**Astronomy 121: The Solar System**

***Instructor:*** *Dr. Elsa Johnson (Elsa)*

***Email:****elsa@uoregon.edu*

***Office:*** *177 Willamette Hall*

***Office Hours:***

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| --- | --- | --- |
| **Monday** | After lecture to 5pm |  |
| **Wednesday** | 12:30 to 1:30 pm |  After lecture to 5pm |
| **Thursday** | 10:30 to 11:30 am |  |

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***Grader :*** *William Dumas*

***Email:****dumas2@uoregon.edu*

***Office:*** *Willamette 443*

***Office Hours:*** *TBD*

**Welcome to Astronomy 121. Here is your TO DO LIST if you just signed up for the course:**

1. Buy an iclicker and register it on canvas. **Bring your iclicker for the first day of lecture!** Readings are on canvas and free.
2. On April 1st, **You will be contacted by a website called PackBack. You will need to finish registering for it and buy a subscription ($25)** If you signed up late, see the section below on PackBack
3. **Please thoroughly read the syllabus (this page). Take the** [**Syllabus quiz based on it ASAP**](file://localhost/courses/128321/quizzes/130828) ([click here](file://localhost/courses/128321/quizzes/130828) or see Quizzes or scroll down to link on class schedule to access quiz)
4. **Enter all due dates into your calendar or app.** In particular, **memorize and write down these test days.** You need to be here, Willamette 100, for at least 1 of the 2 test days and for the final.
* **Test 1:  April 29th (Monday)**
* **Test 2: May 29th (Wednesday)**
* **Final: June 12th (Wednesday 2:45)**

Check out [Interesting links](file://localhost/courses/128321/pages/interesting-links)

**Introduction**

This course is designed for non science majors. The course will focus on

1. Thinking critically and using basic physical relationships to draw conclusions about planets.
2. Building curiosity about science and learning how to ask questions.

There is no textbook for this course. **All reading materials are accessible on Canvas located under the Modules page.** However you will need to purchase the following:

* IClicker
* packback.co membership for course ($25).

We will discuss some basic physics relationships that are necessary in order to understand how we get information, such as mass and composition of planets from the data. We will explore the multitude of new exoplanets discovered and the history of how astronomers pieced together a model of our Solar System.

This is a big class so lets get the basic rules of the course out of the way.

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| **~~~~~ Class Rules ~~~~~****Memorize these!****DEADLINES:**1. **I do not accept late homework. DO NOT email me an excuse or ask for an extension. No exceptions!! Again: I do not accept late homework. DO NOT email me an excuse or ask for an extension. No exceptions!! ...And one more time: I do not accept late homework. DO NOT email me an excuse or ask for an extension. No exceptions!!** Homework is in the form of a quiz and the answers are revealed after the due date. The due dates are fixed for everyone - e.g. I can't extend the due date for one person. **Flexibility is not an option.** Lowest homework score is dropped. 2. **All test dates are immutable so DO NOT email me about rescheduling a test** See section under Tests and Final for more information.. **EMAIL:**3.  **Read this syllabus before you ask/email me a question about the course.**  **4. I'm limiting my responses to emails from 8AM-6PM, MONDAY THRU FRIDAY. I would appreciate you not emailing me on the weekends or after hours unless it's something I need to fix asap (ex. broken homework link).**   5  **Do not email me your reasons or doctors notes if you can't make it to class.** It's expected that you can't make every class and this has been accounted for in the grading. **ETC.:**6.  **You can't make up in-class TSP questions** (see Iclicker and Think Share Pair section) 7.  **I will curve the course grades if the class average is below a 75% .** I don't curve individual items, just the total course grade. 8.  **There is no extra credit in this course.** 9.  **There are no “redos” for quizzes or tests for more points.**  10. **Basic Courtesy:*** **Refrain from texting in class unless an emergency.**
* **Don't listen to headphones during lecture or tests.**
* **Don't talk when I'm lecturing or others are asking/responding to questions.**
* **If you are going to distract yourself and everyone around you by watching videos during lecture then stay home for all our sakes.**
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| **Class Schedule** |

Reading schedule may change a little depending on how much is covered in class.

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| --- | --- | --- | --- |
| Week 1 | 4/1[Take syllabus quiz](file://localhost/courses/128321/quizzes/130828)* Readings:
	+ Read syllabus
	+ Go over [packback](https://questions.packback.co/communities/0f61cde8-99ec-44e4-b688-8ce79fad209a/curiosity-feed) powerpoint: [Packbackintro.pdf](file://localhost/courses/128321/files/6508277/download%3Fverifier%3DJkAM7Jzca9sN8XMpCRRZ0Vnb64YiOHmsYIhaSDY4%26wrap%3D1)
	+ [Section I: 1-2](file://localhost/courses/128321/modules/344205)
* Lecture Notes:
 | 4/3* Readings: [Section I, 3-4](file://localhost/courses/128321/modules/344205)
* Lecture Notes:
 | 4/5* Readings: [Section I, 5](file://localhost/courses/128321/pages/5-eratosthenes-using-geometry-to-measure-earth)
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| Week 2 | 4/8* Readings: [Section I: 6-8](file://localhost/courses/128321/modules/344205)
* **submit a question to packback**
* Lecture Notes:
 | 4/10 * Readings: [Section I: 9](file://localhost/courses/128321/pages/9-kepler-and-his-laws)
* Lecture Notes:
 | 4/12* Readings: Section I, 10
* Lecture Notes:

[**S**upplemental Syllabus Quiz DUE](file://localhost/courses/128321/quizzes/130828) **Homework Quiz 1 Due**[**PackBack Question and 2 responses due Friday at Midnight**](https://questions.packback.co/communities/0f61cde8-99ec-44e4-b688-8ce79fad209a/curiosity-feed) |
| Week 3 | 4/15 . * Readings: Section II: 1
* **submit a question to packback**
* Lecture Notes:
 | 4/17 * Readings: Section II: 2
* Lecture Notes:
 | 4/19* Readings: Section II: 3 and subsections
* Lecture Notes:

**PackBack Question and 2 responses due Friday at Midnight** |
| Week 4 | 4/22 **Homework Quiz 2 DUE*** Readings: Section II: 4
* **submit a question to packback**
* Lecture Notes:
 | 4/24 * Readings: Section III: Everything under Moon
* Lecture Notes:
 | 4/26* Readings: Section III: Everything under Mercury
* Lecture Notes:

**PackBack Question and 2 responses due Friday at Midnight** |
| Week 5 | 4/29 **Test 1*** Readings: Everything under Venus - don't worry about studying the equations in 'Venus and the Greenhouse Effect' article. You won't use them at all.
* **submit a question to packback**
 | **5/1*** Readings:
* Lecture Notes:
 | 5/3 * Readings:
* Lecture Notes:

**PackBack Question and 2 responses due Friday at Midnight** |
| Week 6 | 5/6 **Homework 3** Due* Readings:
* **submit a question to packback**
* Lecture Notes:
 | 5/8 * Readings:
* Lecture Notes:
 | 5/10* Readings:
* Lecture Notes:

**PackBack Question and 2 responses due Friday at Midnight** |
| Week 7 | 5/13* Readings:
* **submit a question to packback**
* Lecture Notes:
 | 5/15 * Readings:
* Lecture Notes:
 | 5/17**Homework 4** Due* Readings:
* Lecture Notes:

**PackBack Question and 2 responses due Friday at Midnight**(5/19 Last day to drop a class with 'W' recorded; last day to change to change grade options) |
| Week 8 | 5/20  * Readings:
* **submit a question to packback**
* Lecture Notes:
 | 5/22: * Readings:
* Lecture Notes:
 | 5/24* Readings:
* Lecture Notes:

**PackBack Question and 2 responses due Friday at Midnight** |
| Week 9 | 5/27  **Homework 5** Due* Memorial Day No lecture
 | 5/29 . **Test 2*** Readings:
* **submit a question to packback**
* Lecture Notes:

  | 5/31* Readings:
* Lecture Notes:

**PackBack Question and 2 responses due Friday at Midnight** |
| Week 10 | 6/3  **Project Due** by 5pm * Readings:
* **submit a question to packback**
* Lecture Notes:
 | 6/5 . * Readings:
* Lecture Notes:
 | 6/7* Readings:
* Lecture Notes:

**PackBack Question and 2 responses due Friday at Midnight****Homework 6** Due SUNDAY 6/9  |
| Week 11 |  | **6/12 2:45 Final Wednesday** |  |

**Grade Breakdown**

* **Best 5 out of 6 homework quizzes 20%**
* **Packback message board 15%**
* **Best score of 2 tests 23%**
* **Final 27%**
* **Project 8%**
* **Supplemental Quizzes 1%**
* **TSP questions 6%**

**Readings**

I have MANY webpages for course material. Most of these were written by Prof. Greg Bothun here at the University of Oregon. I've altered, updated and added to most of the webpages but this an ongoing project. Inevitably there are some typos and hopefully very few unfinished sentences.  But hey, it's free and filled with different content that you wouldn't normally find in an astronomy textbook. I will post a reading schedule on the schedule above so you know what to read and when. **Readings are located on Modules** page.

Some external links are simulations. In many, if not all simulations **you will need to enable flash on your browser.** Enable it for the sites I give you and these sites alone. It is easy to do, **just google the relevant instructions for your browser if flash isn't working. If you don't have flash, it will ask if you want to download and this file is dangerous. Don't download** **it!** If you are having trouble figuring it out, ask a friend, classmate, google it, or use another computer. You can ask me too but all I will do is google the instructions and show you what is needed to be done which is something you can do on your own.

 If a link isn't working or a page no longer exists, please email me and I will find a comparable working link.

**Lecture**

**I post all lecture notes in Canvas.** They will be linked in the class schedule above and located under 'Files' on the side menu. Lecture format will be powerpoints with questions interspersed. At least once a week, we will be discussing student asked questions drawn from the Packback platform. Some of these questions might make it to tests or homework. There are also a few calculations needed and I will provide ample examples in class.

**Legal:** You are not allowed to record my lectures with video or audio devices. If working with the AEC and this is a necessary thing for you, please tell me that you plan to do this. You cannot post the recordings online.  Consider this a legal document in case I find an unauthorized recording of me.

**Homework Quizzes 20%**

**About:** Homework is in the form of online canvas quizzes using the quiz interface. Material is drawn from the readings and lecture material.  Since these are effectively open-book quizzes, most of the questions will be more more than just looking up stuff in the reading or googling an answer and a little more challenging than the clicker questions. You will have to apply your knowledge and think about it. Some homework may involve an online simulation. The questions are multiple choice and automatically graded.

**Grading:** **You have 3 attempts for each homework quiz.**  Your grade will be the highest scored attempt. After each attempt, you can see which ones you got wrong and which you got correct. **I strongly advise you not to guess since you only have 3 attempts. Be sure to write down the answers you got correct and NOT JUST THE LETTERS! before you take the next attempt.** Canvas doesn't save them and the multiple choice answers are scrambled after each attempt.

**Due dates**: In order to provide some kind of 24 hour warning system for homework and supplemental quiz due dates, I've jury-rigged a date feature in Canvas. There are two end dates listed for quizzes - the Due Date and Availability Date. Usually, the Due Date is simply the time that marks when a quiz is completed on time and when it's late. The availability Date is when the quiz goes offline and you no longer have access to it. For our class, consider the Due Date to be the 24 hour reminder date. **We will use the Availability Date as the true due date** for the quiz. Your quiz will not be considered late if you complete it between these two times. **Please pay attention to these and turn your work in by the Availability dates**.  The dates listed in the schedule above are the canvas Due Date/Reminder dates.  These dates are presently fixed, but if I'm running behind on the lecture material, I will push the dates to a later day. Don't worry, I won't change them to earlier times. **All assignments are due by midnight for the particular true due date (i.e. the availability date).**

**Dropping lowest score**: You will be graded on the best 5 out of 6 homework quizzes. Each is worth the same amount of points. Canvas automatically takes care of this so no need to tell me which quiz you wish dropped.

**PackBack 15%**

**About:** Online participation is a requirement for this course, and the Packback Questions platform will be used for online discussion about class topics. Packback Questions is an external online curiosity community website where you can ask BIG questions about how what we’re studying relates to life and the real world. For a brief introduction to Packback Questions and why we are using it in class, watch this video:  [vimeo.com/packback/Welcome-to-Packback-Questions](https://vimeo.com/163888277)

**Grading:** In order to receive your points per week, you must post **1 Question and 2 Answers per week** **relevant to our class subject matter** per week. The subject matter can pertain to anything planetary astronomy. Before you start posting, be sure to read the [**Community Guidelines**](https://blog.packback.co/2013/03/05/packback-questions-community-guidelines/) found in the tutorial on Packback. If your post doesn’t follow the Packback Community Guidelines, there is a chance it will be removed and you won’t receive points for that post. Week 2 and Week 3 will be graded out of 8 points, all of which are participatory points. Posting a question is worth 4 points and posting 2 responses are worth 2 points a piece. By week 4 we will up the ante a bit and factor in something called your 'curiosity' score. Curiosity scores of 50 or greater will get two more points.

**Due dates:** There will be a **Friday 11:59 PM deadline** for submissions each week. **Note**: it takes 24 hours for the Packback team to moderate a post and send a coaching email. In order to get credit for a moderated post, you must edit and re-publish by the deadline. In other words, if you post a poorly written question or response at the last minute, neither will get a high score and you won't have time to edit either item. This is why it is important that you complete your Packback questions and responses far before the deadline in case your post is moderated. Each week, we will spend time in class highlighting discussions from Packback, and encouraging feedback

**How to Register on Packback:** You will receive a welcome email from holla@packback.co prompting you to finish registration and payment Monday 4/1/2019. Packback has already created an account for you with your school email, *all you need to do is reset your password*. This email may be directed to spam or filtered out, so make sure you do a thorough scan of your inbox if you can't find the email.

**Backup Registration Instructions:**

If you search your inbox and still can't find the welcome email, or if you are new to the course, you may manually register by following the instructions below:

1. Navigate to [https://Packback.co/questions](https://packback.co/questions) and click “Register as a new student”.
Note: If you already have an account on Packback you can login with your credentials.
2. Make sure to register with your University of Oregon email address and real first name and last name.
3. Enter our class community’s lookup key into the “Join a new Community” module on your dashboard. **Please note, the following Community Lookup Key is only for locating the community; it is NOT a coupon code or access code.**
Our Community Lookup Code: 182b6e2d-2ec9-412f-9a3a-0b43e07ce6a1
4. Follow the instructions on your screen to finish your registration.

**If you have ANY questions or concerns regarding Packback throughout the term, please contact the customer support team at holla@packback.co**

**Class Project 8%**

You will complete one project due the Monday of the 10th week of classes (6/3). The project is simple, fun and your opportunity to actually "do" science. See this page [Course Project](file://localhost/courses/128321/pages/course-project) or click on 'Pages' in the side menu which will have the Course Project listed.

**Tests and Final 23% and 27%, respectively**

**About:** All tests will cover material discussed in lecture and in the homework. You will not be tested on some arcane fact from one of the readings unless we talked about it in lecture or it was on the homework or supplemental quizzes. The tests will most likely be a blend of multiple choice, true/false, matching, fill in the blank and short answer style which may or may not involve a calculation. **The final will be a similar format but longer and cumulative**. **I will hand out study guides.  These will be linked on the class schedule above and found under 'Files'.**

**Test materials:** All you need to **bring to the tests and final is a writing utensil**. I will hand out scratch paper if you need it. **These are all closed-book exams.**

**Tests:**You will be given 2 tests- one ***during week 5 (4/29/19) and one during week 9 (5/29/19)***. Your **test grade is based on the highest grade of either test**. You are only required to take one. **You can take both, especially if you want the chance to improve your grade, but it's not necessary.**  **I strongly recommend that all of you take the first test** unless you are sick. You will most likely be busy with other classes when the 2nd test comes around or burned out. Usually the average on the 2nd test is much lower.

The reason for "best of two" exams as opposed to one midterm or having both tests count is that inevitably, there will be a fair number of you who either get sick or can't make a test date for whatever reason and need to take a make up exam. In a small class, it's not a big deal to give make up exams but in a class of over 100 students, it sucks. Therefore I have the "best of two" policy with the idea that you can make at least one. You can think of the 2nd test as a makeup test if you miss the first one. I don't give separate make up exams (outside of the regular test dates) unless you missed both tests due to an extreme reason or the university is making you do something. **My make up exams tend to be harder than the in-class test and they are written answer (not multiple choice).**

***Test make ups:*** Okay, so what are valid reasons for a make up exam outside of the two test dates?

* Even though I offer the best of two exams, I am bound by the University to offer make ups to students who have a U of O related duty (sports, band, etc) at the time of the exam. You must provide me with the relevant documentation and you can make up a test.
* If you missed the first test and you are either extremely ill beyond your average cold/flu or have some debilitating issue or a major crisis (e.g. you've been assaulted, your family was in a natural disaster) please see the Dean of Students and then come talk to me or email me, provide relevant documentation (from Dean of Students) and I'll give you a make up.

**You cannot make up a test due to vacation, cold, work, obligated travel (e.g. family emergency, funeral - unless it's immediate family, another class meeting for a group project),  house arrest, small personal crises (e.g. stress, breaking up with significant other) etc. due to the number of students in this class and potential number of rescheduled test times.**I am not discounting these reasons as something not significant but it becomes an unmanageable issue if I give make ups for these reasons. It takes time for me to write a new exam and usually students don't perform well because they either haven't had time to study or they are trying to cope with other issues. Thus if you fall into one of these categories and it's prior to the 2nd test and after the 1st test, just take the 2nd test. If you have already taken the first, then you have test grade. Make it easy for yourself.

**If you can't make either test due to foreseen conflicts then you should reconsider taking the course.**

**Final: The final is cumulative**. I will hand out a study guide. It will be a longer version of the tests. You must be here for the exam unless you are working with the AEC.

***Final Test Date:***The test will be offered at the scheduled time (**2:45PM Wednesday June 12 2019**) in Willamette 100. You can’t take it earlier or later (I prefer closest to scheduled time for AEC as well), so make your vacation/work plans accordingly. According to school policy, if you have **more than 3** (read 4) finals in one day you can reschedule the final. If this is the case for you, and you asked your other professors first and you have proof of having 4 finals (copy of schedule) then I will reschedule the test for you only.

**In-class participation: iClickers and Think Share Pair Questions 6%**

You will be quizzed through out class using iclickers in the form of Think-Share-Pair (TSP) questions. TSP questions are multiple choice questions iclicker questions. 'THINK' means you first try to figure out the solution on your own and click in an answer. If most of the class doesn't respond correctly, I will ask the question again and you will discuss it with someone sitting next to you.  Try to convince the other person that your answer is correct or in the case that neither person is confident, you will work together to find the correct answer. Then you will revote on the same question. The purpose of this exercise is to make you think logically through your response. When you have to explain something, you have a greater grasp of what you get and what you don't get.

**Grading**:  Each lecture day will have a score corresponding to your responses to the TSP questions. Most of the credit is participatory (80%), but a fraction of it is also based on correct answer (20%). Therefore you get credit for answering questions but if you answer the questions incorrectly, you won't get 100% for that day's TSP questions. Not all lecture day TSP questions will be worth the same because the number of questions asked varies from lecture to lecture and because of this, **you are only graded on the top 18 out of 27 TSP lecture scores**. This means that you can miss 9 lecture days days (3 weeks!) and it won't effect your grade unless by coincidence you miss all days that have more TSP questions asked than the days you attended. Expect there to be 2 to 8 questions asked per lecture.

**There are no make ups for TSP questions. I won't accept responses on paper for credit in case you forgot your iclicker.** In terms of total credit towards your grade for the course, they are worth very little but they are extremely valuable for understanding the material. **Please don't email me reasons why you can't make to class or doctors notes.**It's a violation of your privacy and it's just that there are too many of you and it takes too much time to respond to all the emails. Just come back to class as soon as you can.

**Registering iclicker:**If you just bought it, you need to register it by going to the **i>clicker left menu item**. If you have already used it in a prior class, it should already be registered. If you are borrowing it from someone, they need to unregister it. Therefore you and a friend can't share an iclicker during the same term, even if they are not taking this class.

**iClicker Frequency:**This is set to **BB** unless there is some unseen conflict. The only way to change it is when I have the iclicker receiver plugged in.  Thus you can't change it outside of class. You hold down the power button for 2 seconds and the preset frequency flashes, prompting you to change it. The default is usually not**BB**,  so be sure to change it each time you come to class if you use it in another class this term.

**Iclicker / Class attendance issues**

**What if I can't make it to class due to...?**

**Illness, Job, UofO sports duties....**You only need to attend 18 out of 27 classes. if you miss a few classes, it most likely won't effect your grade. **Please don't email me reasons why you can't make to class or doctors notes.**

**Weather:** If the campus is closed due to snow/disaster/some other reason on lecture day, then I will reduce the number of required attendances by how ever many campus closures occur on lecture days.

**Mobility Issues and Extended Illness:** If you have a debilitating medical condition, mobility issues that make it difficult for you to attend lecture or you are sick and absent from class for more than 2 consecutive weeks, **I can restructure your grade such that it is based on best of two test scores, final, homework, packback, project and supplemental quizzes only**. Your grade distribution would be:

* + 21.3% homework quizzes
	+ 16% PackBack
	+ 8.5% project
	+ 1.1% supplemental quizzes
	+ 24.4% test
	+ 28.7% Final

**What if I don't receive credit and I was in class?:**

Always check your grades to see if you received TSP credit for that day. I post grades the same day, usually within an hour after class. If you have a 0 and you were in class using your iclicker then either...

* + **You haven't registered your iclicker**If you haven't registered it, do so now and email me your iclicker number so I can give you the points on any questions you answered.
	+ **You were using the wrong frequency** **(must be BB) or your batteries died.**I can't do anything for either reason unless I know you and can verify that you were there. Usually it takes me 1/2 a term before I can match faces to names so don't count on that.
	+ **You left early/arrived late and missed all questions - self explanatory**.
	+ **You accidentally used someone else's iclicker**. This happens and it's fixable. Just email me their iclicker number and I'll give you credit the questions you answered.

**Supplemental Quizzes 1%**

**This is a catch-all phrase for extra quizzes when necessary.** They are worth a lot less than homework  but still count towards your grade. These could be extra questions that didn't make the cut for homework, surveys or quizzes that pertain to things we didn't get to in lecture, yet I want you to know. These will most likely be easier than the homework quizzes and see your results immediately.  They can be taken multiple times so you can take them until you get a perfect score. Each quiz is weighted depending the the number of problems. Canvas will keep your highest score, so you can retake these quizzes without risk of reducing your score.  Presently, I don't know how many  or if supplemental quizzes will be added. At the time of this writing there is only one supplemental quiz, the syllabus quiz.

Before I forget, here are my general policies on cheating and copying.

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| **Academic Dishonesty*** ***Copying:***  You are free to study and discuss the course work with others, but **if you and your study partner have identical essay answers or even just switch a few words or sentences around in any graded work, this is considered copying and each results in zero credit** for all similar answers. Even in a class this size, it is easy to catch so don't do it! I am brutal about this.  You won't have essays on homework quizzes, however your projects must be unique work and you must use your own words.
* ***Cheating:***If you are caught cheating looking at your neighbor’s test or with notes either on your phone, any electronic device, a piece of paper, hat, arm, water bottle or whatever, you get an automatic 0 on the test. Therefore, no headphones, sunglasses, or phones during test time. If I suspect you looking at your neighbor's test, I will ask you to move.  ***Just so you know, it's incredibly obvious when someone is looking at another person's test because they tend to move their head a lot and keep looking at the instructor to make sure they aren't caught. This is really easy to spot when everyone is else is focusing on their test.***
* ***Avoiding Plagiarism:*** Again, this will mainly apply to your course project. Don't cut and paste text from sources to answer questions where relevant - even if you use quotes and cite sources. Quotes are never used in science papers unless it's a book about a scientist. If you cut and paste test, change a few words and don't cite sources this is considered plagiarism and very very bad! Some professors make it a mission to go after students by notifying administrators and professors of the suspected plagiarist.

In case you are asked to look up information on other websites: You are to respond to these questions by writing the answer in your own words. **Do cite sources (a link to the website is just fine), but don't use quotes from the articles to answer the question.** |

**Canvas Interface and Grades**

The way Canvas calculates the total grade can and has been totally misleading for those who are not familiar how weights and percentages work. For instance, if you have submitted a total of 3 out of 6 assignments it will base your grade on those three assignments not 6. So if you got 100% on all 3 assignments but didn't submit three of them then your grade will read 100% and not 50%. Sometimes I forget to enter a zero for non-submissions and people are surprised when their grade goes down. Now you know.

**Math**

There is math in this course because it is needed to draw conclusions about planets. However the math is light in this course. You will have 4 equations in this class which will go over quite a bit for the first 3-4 weeks. They are necessary to explain orbit distances, stellar distances and compositions of planets. The  algebra is fairly simple and the goal is to help you understand what the equation is calculating, the variables involved, and what it means physically when a quantity is altered.

**Help**

William is one of the few graduate students in the physics department who specializes in astronomy so you will be getting expert help from both of us. However, we are it, so help is limited to our office hours. I'll send out emails and announcements if many are confused on the same topic. Please don't hesitate to ask me or William for help and come to office hours if you are struggling.

**Campus resources to support your learning**

**Tutoring and Learning Center (TLC)** Drop-in math and writing support in addition to tutoring, study skills support, and Class Encore. Located in the 4th Floor Knight Library (541) 346-3226, tlc@uoregon.edu

**Counseling Center**Call anytime to speak with a therapist who can provide support and connect you with resources. Located on the 2nd Floor of the Health Center(541)346-3227

**Accessible Education Center**The University of Oregon is working to create inclusive learning environments.  If there are aspects of the instruction or design of this course that result in barriers to your participation, please  let me know as soon as possible.  I encourage you to contact the Accessible Education Center. If you are not a student with a documented disability, but you would like for us to know about class issues that will impact your ability to learn, we encourage you to come visit during office hours so that we can strategize how you can get the most out of this course. Located on the 1st Floor of Oregon Hall (541) 346-1155, uoaec@uoregon.edu

Note: If you need to record lectures, you must ask me first and you cannot post my recorded lectures on the web where they would be publicly accessible.

**Center for Multicultural Academic Excellence (CMAE)**mission is to promote student retention and persistence for historically underrepresented and underserved populations. They develop and implement programs and services that support retention, academic excellence, and success at the UO and beyond. They reaffirm our commitment to all students, including undocumented and tuition equity students. Located on the 1st Floor of Oregon Hall (541) 346-3479, cmae@uoregon.edu

**Inclusiveness**

Open inquiry, freedom of expression, and respect for difference are fundamental to a comprehensive and dynamic education.  We are committed to upholding these ideals by encouraging the exploration, engagement, and expression of divergent perspectives and diverse identities.

**Our Duty to Report**
The graduate assistants and I are Student-Directed Employees. As such, **if you disclose sensitive information to us, we will respond to you with respect and kindness. We will listen to you and will be sensitive to your needs and desires. We will not judge you. We will support you.**We will direct students who disclose sexual harassment or sexual violence to resources that can help and **will only report the information shared to the university administration when the student requests that the information be reported**. As Student-Directed Employees, we can offer privacy because we are not required to report certain information to the university. However, we cannot be bound by confidentiality in the same way that a counselor or attorney is. Unless someone is in imminent risk of serious harm or is a minor, we will keep your disclosure private. Please note the differences between confidential and private. For more information on reporting obligations of employees and specific details about confidentiality of information, visit titleix.uoregon.edu

**Discrimination and Harassment Resources**

Additional help and resources for any student who has experienced sexual assault, relationship violence, sex or gender-based bullying, stalking, and/or sexual harassment are available at **safe.uoregon.edu** or by calling the UO’s 24-hour hotline 541-346-7244 [SAFE] or the non-confidential Title IX Coordinator at 541-346-8136.

Students experiencing any other form of prohibited discrimination or harassment can find information at **respect.uoregon.edu** or **aaeo.uoregon.edu** or contact the non-confidential AAEO office at 541-346-3123 or the Dean of Students Office at 541-346-3216.

***Final Note from yours truly:***

If you are struggling in this or any class, remember this: The real way to learn something new is to accept that struggle and failure are an essential part of the learning process. Seriously. I can't tell you how many times I have failed initially when solving new problems. It's rare that I or anyone else gets it right on the first try. But I must keep at it until I get the job done because no one else can do it for me. In some situations I have to find a solution because others are relying on me and I won't get paid. That's how real life works. Our society, particularly social media, focuses too much on the end product of awesome skills and forgets there was a struggle to get there. So don't give up or panic if you do bad on something. Just stick with it and see me for help until it makes sense.

By the way, do not tell yourself or me that you do not have a scientific or mathematical mind. That is BS. If anyone told you this, even if it's someone who cares about you, they are wrong. There might be people who get concepts faster than you but there is evidence that slow learners have a greater depth of understanding when they finally figure out a subject. In my unofficial study, it's simply a matter of wanting to learn it or not. This means putting time into figuring it out. Truth be told, all fields -scientific or not - require lots of practice and some amount of critical thinking. Otherwise we would all be skilled artists, poets, athletes etc.

I really want you to get something positive from the course - whether it's one topic that totally captures your imagination or just a general appreciation and new perspective of our place in the Universe. Let's make this a great term!

[**TAKE THE SYLLABUS QUIZ!!!**](file://localhost/courses/128321/quizzes/130828)

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|  | This is a science literacy course. SLP courses include General Education courses for non-science majors and courses for science majors taught by teams of faculty, graduate fellows, and undergraduate scholars, who will include opportunities during class time for you to engage with the class topics through a variety of activities. For more information about the program scilit.uoregon.edu |