**COURSE INFORMATION**

**COURSE TITLE**
AST101-Astronomy I: GT-SC1

**COURSE DESCRIPTION**
This course focuses on the history of astronomy, the tools of the astronomer and the contents of the solar system including the planets, moons, asteroids, comets, and meteoroids. Incorporates laboratory experience.

This course is one of the Statewide Guaranteed Transfer courses. GT-SC1

- [gtPathways Requirement Course Information Page](#)

**CREDIT HOURS**
4 credits (3 credits - text and course learning materials; 1 credit - laboratory).

**SUGGESTED PREREQUISITE KNOWLEDGE**

- See your home college for information on specific pre- and co-requisites. We strongly recommend that you have college level math, reading, writing, and study skills before enrolling in this course.

- Proficiency in basic computer skills (i.e. keyboarding, e-mail, and WWW skills) is highly recommended in order to effectively participate in the course.
CCCOnline Course Policies

The CCCOnline Course Policies page contains information about the student's role in the classroom, grading policies, and rights and responsibilities.
COURSE MATERIALS

Your textbook is available online as an eText. You do not need to purchase any additional materials. For specific information on refund policies and the optional black and white textbook available for purchase please contact the CCCOnline bookstore.

MINIMUM COMPUTER REQUIREMENTS

To complete this course, you will need regular access to a computer from which you can get to the Internet and use email. In order to ensure that your course functions properly, you must run the System Check. This is a CRITICAL STEP, and taking the time to do it now will eliminate a tremendous amount of frustration for you later. To run the System Check, click Tools in the course NavBar and then click System Check.

REQUIRED eTEXT


DIGITAL MATERIALS ACCESS AND SETUP

This course uses MyLabsPlus (MLP) which contains the eText in addition to interactive media content to help you remember what you learn.

- Visit the Pearson MyLabsPlus Course Start page for details on first access of the materials.

To make sure your computer is set up correctly to access the eText and other digital content, review the Pearson Technical Support page, also linked in the Technical Support Module.

LAB KIT

You do not need to purchase a lab kit for this course. All the materials needed should be found easily around your home or purchased very cheaply.

ADDITIONAL MATERIALS THE STUDENT MUST PROVIDE:

- Binoculars or a telescope (see the General Laboratory Instructions for detailed information)

- Either a scanner or a camera/cell phone to photograph specific documents you will be required to insert/attach to specific assignments. Photos submitted for assignments will be required to be .jpg, .tif or .bmp format. Please note that the scanner should only be used to scan your drawings. All lab reports need to be typed and submitted as text-based documents.

- Access to a printer to print out observations sheets. Labs that you will need to access a printer for are:
  - The Big Dipper Lab (Module 1)
The Telescope Lab (Module 2)

Midterm Project

- Some labs might require general household items like string, tacks/pins, colored pencils, graph paper, a ruler, a single source light such as a flashlight or cell phone light, etc.
  - A protractor, if you don't have one on hand: Protractor
  - Calculator: Web 2.0
  - Printable graph paper: Free Graph Paper

- For the Determining Asteroid Properties Lab in Module 4, you will need to purchase 2 potatoes and have an apple at hand. Please see the lab for further details.

**PHOTO AND CAMERA REQUIREMENTS**

This course requires access to a digital camera (cell phones cameras are acceptable). Students will be required to submit photos as part of specified assignments within this course. Photos submitted for assignments will be required to be .jpg, .tif or .bmp format. Assignments without required photos and proper formatting may result in a zero grade.

**OFFICE 365**

You have access to and can download a free version of the Microsoft Office suite through 365. It will be vital that you submit the correct type of files to the Assignment folders in this course. Please reference these instructions.

**PLUG-INS AND EXTRAS**

- Adobe Flash
- Adobe Reader
- QuickTime
COURSE COMPETENCIES AND OUTCOMES

STUDENT COMPETENCIES
The competencies you will demonstrate in this course are as follows:

A. Recognize the distinctions between science, pseudoscience and non-science
B. Describe the scientific method in detail
C. Collect, organize, interpret and present data in a systematic manner, using charts, graphs, and tables
D. Analyze scientific data evidence and sources to support a theory/data critically
E. Set up and solve problems using geometry, algebra, trigonometry, and the metric system as required
F. Describe the physical scale and timescale of the universe
G. Apply the physics of gravity and motion as they apply to astronomy
H. Discuss the basic properties of light and its uses in astronomy and cosmology
I. Identify objects and classify types of objects visible in the night sky
J. Relate the history of astronomy as an example of the development of scientific process
K. Relate processes of planetary atmospheres to observed atmospheric features in all planets and processes of planetary geology to observed features of terrestrial planets
L. Demonstrate the ability to select and apply contemporary forms of technology to solve problems or compile information
M. Describe the cause of moon phases and seasons
N. Relate the observed motion of objects in the sky to the real motion of Earth-Moon-Sun-Star system
O. Explain the current leading theory of planetary formation
P. Characterize minor bodies of the solar system: asteroids, comets, and dwarf planets
Q. Categorize space exploration missions
R. Describe the current status of space exploration
S. Breakdown current methods of exoplanet detection
T. Appraise the current status of astronomers’ understanding of the properties of know exoplanets
U. Evaluate arguments about the possibility and prevalence of extraterrestrial life

The module outcomes that will permit you to demonstrate course competencies are:
### Module 1

**Outcomes**

1. Estimate a rough approximation of the scale of the universe in both space and time  
   **Competencies**: F
2. Describe the motion of the Earth, Sun, Moon, and planets in space and explain how those motions appear from a specific point of view on Earth  
   **Competencies**: F, N
3. Relate the motions of celestial objects to our time-keeping systems; the day, month and year  
   **Competencies**: C, D, F, L  
   \((A,B)\)
4. Outline and employ the steps of the Scientific Method  
   **Competencies**: A, B
5. Compare and contrast the historical contributions to astronomy from various ancient cultures, including the big players like Ptolemy & Copernicus  
   **Competencies**: J
6. Distinguish what can be found on the Celestial Sphere and relate that to motions of the sky  
   **Competencies**: I, N
7. Identify and recognize the math skills needed for this course  
   **Competencies**: E
8. Identify and recognize the software tools and instruments to be used in labs  
   **Competencies**: L

### Module 2

**Outcomes**

1. Identify how motion relates to Newton's Laws  
   **Competencies**: C, D, E
   **Competencies**: C, D, E, G
3. Identify the basic nature of light and spectroscopy  
   **Competencies**: E, H
4. Explain why astronomers use telescopes and the advantages of their use compared with naked-eye observing  
   **Competencies**: L

### Module 3

**Outcomes**

1. Describe the general layout of the Solar System and distinguish the characteristics of the terrestrial and Jovian planets  
   **Competencies**: C, D
2. Describe the theory of solar system formation  
   **Competencies**: G, L, O
3. State similarities and differences between the planets; overall characteristics, internal structure, external appearance, geology  
   **Competencies**: K, O
4. Describe the most significant moons and ring systems in the Solar System  
   **Competencies**: P
5. Compare and contrast planetary atmospheres  
   **Competencies**: K
MODULE 4

Outcomes
1. Compare and contrast comets, asteroids and meteorites and how they give us insight into the formation of the Solar System and where we came from
2. Identify the techniques used in the search for planets around other stars and the results of those searches to date
3. Describe the search for extraterrestrial intelligence and the probability of finding it

Competencies
- P
- C, D, S, T
- R, U
**GRADING AND EVALUATION**

**METHODS**
Evaluation includes a combination of discussion participation, assignments, and other evaluations. Rubrics are provided for assignments and discussions.

**GRADING POLICIES**
Mark all Module due dates on your calendar for this class. You may submit assignments AHEAD of schedule.

No late work is accepted in this course (except in the case of documented extreme personal emergencies, e.g. a Doctor's note, hospital papers, etc.). All military students need to contact your instructor well before any absences/deployments are known about. Due dates will be enforced.

- Due dates are outlined in your Schedule.
- If you have a technical problem of any kind ...your server goes down, your computer melts, etc. or if your online course gets bogged down (this happens very infrequently and only for a few hours at a time), you are still responsible for the work.
- Get your work done on time and well before the deadline.
- Plan ahead. Discussion postings are time-sensitive within each Module and cannot be made up.
- Quizzes, Homework and Labs will only be available during the assigned times as specified in the Schedule.
- Do not attempt to send labs through the D2L e-mail as attachments as they are larger than the E-mail capacity.

**PLAGIARISM**
Plagiarism is the act of using words and/or ideas from another person or source without acknowledgment or attribution of that person or source. Plagiarism, cheating, or helping someone else violate reasonable standards of academic behavior will not be tolerated.

- The instructor may, in any such instances, render a failing grade (zero) for any plagiarized assignment on the first offense and an F for the entire course on the second offense.
- ALL work submitted by a student should be in their own words. This includes Discussion Posts, Lab reports and Quiz answers.
• Any quotes or information used from an outside source must be clearly referenced. Self-plagiarism also falls under this category. Work from a previous semester may not be used. Your instructor has the expectation that all work completed will be unique to the current semester.

• You may confer with other students about the labs or other assignments in this course, but all work submitted must be your own and unique. If you do work with a classmate on an assignment please alert your instructor before turning in your work.

See Course Success Without Plagiarism in the Syllabus Module for more information.

SUMMARY OF GRADING

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussions (14 @ x13 points each)</td>
<td>182</td>
<td>18%</td>
</tr>
<tr>
<td>Homework (Intro to Mastering Astronomy and Chapter Assignments)</td>
<td>100</td>
<td>10%</td>
</tr>
<tr>
<td>Lab Reports</td>
<td>300</td>
<td>30%</td>
</tr>
<tr>
<td>Quizzes (15 @ 13 points each)</td>
<td>195</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm Project (100 points) and Final Project (125 points)</td>
<td>225</td>
<td>22%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1002</td>
<td>100%</td>
</tr>
</tbody>
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Grading Scale

A = 90 to 100%  B = 80 to 89%  C = 70 to 79%  D = 60 to 69%  F = 59% and below

FINAL GRADES

Final grades will be determined by the number of points you earn divided by the total number of points available x 100, as a percent. For example: If your total points are 873, your final grade will be determined from 873/1002 x 100 = 87.1%, which will result in a "B" in this course. In order to receive an A in this course, your score needs to be 896.8 or higher. The grades are final and non-negotiable. They are a measure of your own aptitude and effort. It is expected for you to accept your own performance as an integral part of yourself.

DISCUSSIONS

GENERAL INFORMATION

Due dates for each Discussion Topic is posted in the Course Schedule. Please note that the due dates will not correspond to the open/close dates you see in the Topic. This is due to the student needing time to complete the activity. Expect to check the discussion Topic throughout that time period in order to check for posts posed to you or additional required instructor posts.

The discussion area is our classroom and your means of participating in the classroom interaction. In this course, there will be at least one graded discussion topic per chapter covered allowing you to research, ponder and write/debate about with your classmates and instructor. References to relevant outside sources or real life that relate to the discussion questions may be included in your discussions. You will be graded on your participation in this Discussion. Unlike Exams, Labs and MLP Assignments which you may wait until the deadline to submit, these discussions are not a self-paced activity. These discussions do not work if you are only posting a summary or initial response and not interacting with your classmates and myself. They also do not work if you are posting late in the
discussion period (see below). Imagine going to a debate/discussion meeting after everyone has left and you are trying to deliver a speech to and get an interaction from an empty room.

Student evaluations of CCCOnline courses reflect the importance of the discussion area to successful online classes. Students tell us "I felt that the class discussions were interesting"; "kept all the students engaged"; and "I really liked the interaction between the people in the discussions. I thought that each person's input really helped give a broad perspective of the subject and helped me learn." Current research in online education has arrived at a similar conclusion. From Quality in Distance Education: Focus on Online Learning by Katrina Meyer: "Quality learning is largely the result of ample interaction with the faculty, other students, and content" (page vii). (Quality in Distance Education - Focus On Online Learning- ASHE Higher Education Report Volume 29, Number 4 (02) by Meyer, Katrina A [Paperback (2002)])

**HOW YOU WILL BE GRADED**

Points earned will be based on the Discussion Rubric found under the Syllabus Module. The Student Introductory topic will not be graded. NOTE: All of the types of posts listed below are equally important. Make sure you are contributing to the discussion in all aspects listed below or points will be lost.

**POSTING TO YOUR COURSE DISCUSSION TOPICS**

**Your First Post in a Topic:**

When a Topic opens plan to write 150 words minimum in your initial required post (called your "First Post"). Make sure to read and follow the instructions for each topic carefully. You may write about something from the reading material, a relevant experience, or other appropriate topics that add to the knowledge of the class. This First Post must also include a minimum of one reference cited, even if it is only your textbook. Also, if you use outside material to help you formulate any of your posts then you must cite that source. In addition, any facts or quotations obtained from any other source should be referenced and cited properly. If you get your material from a webpage please provide this as a hyperlink so that the site may be directly accessed along with your citation Reference Guide.

**Your Posts to Classmates and Instructor:**

You are also expected to post to a minimum of 2 other students' First Posts (called your "Response Posts"). A first response discussion posting by you on the response due date will not be counted. This means that you should post at least one Response posts BEFORE the due date stated in the course Schedule. These posts should always be substantive and meaningful posts, for which you will be graded on. "I agree" or "I really liked your post" is not a meaningful response; explain WHY you agree or disagree, for example and perhaps add some additional information (always making sure to cite any information taken from another source), or ask a direct question along with your general comments. Encouragement of others is a good thing, but don't make that your only input to the discussion. As stated above, if you use outside material to help you formulate your post it must be referenced by using a hotlink, otherwise, a reference is not needed for response posts.

There will be times when your instructor posts additional questions/information for the entire class during the Topic period. When this happens you will be notified by the Subject Line and possibly by email. Part of your response points will go toward answering these additional posts.

**Answering Your Own Posts:**

You will be graded on answering all substantial posts posed to you under your First Post up until noon the day before the Topic closes (called your "Reaction Posts"). As long as a post is more than a "pat on the back" (adding information, asking a question, etc.) please expect to respond to these. Although there isn't a stated deadline, 48 hours after a post is up is a good goal. This means, not waiting until the end of the Topic to respond.
**Helpful Advice:**

Since this is an asynchronous activity, everyone will be "on" at different times, although we will be on the same timeline. For maximum benefit, and to greatly enhance your learning experience, make your posts early to allow other students to read and respond. Check into the discussion area as often as possible to keep current with the discussions. You do not have to spend hours, but spend quality time for both you and the other members of the group.

See the document: Research, Writing & Instructor Feedback for helpful writing information.

**MYLABSPLUS HOMEWORK**

The MyLabsPlus Homework (MLP) and the eText, are found by clicking the MyLabsPlus link on the Course Home page under External Links.

- The MyLabsPlus Homework assignments are open and available from the start of the semester but must be completed by the due date stated in the Schedule.
- You will only receive one attempt per question.
- While completing your homework you will not have access to the "Hints" until after the assignment is due. Even though you might have a message in the problem that says "see hints for help" (this is standard in the publisher’s software).
- After the due date has passed you may go back and rework all problems for practice. You will not have access to the assignment content between completion and due date.
- Even if you have a paper textbook, it is highly recommended that you also go through the e-Text that covers the same chapter.
- Items that are assigned in MyLabsPlus count toward your course grade.
- Grades will transfer to D2L after a 48hr period.

**LAB REPORTS (ASSIGNMENTS)**

You will be performing labs using the instructions found within each Module under Content, Assignments/Labs. Please review the Laboratory Instructions page in the Syllabus module for general information and helpful advice. Information on the due date for each report is provided in the Course Schedule.

- All Laboratory work will be submitted in the Assignment Tool and will be checked by originality software.
  - Your typed assignment will not be graded unless an Originality report has been generated. (This excludes photos submitted as per lab instructions.)
Begin working on your laboratories early. Some may be lengthy and require extended effort or supplies that you need to gather.

**QUIZZES**

Chapter Quizzes will be taken using the MyLabsPlus link on the Course Home Page. These will consist of Multiple Choice and True/False type questions. It is essential that you allow yourself one hour minimum before 11:59pm MT on the due date to complete every Chapter Quiz. Quizzes in general will last for 30 minutes, but may vary slightly in time.

Exam settings:

- All quizzes are timed and once you start you need to complete it in one sitting.
- All quizzes will be accessible 1 week before the due date.
- You will only receive one attempt per question.
- You will only see the correct answers after the due date has passed.
- After the due date has passed you may go back and rework all problems for practice. You will not have access to the quiz content between completion and due dates.
- While completing the quiz you will not have access to the "Hints" until after the due date. Even though you might have a message in the problem that says "see hints for help" (this is standard in the publisher's software).
- **NOTE:** While completing quizzes, once you hit "submit" on your answer it cannot be changed. See this helpful information on skipping questions: [MLP Skipping Questions]
- To be prepared, read the required chapters, go over the end of chapter material in your eText, go through the Tutorials in MyLabsPlus (which are non-graded and available throughout the semester).
- Grades will transfer to D2L after a 48hr period.

**MIDTERM & FINAL PROJECTS (ASSIGNMENTS)**

You will have a Midterm project that will involve observing the moon in the night sky along with writing a short report. Your Final Project will be a research paper. These will both be submitted to the appropriate assignment folder, similar to your lab reports, and will be checked by originality checking software.

**EXTRA CREDIT**

There is no extra credit available in this course.

**RESEARCH, WRITING, & INSTRUCTOR FEEDBACK**

The below information will help you with writing in discussion topics and your labs, along with how you can find your instructor feedback for items submitted to the assignment folder.
TURNITIN

TurnItIn is an automatic tool that is used on all of your lab assignment submissions. It allows each student to know that they are using and citing research appropriately, along with your instructor being able to give you feedback within your lab document. It also allows the instructor to see all material that has been used from another/outside source (internet or student submissions). Below are some tips on how to view your originality reports and instructor feedback in GradeMark on your assignment submissions.

Types of documents that can be read are: .doc, .docx, most .rtf, and .pdf as long as it is text based and not an image or scan

Originality Reports: After you submit your assignment, please allow time for your submission to go through the TurnItIn software, this may take one hour at the most (you may need to refresh your screen as well). From the Assignment tab click on the number you see under the Submissions column. On the Submission History page click on the icon that has a % and colored box under the TurnItIn Similarity column. The % tells you how much of your work is not unique. (Please note that quoted material along with lab questions will be included in this percentage because it has been used in another source, which will be taken into account and does not count against your grade.)

Instructor Feedback (GradeMark): Once a grade and feedback has been posted for your submission - go back to that assignment folder, click on the (speech bubble + “view”) icon under the Feedback column. On the View Feedback page click on the icon that has a % and colored box under the TurnItIn Similarity column and follow the instructions here. Click on the various comments in the submission to view your instructor's feedback. When you are finished viewing the marked up document, close the window.

HELPFUL ADVICE FOR WRITING

Sometimes you may be asked to summarize scientific articles or other information. Please see the below links for when it comes to paraphrasing and writing your summary. Any form of plagiarizing may result in a zero score on the entire assignment and multiple infractions could lead to an F in the course. In any other post to your instructor or classmates, if you use outside material to help you formulate your response then you should cite that source. Otherwise, a reference is not needed for response posts.

- When to quote or phrase
- Writing advice
- Example of paraphrasing

Remember:

Any facts or quotations obtained from any other source should be referenced and cited properly according to APA guidelines. Here are some websites that will aid you in creating proper citations:

- Guide to Using References in the Sciences
- CCOnline Library
- More Citation Examples
**NOTE:** Wikipedia is NOT considered a primary or secondary source. If you find information in Wikipedia, locate the sources used by the author and pull information from them, if they are primary (original documents) or secondary (peer-reviewed publications) sources.

**LIBRARY AND CITATION HELP**

In any college-level course, it is essential that you properly reference and cite source material that you use to participate in Discussions, write lab reports, and so forth. The CCCOnline Astronomy Research Guide holds essential citation, research and other information you will need to complete your lab reports.

**ONLINE SOURCES**

People today commonly locate source material for their work on the Internet. It is vital that you use a reliable site to gather your information. In order to check this you may perform the CRAP test. If your site passes this test then make sure to gather all of the needed information that should be included in your citation along with including the exact URL, which points to the exact page you used to gather your information.
COURSE SCHEDULE

The Schedule is subject to change as needed.

This page summarizes all of the graded assignments, exams, and reading assignments for the course. If you want, you can print it out and post it somewhere handy.

All assignments are described in detail on the Module assignment pages. If you have questions check there and/or send me an e-mail.

**This course is not self-paced and is not open-exit.** All assignments, papers, quizzes, discussions, etc., are to be completed by no later than 11:59 pm MST/MDT of the due date. **PLEASE NOTE:** on most all of the assignments you can work ahead BEFORE the due date stated below. This allows you to cater to your own personal Schedule. Please take advantage of this. Also be aware that this course will continue through any break you may have in your face2face courses and it is possible that a due date may fall on a holiday.

NOTE: Important CCCOnline semester dates (e.g., drop/withdraw/term end) appear on the CCCOnline calendar.

**MODULE 1**

**Reading/Assignments/Exams**

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<th>Due Dates</th>
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| Discussion: Student Introduction |
| **Discussion: The Scientific Method and Plagiarism (Initial Post)** |
| **MLP: MA (Mastering Astronomy) Introduction** |
| **Big Dipper Stellarium Lab (Begin Lab)** |
| you will need to download Stellarium.org to your computer. |
| Follow the instructions in your lab and be sure to watch the video. |
| Begin working on Midterm Project (Exercise 1-3, Observation portion, step out around 8pm and look West in Colorado tonight to start 14 days of nightly observations. By the time you get to the__th, you will need to move your time closer to 10 or 11pm (try to be consistent). If you do not like to stay up too late: around the ___th you can switch you daily time to early morning 5:45am but no later (also if you need more observations due to rain/clouds). Remember, each daily observation shouldn't take more than a few minutes each. During this time you will also need to make your 3 detailed observations using your binoculars. Also being paper. (Everything due___) end week1 |
| **Discussion: The Scientific Method and Plagiarism (Response Posts)** |
| **MLP: MA Chapter 1 Homework** |
| **Assignment: Big Dipper Stellarium Lab (due)** |
| **MLP: MA Chapter 1 Quiz** end week 2 |
| **Discussion: What Did You See? Stellarium (Initial Post)** |
| **MLP: MA Chapter 2 Homework** |
| **Discussion: What Did You See? Stellarium (Response Posts)** |
| **MLP: MA Chapter 2 Quiz** end week 3 |
| **Begin working on Midterm Project** |
| **Discussion: Calendars and the Study of Time (Initial Post)** |
| **MLP: MA Chapter S1 Homework** |
| **Assignment: Cause of the Seasons Lab** |
| **Discussion: Calendars and the Study of Time (Response Posts)** |
| **MLP: MA Chapter S1 Quiz** end week 4 |
| **Discussion: Archeoastronomy (Initial Post)** |
You will need Adobe Flash Player to run the Planetary Orbit Simulator in our Kepler's Laws Lab. If you do not have Adobe Flash Player, you can download it at the following site: https://get.adobe.com/flashplayer/

Even if you have Adobe Flash Player installed, many times it will not be allowed to run (if you see a little red icon that looks like a battery, up in the web address, this is an indication that Adobe Flash is not being permitted to run). Click on this little battery icon, and allow Adobe Flash to run, and the simulation should then load.

Assignment: Kepler’s Laws Lab

Module 3

Reading/Assignments/Exams  Due Dates
Discussion: Radiometric Dating (Initial Post)
MLP: MA Chapter 7 & 8 Homework
Assignment: Formation of the Solar System Lab
Discussion: Radiometric Dating (Response Posts)
MLP: MA Chapter 7 & 8 Quiz  end week 8
Begin working on Part I of Final Project
Discussion: How Much Is It Worth? (Initial Post)
MLP: MA Chapter 9 Homework
Assignment: Exploring the Geology of Mars Lab
Discussion: How Much Is It Worth? (Response Posts)
MLP: MA Chapter 9 Quiz
Assignment: Part I of Final Project due  end week 9
Discussion: Global Warming/Climate Change (Initial Post)
MLP: MA Chapter 10 Homework
Assignment: Climate Change on Earth Lab
Discussion: Global Warming/Climate Change (Response Posts)
MLP: MA Chapter 10 Quiz  end week 10
Begin working on Part II of Final Project
Discussion: My Mars Landing Site (Initial Post)
Discussion: My Mars Landing Site (Response Posts)
Assignment: Part II of Final Project due  end week 11
Begin working on Part III of Final Project
Discussion: Jovian Moons (Initial Post)
MLP: MA Chapter 11 Homework
Discussion: Jovian Moons (Response Posts)
MLP: MA Chapter 11 quiz

**MODULE 4**

**Reading/Assignments/Exams**

- Discussion: Poor Pluto (Initial Post)
- MLP: MA Chapter 12 Homework
- Assignment: Determining Asteroid Properties Lab
- Discussion: Poor Pluto (Response Posts)
- MLP: MA Chapter 12 Quiz
- Discussion: Extrasolar Planet (Initial Post)
- MLP: MA Chapter 13 Homework
- Assignment: Extrasolar Planets Lab
- Discussion: Extrasolar Planet (Response Post)
- MLP: MA Chapter 13 Quiz
- Discussion: Life (Initial Post)
- MLP: MA Chapter 24 Homework
- Discussion: Life (Response Post)
- MLP: MA Chapter 24 Quiz
- Discussion: Course Feedback
- Assignment: Final Project Part III

**Due Dates**

- end week 13
- end week 14
- end week 15

Last modified 9/15/2019 tlt