Welcome to Astronomy 121! 

1) **Please thoroughly read the syllabus (this page). Take the Syllabus quiz based on it ASAP** (click here or see Quizzes or scroll down to link on class schedule to access quiz) 

2) Buy an iclicker and register it on canvas. **You will need your iclicker for the first day of lecture!** Readings are on canvas and free. 

3) Memorize and write down these days. These are test days. You need to be here, Willamette 100, for at least 1 of the 2 test days and for the final. 

**Test 1:** October 25th (Thursday 12pm) 

**Test 2:** November 15th (Thursday 12pm) 

**Final:** December 4th (Tuesday 8am) 

**Introduction**

Welcome to Astronomy 121, a course designed for non science majors. There is no textbook for this course. **All reading materials will be freely accessible online and located under the Modules page.** 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. You will also learn how to determine your location on Earth based
on stellar motion and the history of how astronomers pieced together a model of our Solar System.

Course Rules

There are 200 of you and therefore inevitably some of you will have an issue arising that prevents you from attending class, completing homework, be here for tests, etc. Firstly, in no way am I discounting anyone's issues. Life can be hard and/or extremely busy, I get it. But understand that it is difficult to accommodate special requests and needs beyond AEC/Dean of Student issues given a class this size. The harsh truth is that this is college and you have to work with the time constraints and schedules given to you from your pros, we can't or won't change our schedule to fit your schedule. Thus I have a set of rules to keep all of us, mostly me, sane. Here they are - know them, memorize them, accept them.

~~~~~ Class rules ~~~~~

1. I do not accept late homework. DO NOT email me an excuse or ask for an extension. No exceptions!!

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Yes obnoxious but I can't emphasize this enough. YOU are responsible for managing your success in this class. This means keeping aware of dates and times of all deadlines, grades, bringing your iclicker, etc. Instead of homework, you have quizzes which I call homework quizzes. These quizzes are open book can be done anywhere as long as you have internet access. Thus do not wait until the last minute to do a quiz in case the "internet is broken". Also there might be simulations that you need to run on your computer to do the quiz or understand the material. Not all browsers run flash animation therefore you need to check this a few days before a quiz goes offline. If you need accommodation and are working with a University agency (e.g AEC) or military service, see rule 3.

2. All test dates are immutable so DO NOT email me about rescheduling a test for you unless you have official U of Oregon reasons (sports, band, etc) or your are in an enlisted service (e.g. army, etc). You can't take the final early or any other time unless...
you are taking it through the AEC and there are no other time slots. See section under Tests and Final for more information.

3. If necessary, **I can accommodate late homework for people working through the AEC that specifically request flexibility in deadlines. This needs to be documented officially by the AEC and requested explicitly on forms.** I can also accommodate those going through some type of hardship but this has to be documented through the [Dean of Students office](#) otherwise I won't. For either situation, you will turn in written assignments instead of doing quizzes. However it will be up to you to first come and contact me so I know that you will pursue the written homework option.

4. I don't accommodate travel, work, other class conflicts (e.g. meetings for course projects) or miscellaneous plans. This is a big one. You can do the homework quizzes anywhere. The lecture slides will be available within a few hours after each class on Canvas. **If traveling for academic, athletic or personal reasons you are expected to either do the quiz ahead of time or do it while out of town. Not finding access to the internet is not an acceptable excuse, so I recommend doing the quiz before you go on travel if unsure.** If you are doing something for the U of O that takes more than a week of your time, have the official documentation and explain that it is impossible to do the work because you will be occupied the entire time (e.g. Track meet), then again you need to let me know and I'll give you a written assignment to do. By the way I won't accept..."Prof. Blah Blah said it would be okay." Nope. **Bottom line: YOU have to be responsible for keeping up or catching up with the course work. Missing lecture is not an excuse.**

5. **Read this syllabus before you ask/email me a question about the course.** I don't respond to emails like 'where is your office?' etc which are answered in the syllabus. If you need clarification of something in the syllabus then please do email/ask.

6. Attendance is graded but you are only graded on 12 attendances out of a possible 17. If you can't make lecture for some reason **Do not email me your reasons or doctors notes, it is not necessary!** It's expected that you can't make every class. It's not a big deal if you can't make a lecture, just come back as soon as possible.

7. If the class average is below a 75% I will curve the course grades. 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. However you should go over your quizzes, test(s) to prepare for the final.

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.

**Tips for success**

It's up to you to follow these.

• *Go to lecture and take notes.*
• *If confused about any policy, email me ASAP.*
• *Do the homework -if you skip more than 1 assignment, your chances of passing this class significantly decrease.*
• *Ask (relevant) questions during lecture if you have them.*
• *Put thought into the quizzes. Don't just guess.*
• *Do not wait until the last minute to do any quiz.*
• *Make at least one friend in class in case you miss lecture*
• *Give me feedback (email or preferrably office hours) if you are confused with a topic previously discussed or something doesn't work.*
• *Always bring your iclicker to lecture!*
• *Pay attention to any emails and announcements sent out*
• *Again, go to lecture! The most successful students in previous courses went to most, if not all, of the lectures.*

**Class Schedule**

<table>
<thead>
<tr>
<th>Week 1</th>
<th>9/25</th>
<th>9/27</th>
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|        | **Take syllabus quiz** | *Readings:*
|        | *Lecture Notes:* | *Readings:*
|        |               | *Lecture Notes:* |

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<tr>
<th>Week 2</th>
<th>10/2</th>
<th>10/4</th>
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|        | *Readings:*
|        | *Lecture Notes:* |
|        | **Supplemental Syllabus Quiz DUE by 5 pm** |
|        |               | *Readings:*
|        |               | *Lecture Notes:* |

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<tr>
<th>Week 3</th>
<th>10/9</th>
<th>10/11</th>
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|        | **Homework Quiz 1 Due by 5pm** | *Readings:*

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<tr>
<th>Week 4</th>
<th>10/16</th>
<th>10/18 <strong>Homework Quiz 2 Due by 5pm</strong></th>
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<tr>
<td>• Readings:</td>
<td>• Lecture Notes:</td>
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<tr>
<th>Week 5</th>
<th>10/23</th>
<th>10/25 <strong>Test 1</strong></th>
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<th>10/30 <strong>Homework 3 Due by 5pm</strong></th>
<th>11/1</th>
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<th>11/6</th>
<th>11/8 <strong>Homework 4 Due by 5pm</strong></th>
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<th>Week 8</th>
<th>11/13</th>
<th>11/15 <strong>Test 2</strong></th>
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<tr>
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<td>11/15 <strong>Test 2</strong></td>
<td>• Readings:</td>
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<td>• Lecture Notes:</td>
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<tr>
<th>Week 9</th>
<th>11/20 <strong>Homework 5 Due by 5pm</strong></th>
<th>11/22 Thanksgiving - No lecture</th>
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<tbody>
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<td>11/22 Thanksgiving - No lecture</td>
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<tr>
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<th>11/29 <strong>Homework 6 Due by 5pm</strong></th>
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<tr>
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<th>Week 11</th>
<th>12/4 <strong>Final 8am</strong></th>
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**Grade Breakdown**

- Best 5 out of 6 homework quizzes 30%
- Project 10%
- Supplemental Quizzes 3%
- Clicker questions/attendance 6%
- Best score of 2 tests 23%
- Final 28%

Readings

I have MANY webpages for course material. We might not get through all of them. 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. I am testing out the Modules feature on Canvas this year and links to the readings will be listed on the Modules page. Bear with me as I experiment with it. Some readings are Canvas pages, others are external pages.

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. Remember you will need it for understanding the material so figure it out asap!

I try to keep the readings updated but sometimes I miss things. 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 schedule above and located under 'Files' on the side menu and possibly in the Modules. 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.

iClickers and Attendance

Attendance is graded through iclickers. Each lecture will have questions for you to answer (4 or more), spread throughout the lecture. This way you can interact with the
material as you learn it. You are graded on effort and answering the questions, but not on having the correct answer. **You must answer 75% of the questions in order to get participation credit! Thus you must be present for the entire lecture. I ask questions throughout lecture time.**

**Registering iclicker:** If you just bought it you need to register it by going to the iclicker 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.

**icClicker Frequency:** This is set to **BB** unless there is some unseen conflict. If so, I will email everyone, update this page and remind you at the beginning of class. 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.

**Grading:** You will be graded on **12** max attendances. That means you have to be in class **12** times (not including the test days) to receive the full 6% participation credit. In other words you get 0.5% each time you attend and answer 75% or more clicker questions until you hit the maximum 6% total participation credit. Easy. You have five days to miss lecture for whatever reason - this is the equivalent of 2 weeks and 1 day of lecture. Ideally, be here for all of them unless you're sick - then please stay home and rest. **In fact keep these "miss" days reserved for illness or some last minute emergency or if you know you will be out of town.** Think ahead and don't skip just because you don't feel like going to class. You will still be expected to attend a full **12** lectures if you want the full participation credit. **This means that events such as jobs, interviews, vacations, transportation issues, family emergencies, or if you signed up for this course late and missed a few lectures all count towards your "miss" days. If any of the above happen (inevitably some will), don't tell me or provide any excuse and Please don't email me doctor notes!** It's not that I don't care, 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. Below lists exceptions where either credit is given or grades are restructured in place of attendance.

**Exceptions:**

**Official UofO activities:** Official UofO activities like sports, band, etc. will not count towards your miss days. You must give me the signed official relevant forms from your coaches/advisors etc. I will give you participation credit for lectures days missed due to the activity.

**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 to 11 or however many campus
closures occur on lecture days. Campus operations are usually stingy about snow days so don't hold your breath.

**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, project and supplemental quizzes only.** Your grade distribution would be:

- 32% homework quizzes
- 11% project
- 3% supplemental quizzes
- 24% test
- 30% Final

It is easy to do but you must let me know ASAP if this is something that would work best for you. Canvas will not calculate your grade accurately either. Its done by hand. Again I won't do this if your extended absence is due to vacation, work schedule, and a few sick days etc.

**Military:** If you are deployed a few weeks before the end of the term or are coming back late after the term started, I can give you the above grade distribution if you want. If it's somewhere in the middle of the term, we have to discuss other options. Again provide documentation and see me if this applies to you.

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

Always check your grades to see if you received attendance credit for that day. I post attendance 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 provided you answered 75% of the questions.
- **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 some questions.** If you know that you missed part of class and didn't get credit, you must first check the relevant day's lecture notes and count how many questions you answered vs the questions asked before you email me. If it's less than 75% of the questions then you don't get credit, so don't email me. I expect you to remember the questions that you answered. It's time consuming to generate reports and look up questions answered for individual students, so please don't waste my time. If it is 75% or more and
your clicker is registered, then see the other reasons why you may have not gotten credit.

- **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 provided you answered 75% of the questions.

### Homework Quizzes

**About:** Homework is in the form of online canvas quizzes using the quiz interface. Instructions (if necessary) for each will be posted for each. Material is drawn from the readings and lecture material. Since these are effectively open-book quizzes, most of the questions will be a little more than just looking up stuff in the reading 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.

**Late policy:** See class rules.

**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. So for example, quiz 1 is actually due 10/10 at 5pm. 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 5pm for the particular true due date (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.
**Class Project**

You will complete one project due the Tuesday of the 10th week of classes (11/27). The project is simple and your opportunity to actually "do" science. See this page Course Project or click on 'Pages' in the side menu which will have the Course Project listed.

**Supplemental Quizzes**

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 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.

**Tests and Final**

**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 (maybe) short answer style. 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'.

The second test will overlap with material from the first test. I'll let you know which material will be relevant.

**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 (10/25/18) and one during week 8 (11/15/18). 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 come talk to me or email me, provide relevant documentation 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 (**8:00 am Tuesday 12/4/2018**) 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.

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 text, 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.**

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**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**

It is extremely light in this course. You will have 2 equations where you will plug in 1 number and get an answer out. Easy. No algebra or trigonometry is required to do the homework or tests. The remaining equations will be taught at a conceptual level. I want you to understand what the equation is calculating, the variables involved, and what it means physically when a quantity is altered. I will use a number or two to help explain these equations but that's it.

**Help**

William is one of the few TAs in the physics department that 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.

**Accessible Education Center**

If you need special accommodation for tests, homework, etc please contact the Accessible Education Center ASAP! They provide documentation that helps me determine what works best for each individual. Also please talk to me if you require something specific (e.g. I wear a microphone) that is not explicitly mentioned on the forms from AEC. If you need to record lectures (this hasn't been an issue yet), you must ask me first and you cannot post my recorded lectures on the web where they would be publicly accessible.

**Dean of Students**

If you are having issues due to trauma, depression, stress beyond the normal amount for college students, etc. contact the Dean of Students office. The link is here: [https://dos.uoregon.edu/help](https://dos.uoregon.edu/help) The counselors are there to help you. If you are a friend of someone who is having difficulties, I strongly recommend getting them help as well. Go here for contact information: [https://dos.uoregon.edu/helping-friend](https://dos.uoregon.edu/helping-friend). This link is for staff and faculty but should be read by all if someone exhibits non-normal behavior: [https://dos.uoregon.edu/assisting-students-concern](https://dos.uoregon.edu/assisting-students-concern)

*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!!!