



**ASTR 1304.01E – Astronomy of the Solar System  
COURSE SYLLABUS: Fall 2014**

**WHO I AM**

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

**Office Location:** Science 145

**Office Phone:** 903-886-5516

**Office Fax:** 903-886-5480

**Office Hours:** M 10:30-11:30, T 4:00-5:00, F 9:30-10:30, or by appointment

**University Email Address:** [Kurtis.Williams@tamuc.edu](mailto:Kurtis.Williams@tamuc.edu)

Please include "Astr 1304.01" in the subject line.

**Course Locations and Times:**

MWF 1:00 p.m. – 1:50 p.m. in Science 135

**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 that Earth-bound scientists can only dream of.

In this course, we will focus on the Sun and its accompanying collection of planets, comets, asteroids, and other debris. We'll begin by studying the night sky and the history of astronomy. From the insights we gain in these topics, we will step out and study our Solar System. Along the way we will find ice volcanoes, temperatures ranging from near absolute zero to hot enough to melt lead, and potential places for life. We will also examine how our Solar System compares to planetary systems around other stars. Finally, we will examine the potential for life on other worlds.

**Student Learning Outcomes:**

1. You will be able to explain how astronomers determined the true size, layout, and forces at play in our Solar System.
2. You will be able to compare the properties of different objects in our Solar System.
3. You will be able to restate hypotheses concerning the origins of our Solar System.
4. You will be able to contrast our Solar System to those around other stars.

## WHAT YOU ABSOLUTELY NEED

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

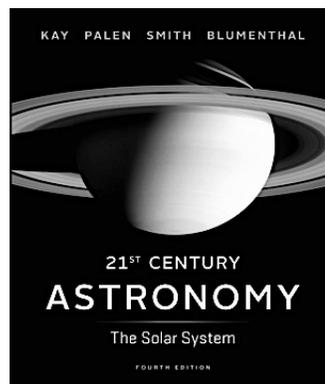
Required on or before Monday, Sept 8:

- 21<sup>st</sup> Century Astronomy, Volume 1: The Solar System, 4<sup>th</sup> edition, Kay, Palen, Smith and Blumenthal, ISBN 978-0-393-92058-1
- A subscription to SmartWork, an online astronomy homework and tutoring system (see below)
- Astronomy of the Solar System Lecture Tutorials ISBN 1-269-77413-1
  - *This book should be brought to every lecture!*
- Access to a desktop or laptop computer capable of watching videos, reading articles on the internet, and logging in to eCollege.

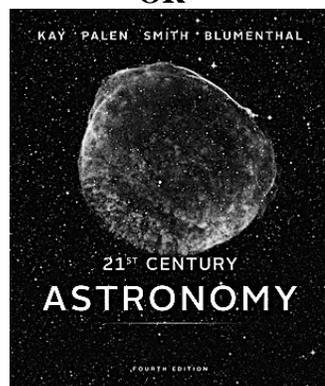
Options for purchasing: (Prices as of 8/24/2014)

- 21<sup>st</sup> Century Astronomy Volume 1 with SmartWork and eBook access
  - Best if you are only taking this astronomy course
  - From TAMU-C Bookstore: \$107.15
  - From wwnorton.com: \$93.75
- 21<sup>st</sup> Century Astronomy (entire book) with SmartWork and eBook access
  - Best if you are reasonably sure you will take Astr 1303: Stars and the Universe as well as this course
  - From wwnorton.com: \$141.25
- 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
- Astronomy of the Solar System Lecture Tutorials
  - From TAMU-C Bookstore: \$29.65
  - Or purchase Lecture Tutorials for Introductory Astronomy, ISBN 0-321-82046-4. From [MyPearsonStore.com](http://MyPearsonStore.com): \$39.20
- **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.

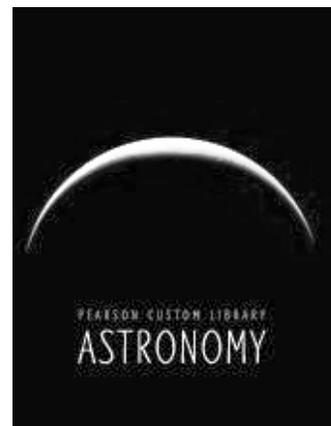
Course Prerequisites: None



OR



AND



## HOW THE COURSE WILL WORK

### **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 drone on won't help you learn anything useful. I therefore will require you to participate actively in the course.

Therefore, the lectures in this course may be significantly different than those in many courses you have taken. I feel that there is only so much a student can learn from a lecture, no matter how entertaining I may be. At some point, you need to take the knowledge, work with it, and make it your own. Therefore, each lecture will consist of short lectures focusing on important concepts with which students tend to struggle interspersed with various interactive activities. Your participation in these will be key to your success in understanding the material.

For these reasons, attendance and class participation are mandatory and will count toward your final grade. I realize that most 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 writing assignments. These in-class activities are graded primarily on whether you make an effort to participate. There is no penalty if you get an answer wrong, but correct answers may receive a small amount of extra credit.

One tool will be used commonly in our lectures: the required *Astronomy of the Solar System Lecture Tutorials*. This book should be brought to every lecture, though we will not always use it. If you do not have this text 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 three 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 40 lectures during the semester. If you earn participation credit in 37 of them, you will receive 100% for your participation grade. If you earn participation credit in 34 lectures, your participation grade will be 34 out of 37, or 92%.

#### **Reading Quizzes and Homework**

Reading quizzes will be given often at the start of a class to see if you have done the required reading. 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 may 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, up to a maximum of 70%. 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 midterms and the non-lab final, 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 you letter of accomodation from the Student Disability Resources and Services office.*

### **Labs:**

Starting in Fall 2014, labs are a separate class (Astr 1103); you do not need to be enrolled in a laboratory section to earn credit in this course. 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.

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

You will have two opportunities for an optional visit to the Commerce Observatory (about 5 miles south of Commerce): the evening of Tuesday, Sept. 23 and the evening of Thursday, Sept. 25. If both of these dates are cloudy, we have set a rain date of Tuesday, Oct. 21. Times are listed in the calendar at the end of this syllabus. At each session, 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. They will make a note that you attended. Then email me two paragraphs: one summarizing the show, and a second telling me something specific about the show that you found interesting and why. If and only if you complete both of these steps, you will get extra credit toward your lab grade.

*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 starting September 1 on so you can track your progress. 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:

Classroom Participation	10%
Reading Quizzes	10%
Homework Assignments	30%
Midterms	30% (15% 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

## TECHNOLOGY YOU WILL NEED

This course is a technology enhanced course, meaning that some assignments (especially homework) 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 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 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).
- 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 eCollege by performing a “Browser Test” prior to the start of your course. To launch a browser test, login in to eCollege, click on the ‘myCourses’ tab, and then select the “Browser Test” link under Support Services.

## HOW TO GET STARTED AND ACCESS CLASS HANDOUTS

### SmartWork and eCollege Access Information

Homework must be completed using SmartWork at [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 Code in SmartWork is **ASTRO4E6987**. SmartWork has support available at <http://books.wwnorton.com/books/buysmartwork>.

This course will be facilitated using 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).

### Class Handouts

Class materials such as copies of PowerPoint slides and electronic versions of handouts will be made available through eCollege, the Learning Management System used by Texas A&M University - Commerce. To access these materials, go to: 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).

## HELP!!!!

### 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>
- 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. In particular, SmartWork homeworks are untimed. You can start your homework do a few problems, 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! Use the student lounge or email to solicit help.
  - Attend my office hours (see next section). You can come to real or virtual hours, or make an appointment with me if none of those times work.
  - 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 eCollege:*

Texas A&M University-Commerce provides students technical support in the use of 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 eCollege Representative.
- **Phone:** 1-866-656-5511 (Toll Free) to speak with eCollege Technical Support Representative.
- **Email:** [helpdesk@online.tamuc.org](mailto:helpdesk@online.tamuc.org) to initiate a support request with eCollege Technical Support Representative.
- **Help:** Click on the 'Help' button on the toolbar for information regarding working with eCollege (i.e. How to submit to dropbox, How to post to discussions etc...)
- **Please don't contact me** for 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 eCollege menu bar and the links on that page.
  - The most common problems are that you are confusing your access code, which comes with your book or your online purchase, and the enrollment code, 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>.

<b>HOW TO CONTACT ME AND STAY CONNECTED</b>
---

### Interaction with Instructor

*Email:* I can be reached by email at [Kurtis.Williams@tamuc.edu](mailto:Kurtis.Williams@tamuc.edu). Please put "ASTR 1304.01" 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, Automated Emails and Twitter: I have set up an SMS (text and/or email) account and a Twitter account for brief messages (like reminders of due dates, updates on class events, and things I find that are cool). Your use of these is completely optional; no critical information will be given out on Twitter without a class email and/or eCollege announcement also being made. Both texts and tweets will contain the same information..

To register for text (SMS) updates, text “@astr1304” (without quotes) to (754)333-5306. The service is free, but any standard messaging fees charged by your mobile provider will apply. To get automated email copies of any texts (like if you don’t have texting or don’t want to pay for it), send a blank email to: [astr1304@mail.remind101.com](mailto:astr1304@mail.remind101.com). The service is also private: nobody (including myself) will see your phone number or email, and only I can send messages. So you will only get my reminders and any drunk texts I send (hopefully not).

The Twitter feed is @prof\_kwilliams ([http://twitter.com/prof\\_kwilliams](http://twitter.com/prof_kwilliams) - note the underscore between the f and k). I use this feed for multiple classes; search the feed for #astr1304 to get updates for this class. *You do not need a Twitter account to view these updates*, but if you tweet, feel free to follow me. I do not read direct messages or replies to tweets.

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. Office hours work best if you have your textbooks, class notes, and lecture tutorials with you.

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.

If you want to talk but cannot come during office hours, please contact me by email in order 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 friend me on Facebook during the semester; my feed is mainly cat videos and reminiscing on the 1980s and 1990s anyway.

## **Netiquette**

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

<b>RULES, RULES, RULES (UNIVERSITY POLICIES)</b>
--

## **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 and simply 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 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.

## **Administrative Withdrawl**

Although I have the right to drop you for excessive absences, I won't do so. You have a right to get an F if you decide to quit working but don't withdraw.

## **Assignment Policy and Due Dates**

All assignments will be posted at least one week before they are due. Assignments and due dates will be posted in the main page for each unit. Submission requirements for each assignment will also be given on that page.

## **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.

## **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 eCollege course for two weeks following the final day of term.

## **Late Work**

Late assignments are penalized 10% for each day late (including weekends), up to a maximum 70% penalty. If you fail to take an exam, you will receive a zero.

## **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*).

## COURSE OUTLINE / CALENDAR

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 in class for precise dates.

### *1<sup>st</sup> Block: Basic Tools, Observations, and History of Astronomy*

- Unit 1: The Scientific Method and Astronomy (Aug 25–Sep 3)
- Unit 2: Motions of the Earth and the Moon (Sep 5–15)
- Unit 3: Motions of Astronomical Bodies (Sep 17–Oct 3)
- **Midterm 1: October 10**

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

- Unit 4: The Origin and Characteristics of Planetary Systems (Oct 6–17)
- Unit 5: Terrestrial Planets and the Moon (Oct 20–27)
- Unit 6: Atmospheres of Terrestrial Planets (Oct 29–Nov 7)
- **Midterm 2: Nov 14**
- Unit 7: Giant Planets (Nov 10–Nov 17)

### *3<sup>rd</sup> Block: Small Objects, the Sun, and Life*

- Unit 8: Moons and Rings (Nov 19–24)
- Unit 9: Dwarf Planets and Debris (Dec 1–3)
- Unit 11: Life in the Universe (Dec 5)
- **Final Exam: Friday, Dec 12, 10:30–12:30**

### *Observatory Visits:*

- Tues, Sept 23 8pm–9:30pm
- Thurs, Sept 25 8pm–9:30pm
- Rain/Cloud Date: Tues Oct 21 7:30pm–9:00pm