (3) attempts at each MT will be permitted. The best score of the three MTs will be the one recorded.

  The best 4 of the 5 MT scores will be counted toward the final grade.

  The SLOs and MLOs for each Module apply to these Assignments.
Participation (P) (5% of the Course Grade):
- Being active in this online course each Week is important for your academic progress.
- A maximum Participation grade of 10 points per week can be earned by visibly making postings and engaging in discussions with the other students and/or with the Instructor.

GRADING OF COURSE TASKS
The course grade will be computed as follows:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Number</th>
<th>Max. Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects</td>
<td>2</td>
<td>25%</td>
</tr>
<tr>
<td>Cosmic News Articles</td>
<td>Best 4 of 5 (Drop 1)</td>
<td>1%</td>
</tr>
<tr>
<td>Cosmic News Reports</td>
<td>Best 4 of 5 (Drop 1)</td>
<td>9%</td>
</tr>
<tr>
<td>Weekly Quizzes</td>
<td>Best 26 of 30 (Drop 4)</td>
<td>20%</td>
</tr>
<tr>
<td>Ask the Professor</td>
<td>Best 13 of 15 (Drop 2)</td>
<td>10%</td>
</tr>
<tr>
<td>Ask the Student</td>
<td>Best 13 of 15 (Drop 2)</td>
<td>10%</td>
</tr>
<tr>
<td>Module Tests</td>
<td>Best 4 of 5 (Drop 1)</td>
<td>20%</td>
</tr>
<tr>
<td>Participation</td>
<td>15</td>
<td>5%</td>
</tr>
</tbody>
</table>
---                  | Total =              | 100%       |

Course work submitted after specified Due Dates will be subject to a Lateness Deduction, which will generally be 5% per calendar day late after the Due Date. The Lateness Deduction may be excused for a valid documented reason.

Assignment Grading will be completed within one week after the Due Date for that 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:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90% - 100% of cumulative points possible</td>
</tr>
<tr>
<td>B</td>
<td>80% - 89.99% of cumulative points possible</td>
</tr>
<tr>
<td>C</td>
<td>65% - 79.99% of cumulative points possible</td>
</tr>
<tr>
<td>D</td>
<td>50% - 64.99% of cumulative points possible</td>
</tr>
<tr>
<td>F</td>
<td>below 50% of cumulative points possible</td>
</tr>
</tbody>
</table>

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, royinouy@hawaii.edu, or you may stop by Hale Kākoʻo 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 ʻĀkoakoa 232
*confidentiality is limited

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

Karla K. Silva-Park, Title IX Coordinator
Phone: (808) 235-7468
Email: karlas@hawaii.edu
Office: Hale ʻĀkoakoa 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, 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 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 Canvas / 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 four (4) 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 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.

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**OTHER RESOURCES**

**Course Technology:**
Learning Management System utilized by this course is Laulima, accessible form the WCC main web site, under “Services for Students” tab. To log in, please use your University of Hawaii login information, the same one used to log into your UH email and MyUH/STAR systems. To access Laulima (Sakai) Accessibility information follow this link: Laulima Accessibility.

**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 PowePoint). 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 Laulima is designed to work best with it. Note: that we do not recommend using Internet Explorer for submitting work or taking tests in Laulima.
  - Depending on your browser settings, PDF files may open in a new window or tab or automatically download to your download folder.

Laulima and 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). Laulima support can also be accessed directly from any Laulima page by clicking on Request Assistance link at the bottom of the page.

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
  - Laulima 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 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.
- **Hoʻonui**: Hoʻonui 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.
# Calendars of Due Dates

## Projects

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## Ask the Student/Professor (Ask-S/Ask-P)

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### COSMIC NEWS - ARTICLES (CN-A)

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### MODULE TESTS (MTs)

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## ASTR 110 OL – Spring 2021

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18 May 2021

Aloha!