



**ASTR 1303 1HE – Honors Stars and The Universe  
COURSE SYLLABUS: Spring 2015**

**WHO I AM**

**Instructor:** Dr. Kurtis A. Williams, Assistant Professor

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Please include "Honors Astro" in the subject line.

**WHAT THIS COURSE IS ABOUT**

**Course Description:**

Astronomy is an ancient science with records dating back to the dawn of civilization. Despite this long history, it remains an exciting and vibrant area of ongoing study. In the coming years, astronomers may discover Earth-sized planets around other stars, see the first stars emerging from the cosmic dawn, and explore new physics in realms and laboratories of which Earth-bound scientists can only dream.

In this course, we will focus on studying stars and galaxies, as well as the natural laws and tools that astronomers use to study these distant objects. We'll begin with light and telescopes. We'll then study the Sun as an example star and use it as a stepping stone to reach ever further into the Universe. Along the way we'll discover new worlds around other stars, peer into the hearts of black holes, witness collisions of galaxies, and piece together vital clues pointing to the origins of the Universe.

One big topic we will not cover is our own Solar System. If you want to know details about the eight planets, their moons, asteroids, meteors, and comets, you'll need to take ASTR 1304.

**Student Learning Outcomes:**

1. You will be able to explain the characteristics of stars and their life cycles.
2. You will be able to identify the classes of galaxies and their basic properties.
3. You will be able to state evidence supporting astronomers' explanations of the origin and fate of the Universe.
4. You will be able to evaluate statements about astronomy using the scientific method.
5. You will identify and discuss issues at the interface of astronomy and society.

## WHAT YOU ABSOLUTELY NEED

### Materials – Textbooks, Software and Additional Reading:

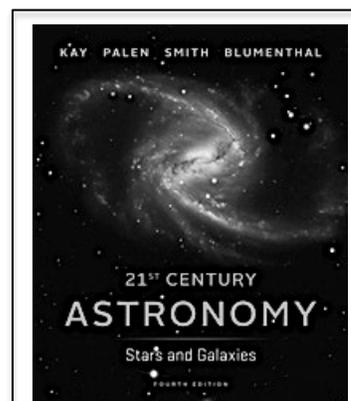
#### Required:

- 21<sup>st</sup> Century Astronomy, Volume 2: Stars and Galaxies, 4<sup>th</sup> edition, by Kay, Palen, Smith, & Blumenthal, ISBN 978-0-393-92057-4
- A subscription to SmartWork, an online astronomy homework and tutoring system (see more below)
- Lecture-Tutorials For Introductory Astronomy, 3<sup>rd</sup> edition, by Prather, Slater, Adams, & Brissenden. ISBN 978-0-321-82046-4

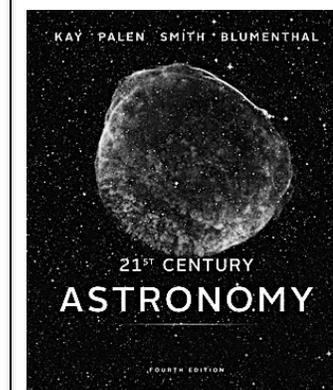
#### Options for purchasing: (Prices as of 1/14/2015)

- 21<sup>st</sup> Century Astronomy Volume 2 with SmartWork and eBook access
  - Best if you are only taking this astronomy course
  - From TAMU-C Bookstore: \$110.00 New/ \$88 Used
  - From wwnorton.com: \$96.25 New
- 21<sup>st</sup> Century Astronomy (entire book) with SmartWork and eBook access
  - Best if you are sure you will take Astr 1304: The Solar System as well as this course
  - From TAMU-C Bookstore: \$158.35 New / \$126.70 Used
  - From wwnorton.com: \$142.50 New
- 21<sup>st</sup> Century Astronomy (entire book), eBook with SmartWork ONLY (no hard copy)
  - Best if you are sure you are happy with eBooks; 360 day access
  - From wwnorton.com: \$57.08
- Lecture-Tutorials For Introductory Astronomy
  - From TAMU-C Bookstore: \$42.95 New / \$34.40 Used
  - Don't buy used if there is writing in the book!
- **Important:** Used print textbooks or new versions purchased from other vendors usually do NOT include access to SmartWork, which will then cost an additional \$20 for 1 semester access.

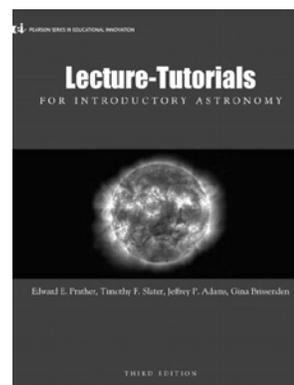
**Course Prerequisites:** None



OR



AND



## HOW TO GET STARTED

### SmartWork and LearningStudio (eCollege) Access Information

Most homework must be completed using SmartWork, [smartwork.wwnorton.com](http://smartwork.wwnorton.com). You are required to purchase a subscription to this site; it comes included with the textbook bundle available through the bookstore, or it can be purchased separately. Our Enrollment Key in SmartWork is **TAMUCA1303S15**. SmartWork has support available at: [books.wwnorton.com/books/buysmartwork](http://books.wwnorton.com/books/buysmartwork)

This course will be facilitated using LearningStudio (eCollege), the Learning Management System used by Texas A&M University - Commerce. To access these materials, go to: <https://leo.tamuc.edu/Login.aspx>. You will need your CWID and password to log in. If you do not know your CWID or have forgotten your password, contact Technology Services at 903-468-6000 or [helpdesk@tamuc.edu](mailto:helpdesk@tamuc.edu).

## WHAT WE'RE GOING TO DO

### **Instructional Methods / Activities / Assessments**

#### **Participation**

Research into how people learn shows that the best learning comes from interaction. Simply reading material and listening to me yammer on for an hour and 15 min twice a day will result in you remembering about 10% of the material, a terrible return on your investment. I therefore require you to participate actively in the course.

For these reasons, attendance and class participation are mandatory and will count toward your final grade. I realize that many of you are not comfortable speaking up in front of a large group of people, so class participation will come in a variety of forms, including interactive polling, small group discussions, and short in-class group activities.

One tool will be used commonly in our lectures: the required *Lecture-Tutorials in Introductory Astronomy*. This book should be brought to every lecture, though we will not always use it. If you do not have this on a day it is used, I have the option of giving you a 0 for that day's participation.

**Participation grading policy:** You automatically get two excused absences, no documentation required. After these excused absences, all absences count against your participation grade. Note that a few non-excused absences don't affect your grade much at all, but excessive absences can. You may miss three lectures without penalty. For example, there will be approximately 30 lectures during the semester. If you earn participation credit in 28 of them, you will receive 100% for your participation grade. If you earn participation credit in 25 lectures, your participation grade will be 25 out of 28, or 89%.

#### **Reading Quizzes, Homework and SmartWork**

Reading quizzes will be given often at the start of a class to see if you have done the required reading and watched the online mini-lectures. These are short and cover basic material, like definitions. If you are tardy, you don't get to take it late.

Homework will be assigned for each unit. We will be using SmartWork, an online astronomy homework and tutoring tool, for most homework assignments. SmartWork will give you instant feedback on whether you got a homework question right or wrong and provide you with hints and tools to better learn the material. Occasional assignments outside of SmartWork will also be made.

Assignments will be announced in class and due dates will be clearly specified. The grading policy for each SmartWork assignment will be shown with each assignment. You may get multiple attempts to answer a question correctly; however, submitting an incorrect answer will cost you some credit. Some more difficult or mathematical questions may be assigned as extra credit for students who want more of a challenge. SmartWork will identify these questions as extra credit. Late homeworks are penalized 10% per day. Your lowest homework score will be dropped.

The following are considered cheating and will not be tolerated: Searching for answers on the

internet, obtaining copies of solutions to homework questions (whether from past students or other sources), directly copying another student's work, etc. See the section on "Academic Integrity" below for full details.

### **Exams:**

Two midterm exams will be given during the semester; tentative dates for these exams are at the end of this syllabus. The midterms will focus on material covered since the previous exam, but many topics are interrelated, so topics from previous exams will come up again. There will also be a cumulative final exam during the scheduled final exam slot.

*Makeup exams may only be taken under extenuating circumstances.* I will require documentation of the reason for the absence, and I reserve the right to reject any excuse. In most cases, makeup exams will be scheduled within 2 days of the exam. Please do everything in your power to be present for an exam. There is no makeup exam possible for the final exam.

For exams, you will need to bring a pencil and a scantron sheet. You may also bring a single 4x6 handwritten note card containing whatever formulae, notes, other information, or doodles you'd like (double-sided is okay). No other books, backpacks, calculators, computers, iPods, headsets, cell phones, PDAs, tricorders, etc. will be permitted. Using any aids other than your single cheat sheet will result in you being removed from the exam and a grade of a zero.

*If you are certified as needing special accommodations for examinations, please see me privately well before the exam with your letter of accomodation from the Student Disability Resources and Services office.*

### **Online Mini-Lectures and Response Questions**

Within each unit, I will upload mini-lectures that you will be able to view through YouTube. These videos are approximately 15 minutes each and will focus on one or two important points each.

Each video will be paired with a minilecture response activity on LearningStudio (eCollege). The responses contain a few thought questions that allow you to check your learning to see if you understood the material and thought processes covered in the mini-lecture. These are an opportunity for you to begin to think about and work with the concepts before we work with them in class. Some questions will be easy, some hard, and some will require you to put together more than one concept in order to figure out an answer.

The minilecture responses are not graded but allow you to check your learning in a no-pressure environment.

### **Class Discussions:**

During several units, we will have classroom discussions exploring places where astronomy and society meet and overlap. Prior to these discussions, you will be assigned some additional reading. You should be prepared to discuss these topics on the pre-announced day in class. I'll ask you to prepare facts, resources, etc. prior to these discussions. You will be graded on whether you are prepared to take part in the discussions and your level of participation in the discussions.

### **Extra Credit: Observatory Visit or a Planetarium Show:**

If you live close to Commerce, you will have the opportunity for an optional visit to the Commerce Observatory (about 5 miles south of Commerce) on the evening of Thursday, March 12. If the weather is cloudy, we'll reschedule for some time after Spring Break. At the observatory there will be an activity you must complete in order to earn extra credit.

You can also earn extra credit by attending a planetarium show. The A&M-Commerce Planetarium also exhibits several different shows every Friday night at 7pm and 8pm. Tickets are \$4 for children and students with student ID, \$4.50 for senior citizens, and \$5 for adults. Go to <http://www.tamuc.edu/communityOutreach/planetarium/default.aspx> for a current listing of shows. If you attend a show, tell the staff that you are a member of this class both before and after the show. They will make a note that you attended. Any music shows will not count.

*Extra Credit Terms, Conditions, and Caveats:* You may only earn extra credit once, though you are welcome to attend as many of the observatory and planetarium events as you like. All extra credit work must be turned in on or before the last day of class. Family of any age is welcome to the planetarium shows; be sure to check on the age-appropriateness of shows (all are fine for all audiences, but some are aimed at children and some at adults).

## Grading

Grading will be done on an absolute scale with no competition. If you all earn an A, you all get an A. I may “curve” grades for specific assignments at my discretion, but your percentage earned will never go down if I apply such a curve. Your current grades will be available through the gradebook on LearningStudio (eCollege). Note that the gradebook on SmartWork is *not* official.

*Extra credit* opportunities may be announced during the semester. Outside of announced opportunities available to the entire class, there is no extra credit available.

Grading is weighted by assignment using the following weights:

Class Participation	10%
Reading Quizzes	10%
Homework Assignments	30%
Class Discussions	10%
Midterm Exams	20% (10% each)
Final Exam	20%

The grading scale is:

90% to 100%	A
80% to 89.9%	B
70% to 79.9%	C
60% to 69.9%	D
Below 60%	F

## Labs:

Astronomy labs are a separate class (Astr 1103); you do not need to be enrolled in a laboratory section to earn credit in this course. Labs are graded independently and do not affect your grade in this class. You should speak with your academic advisor to determine if signing up for a lab section is right for your degree plan. You can also take the lab courses in future semesters; they do not need to be taken concurrently. At the present, we do not offer online labs for astronomy.

## TECHNOLOGY YOU WILL NEED

This course is a technology enhanced course, meaning that some assignments (especially mini-lectures and SmartWork homeworks) must be completed online. You need to be comfortable with

basic computing skills and web browsing, and to be able to access and learn to use the various tools on LearningStudio (eCollege) even if you are not familiar with them yet.

You will need the following technologies and software to be successful in this course:

- Internet access/connection – high speed recommended (not dial-up).
- Access to a computer (Windows or Mac okay)
- Software to read PDF files (such as Acroread or Preview)
- SmartWork – the web-based astronomy homework system at [smartwork.wwnorton.com](http://smartwork.wwnorton.com). See *What You Absolutely Need* for details on how to purchase a subscription.

Additionally, the following hardware and software are necessary to use LearningStudio (eCollege):

- Our campus is optimized to work in a Microsoft Windows environment. This means our courses work best if you are using a Windows operating system (XP or newer) and Internet Explorer (6.0, 7.0 and 9.0).
- LearningStudio (eCollege) claims to support Mac OS X and iPads (iOS 5.1 or later with some features disabled), as well as the Safari browser (on Macs) and Firefox and Chrome on Windows machines. Be advised that there are often problems, especially after a software update.
- I strongly recommend that you check that your computer and browser are compatible with LearningStudio (eCollege) by performing a “Browser Test” prior to the start of your course. To launch a browser test, login in to LearningStudio (eCollege), click on the ‘myCourses’ tab, and then select the “Browser Test” link under Support Services.

## HOW TO CONTACT ME AND STAY CONNECTED

### Interaction with Instructor

*Email:* I can be reached by email at [Kurtis.Williams@tamuc.edu](mailto:Kurtis.Williams@tamuc.edu). Please put “Honors Astro” in your email subject header. It may take me up to 24 hours to send you a response (48 hours on the weekend or holidays). If you don’t hear back from me in that time, please send another email or give me a call. I assume you check your campus email daily, so if I send out a class email, I’ll assume you read it.

*Texts and Automated Email:* I have set up an SMS (text and/or email) account account for brief messages (like reminders of due dates, updates on class events, and things I find that are cool). If you do not wish to sign up for text messages, you should sign up for the email versions.

To register for text (SMS) updates, text “@astr1303h” (without quotes) to 81010. The service is free, but any standard messaging fees charged by your mobile provider will apply. If you prefer email to the text messages, go to <https://www.remind.com/join/astr1303h> and follow the instructions. The service is also private: **nobody** (including me) will see your phone number or email, and only I can send messages.

*Office Hours:* Office hours are times that I set aside when I promise to be in my office so that you can come by and talk to me. During office hours, you can ask questions about the course material, ask about homework, see your current grade, or ask other questions about the class or astronomy in general.

It’s important to realize that office hours are *not* just for students who are having problems in the course. If you are uncertain about anything, please visit, email, phone or drop into virtual hours before your small problems grow into big ones. If you are worried about what might be on the test,

stop in. If you are curious about astronomy jobs and research opportunities, come by.

Office hours work best if you have your textbooks, class notes, and homework sets with you.

If you want to talk but cannot come during office hours, please contact me by email to set up an individual appointment. By setting an appointment, you both guarantee that I will be in my office (or online) and that I will have plenty of time to talk with you. You may feel free to stop by my office any time my door is open, but if you do not have an appointment and if it is not my scheduled office hours, please understand if I'm not free to talk at that instant.

Facebook: Please don't try to friend me on Facebook. I prefer not to spam you with cat videos, and you won't have to worry about me cybercreeping you.

<b>HELP!!!!</b>
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## **Are you lost, confused, or worried?**

First, **DON'T PANIC!**

Next, step back and try and pinpoint the source of your confusion:

- Have you read the textbook sections? If not, go read them! If you have, maybe you need to try a different reading methods. Science textbooks are not like novels; they present information in a completely different method than most reading material, and there is no plot thread unfolding as you get further into a chapter. Here are some websites with suggestions on how to read science textbooks:
  - How to Read Effectively in the Sciences:  
<http://academic.cuesta.edu/acasupp/AS/621.htm>
  - Reading Assignments in Science:  
<http://www.studygs.net/science/readingtexts.htm>
  - The SQ4R Method for Reading: <http://scs.tamu.edu/?q=node/105>
- Have you watched the minilectures? These are designed to go over the main points where I think you might struggle with concepts.
- Do you just need some time away? Astronomy is too much to deal with all at once. Work on the assignment over the week and give your brain some time to absorb and mull over the information. You can start your homework on SmartWork, go away a couple days, and pick up where you left off, and not lose any points.
- If after all of this you are still confused or uncertain, it's time to seek help. Don't wait until the exam! Here you have many options:
  - Talk to your classmates!
  - Attend my office hours (see next section)! You can make an appointment with me if none of those times work.
  - If you are on or near campus, go to the JAMP room (Science 110). JAMP offers peer counselling and tutoring in many of the sciences; look for times when a physics tutor is available.
  - If you are still stuck, contact the Academic Success Center to search for other options that may help you.  
<http://www.tamuc.edu/studentLife/campusServices/academicSuccessCenter/>

## **Are you experiencing technical difficulties?**

*If your problems are with LearningStudio (eCollege):*

Texas A&M University-Commerce provides students technical support in the use of LearningStudio (eCollege). The student help desk may be reached by the following means 24 hours a day, seven days a week.

- **Chat Support:** Click on 'Live Support' on the tool bar within your course to chat with an LearningStudio (eCollege) Representative.
- **Phone:** 1-866-656-5511 (Toll Free) to speak with LearningStudio (eCollege) Technical Support Representative.
- **Email:** [helpdesk@online.tamuc.org](mailto:helpdesk@online.tamuc.org) to initiate a support request with LearningStudio (eCollege) Technical Support Representative.
- **Help:** Click on the 'Help' button on the toolbar for information regarding working with LearningStudio (eCollege) (i.e. How to submit to dropbox, How to post to discussions etc...)
- **Please don't contact me** for LearningStudio (eCollege) problems. I'll just tell you to take the above steps.

*If your problems are with SmartWork:*

- If you are having trouble joining the class, see the "Joining SmartWork" link in the LearningStudio (eCollege) menu bar and the links on that page.
  - The most common problems are that you are confusing your registration code, which comes with your book or your online purchase, and the enrollment key, which is listed under How To Get Started above.
- If you are having other problems, go to the SmartWork student support page at <http://books.wwnorton.com/books/buysmartwork>.

## RULES, RULES, RULES (UNIVERSITY POLICIES)

### Academic integrity

A major goal of this and most every university course is for you to learn and appreciate subject material. Academic dishonesty ("cheating") actively prevents you from achieving this goal. Academic dishonesty is taken seriously by the University and by me, and ***will not be tolerated.*** (See the TAMU-C Code of Student Conduct and the TAMU-C Procedures A 13.04, 13.12, 13.31, and 13.32.)

This conduct is not only considered wrong in this course and at this University, but also in the real world. Engaging in these activities will get you fired from a job and prevent you from getting another job.

Unethical student conduct includes:

- **Plagiarism**, or copying the words of others with the intent of making it look like your own. Whether you use someone else's phrase word for word, or whether you try and change a few words, or even if you just borrow someone else's original idea and don't give them credit, that's unethical. Use your own words whenever possible, give credit to wherever you got an idea, and put direct quotes inside quotation marks.
- **Cheating** involves trying to trick me or others into thinking you did work that you really didn't do, or into thinking you know what you really don't know. This can include stealing exams, changing your answers on a graded exam or assignment and claiming it was graded wrongly, putting your name on someone else's homework, and so on.
  - **Searching the Internet for homework solutions and cutting/pasting the text you find is considered cheating.** Searching the Internet for help on a topic is okay.

For example, suppose a question asks “Describe the life cycle of a star that has the same mass as the sun.” Typing that phrase into Google and cutting and pasting the text in the answer box is considered cheating. Typing “star life cycles” into Google, reading a few web pages, and summarizing the information in your own words is not cheating.

○ *Borrowing a previous student’s homework, exams, or solution sets is considered cheating.* “Borrowing” includes looking at someone’s submitted homework, screen shots, stealing returned homeworks, and so on.

- **Collusion** is working with another person to cheat. This can include copying someone else’s answers to an exam or assignment, doing work for another student, buying or otherwise obtaining homework/exam solutions from any source online or off-line, or any other instance of multiple people engaging in some form of cheating or dishonesty. Working with other students on an assignment is fine as long as everyone contributes and each student does their own work.
- **Any other activity that, to a reasonable person, looks wrong.** If you have any doubt whatsoever whether a certain action is considered dishonest, please ask me *before* engaging in the activity. There is no need to be embarrassed about asking, and I won’t penalize you for asking! In this class, if you follow the maxim “it’s easier to beg forgiveness than to ask permission”, don’t expect forgiveness to be forthcoming.

***If you engage in academic dishonesty during any graded activity, you will receive no credit for that activity. More than one instance of dishonesty by a student will result in automatic failure of the course and referral of the student for disciplinary action.***

For further information, search the Texas A&M-Commerce website for “academic integrity policy”.

SmartWork and LearningStudio (eCollege) provide me with tools that check for common forms of online cheating and collusion. These include, but aren’t limited to: time stamps, location stamps, and automated comparison of essay answers. I will use these tools.

## **Dropping The Course**

A student may drop this course by logging into their myLEO account and clicking on the hyperlink labeled 'Drop a class' from among the choices found under the myLEO section of the Web page.

Although I have the right to drop you for excessive absences (*administrative withdrawal*), I won’t do so. You have a right to get an F if you decide to quit working but don’t drop the course.

## **Incompletes**

I only offer incompletes in extraordinary circumstances. Any student interested in an incomplete should contact me as soon as possible after the situation arises, and should keep in mind that I am not required to give you an incomplete and so may not offer you the opportunity. You should also know that you only have access to an LearningStudio (eCollege) course for two weeks following the final day of term.

## **Netiquette**

I expect all students to behave to basic standards of etiquette on the web (and in real life). Abusive or inappropriate comments will be removed and earn a reprimand; any additional lapses could result in disciplinary action. For a simple guide to netiquette, see <http://www.albion.com/netiquette/corerules.html>

## University Specific Procedures

### *ADA Statement*

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

**Office of Student Disability Resources and Services**  
**Texas A&M University-Commerce**  
**Gee Library**  
**Room 132**  
**Phone (903) 886-5150 or (903) 886-5835**  
**Fax (903) 468-8148**  
[StudentDisabilityServices@tamuc.edu](mailto:StudentDisabilityServices@tamuc.edu)

### *Student Conduct*

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See *Code of Student Conduct from Student Guide Handbook*).

### *Nondiscrimination Affirmation*

Texas A&M University-Commerce will comply in the classroom and in online courses with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

<b>COURSE OUTLINE / CALENDAR</b>
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The course will cover many of the topics outlined below. The dates below may change (never earlier, but possibly later) so pay attention to announcements on LearningStudio (eCollege) for final due dates.

#### *1<sup>st</sup> Block: Tools of the Astronomer*

- Unit 1: Introductions (Jan 20)
- Unit 2: Astronomy And The Scientific Method (Jan 22)
- Unit 3: Radiation (Jan 27 & 29)
- Unit 4: Spectroscopy (Feb 3 & 5)
- Unit 5: Telescopes (Feb 10 & 12)
- **February 19: Midterm Exam 1**

#### *2<sup>nd</sup> Block: Stars*

- Unit 6: The Sun (Feb 17 & 24)
- Unit 7: Properties of Stars (Feb 26, Mar 3 and Mar 5)
- Unit 8: Stellar Evolution (Mar 10 and 12)
- **Spring Break: March 14-22**

- Unit 9: Star Death (Mar 24, 26 and 31)
- **April 7: Midterm Exam 2**

*3<sup>rd</sup> Block: Galaxies and the Universe*

- Unit 10: The Milky Way and its Neighbors (Apr 2, 9 and 14)
- Unit 11: The Expanding Universe (Apr 16 and 21)
- Unit 12: Modern Cosmology (Apr 23, 28 and 30)
- Unit 13: The Growth of Structures (May 5 and 7)
- **Thursday, May 14, 10:30-12:30: Final Exam**

*Observatory Visit:*

- Thurs, Mar 12, 8:00pm-10pm
- Cloud date, if needed, TBA