

ASTRONOMY 100:  
INTRODUCTION TO ASTRONOMY  
Spring 2015

**Lecture:** Tues & Thurs 9:30-11 am                      **Place:** PHY Room 1412  
**Discussion:** Various times                                      **Place:** CSS 2400

**Professor:** Dr. Lee Mundy    **Office:** CSS 0205 & PSC    **Phone:** 405-1529  
**Email:** lgm@astro.umd.edu  
**Office Hours:** 11:00-12:00 Tues, 1:00-2:00 Friday, or by appointment

**Teaching Assistants:**

Harry Arnold (harryarnold@gmail.com):	Section 1
Andrew Gallagher (agallagher@astro.umd.edu):	Section 2
Abbie Petulante (abbiepet@umd.edu):	Section 5
Bret Yon (byon@terpmail.umd.edu):	Section 3 & 4

**ELMS Site:** All materials will be posted on the class ELMS site.

**Required Text:** *The Essential Cosmic Perspective*  
Bennett, Donahue, Schneider, and Voit

## 1 Introduction

This course presents a broad introduction to the science of astronomy. It is intended for non-science majors. No part of the course requires more than a high school level science and math background.

We hope that you find this course enjoyable and walk away with a better understanding of the universe that we live in. With that goal in mind, the course focuses on major concepts in astronomy and, where possible, ties those concepts into issues relevant to your life. For example, global warming, an important worldwide issue, is also central to understanding the differences between the environments of Venus, Mars, and Earth. At a more philosophical level, understanding how our universe works and how planets, stars and galaxies are formed gives us a better perspective on our place in the universe and how special planet Earth is to our continued survival.

This course will introduce you to ideas and issues that are central to many scientific disciplines. We will attempt to inform you and to make you think about the world and universe that we live in. Please take advantage of the opportunities this course offers.

## 2 Course Structure

ASTR 100 consists of two main parts: two weekly lectures and one weekly discussion section. The lectures present material and provide a forum for general questions and discussion. The lectures are intended to parallel the text. Thus for better understanding of the lecture material, it is important for you to read the text before lecture. You are responsible for all material presented in class and discussion section, even if it is not in the text. There will be in-class exercises in some lectures which will count towards your grade. Homework will be turned in at lectures.

The discussion sections provide an informal environment for expanding upon and explaining the lecture material. Discussion sections, which are run by Teaching Assistants (TAs), include a short presentation by the TA highlighting important concepts, question/answer sessions, and group discussions of issues brought up by the course. This is your best opportunity to ask questions and seek detailed explanations of specific points. You will find these classes most useful if you are up-to-date in your reading and attend lecture. There will in-class exercises at every discussion meeting. **Discussion sections are an essential part of this course, not an optional part!**

As you will see from the grading structure for the class, poor attendance of lecture and discussion can easily lower your final course grade by one letter grade: even a perfect score on all tests and homework will only correspond to a B if you have zeros for in-class and in-lecture exercises.

## 3 Learning Goals

By the completion of this course, the students should be able to:

- Demonstrate understanding of the scientific method and its application, utilizing examples from astronomy.
- Express a broad understanding of the distances, timescales, and range of physical environment in the Universe, and how our Earth and humans fit in the context of the Universe.
- Achieve a broad level of understanding of astronomy such that they can appreciate the new discoveries covered in popular articles.
- Explain astronomical concepts such as the evolution of stars, formation of the Solar System, and the evolution of the Universe through written and oral communications.
- Appreciate the role of observations in the advancement of our understanding of the Universe and give several example of how observations have in the past changed our entire concept of the Universe.

- Understand why common astronomical event observable by eye, such as phases of the Moon, eclipses, motions of the planets and stars on the night sky, happen and be able to explain the reasons to others.

## 4 Grading

Your final grade will be based on the summed scores of two mid-term exams, the homework and the discussion section exercises, in-lecture exercises, and the final exam. The contributions for each of these is detailed below.

Item	Points
Final Exam	200
Mid-Term Exam 1	100
Mid-Term Exam 2	100
Homework	80
Discussion	60
In-Lecture Exer	60

There will be 40 points of extra credit spread throughout the semester.

The two mid-term exams are scheduled for the dates given on the accompanying class schedule. Each mid-term exam will be worth 100 points and cover material presented in lecture and discussion section since the previous exam. These exams occur during the regular class lecture hour in the same room.

Homework will be assigned most weeks; see the lecture schedule for the due dates. Homework is to be turned-in at the beginning of Lecture on Tuesdays and will be worth 10 points each. It is expected that this homework will take around 1 hour to complete if you are attending lecture, discussion, and up-to-date on your reading of the book. Homework assignment will be distributed in lecture and posted on the class ELMS site.

Graded exercises will be given in discussion section or in lecture. These exercises are intended to encourage you to keep up-to-date with your reading and lecture attendance so they will be mainly based on very recent material. The exercises will be worth 5 points each.

Lastly, the **final exam** will be a cumulative exam drawing on all material covered by the lecture and discussion sections. The final will be worth 200 points. It is scheduled for **8:00 am to 10:00 am on Friday May 15** according to the University course schedule. Yes, 8:00 am – set two alarms and have a friend phone you. Unfortunately, the University will not let me reschedule the final to a more reasonable time. I understand that most of you do not like the time; neither do I. It is our punishment for having lectures on Tuesday and Thursday at a more reasonable time.

The scores for all graded materials (homework, in-lecture, in-discussion, tests and extra credit) will be posted on elms in a timely manner. It is your

responsibility to report to your TA any materials that have been mis-graded or entered incorrectly, or perhaps accidentally mis-placed. Please check your graded materials on the elms System. **The last day for correcting errors in grading of completed work will be Thursday May 7.**

## 5 Missed Exams

The University recognizes only three excuses for missing exams: religious holidays, University-approved travel, and illness. Except in the case of a sudden illnesses, you should provide the Professor with a valid written excuse in advance of the scheduled exam. If you have an emergency, you must contact me to arrange for a Make-up within two days after the missed exam (email is fine). Make-up exams will be scheduled at a mutually acceptable time as soon as reasonable and will be a combination of written and oral. If you do not have a valid written excuse, you will NOT be allowed to make-up an exam.

If you are missing an exam due to athletic related travel, you know these well in advance and we can schedule you to take a made-up exam either before your travel or immediately after. You need to make arrangements before the exam date.

If you miss the final exam with a valid written excuse, you must arrange for a make-up exam within two days as course grades are due 48 hours after our final exam. Contact me via email immediately if you know that you will miss the final exams.

## 6 Missed Discussions

If you anticipate missing a discussion session due to University-approved travel or a religious holiday, you should contact your TA during the previous week and make arrangements to attend another section for that week. If you miss a discussion due illness, please contact your TA as soon as you are well to see if arrangements can be made for you to attend another section during that week. You will not be permitted to make-up discussion exercises without a valid excuse. You need the explicit authorization from your TA to attend a discussion section other than your schedule one.

If the times of your current section are a problem, you may switch sections if space is available in the desired section. You must work with the Registrars Office to get the appropriate paperwork. They have a system for wait-listing you if there are no openings. You should attend your assigned section until your transfer to the new section is approved. Seeking to change your section is not a valid excuse for missing discussion.

## 7 Students with Disabilities

Students with disabilities should contact me and Disability Support Services (DSS – <http://www.counseling.umd.edu/DSS/>) to make arrangements for support. DSS controls and coordinates direct services. It is your responsibility to work with DSS to evaluate needed services then to inform me and your TA of any accommodations that need to be made at lecture, discussion or during tests.

## 8 The Honor System

The academics at the University works on the basis of a Code of Academic Integrity. Acts of academic dishonesty include cheating, fabrication, facilitating academic dishonesty, and plagiarism. Specifically, activities such as cheating on exams or quizzes, copying homework or in-class exercises, knowingly permitting your homework to be copied, and submitting forged excuses for absences from exams are violations of this code. All cases of suspected academic dishonesty will be turned-over to the Student Honor Council to investigate and resolve. The normal sanction for academic dishonesty is a course grade of 'XF', denoting failure due to academic dishonesty. The Code of Academic Integrity is reprinted in full in the Undergraduate Catalog. **We are serious about this.**

New students can sometimes become confused with regard to what is appropriate use of Internet resources. Just in case you were wondering, it is inappropriate to post homework questions to get others to write answers for you. I have no problem with use of the Internet to gather information – however, obviously, you are responsible for arriving at the correct answer – quoting an Internet source with the wrong answer – is a wrong answer. The simplest rule to follow is that all answers, on homework, on individual exercises, on tests, must be in your own words: not copied verbatim from another source. In practice, this means that your answer should never look exactly like another student's answer.

There are some in-discussion and in-lecture exercises that are group exercises. For these, we expect everyone in the group to contribute and there will be one grade for the group.

If you have questions regarding appropriate behavior, please talk to your TA or myself.

## ASTR100 LECTURE SCHEDULE

Date	Lecture Topic	Reading	Homework
Tu. Jan 27	Introduction; The Cosmic Scale	Chapter 1; Appendix C	
Th. Jan 29	Scientific Discovery	Chapter 1 & 3	
Tu. Feb 3	Seasons and the Changing Sky	Chapter 2	
Th. Feb 5	Lunar Phases & Eclipses	Chapter 2	
Tu. Feb 10	Competing Cosmologies	Chapter 3	HW#1 DUE
Th. Feb 12	Kepler's Laws	Chapter 4	
Tu. Feb 17	Conservation Laws and Laws of Motion	Chapter 4	HW#2 DUE
Th. Feb 19	Gravity	Chapter 4	
Tu. Feb 24	Properties of Light	Chapter 5	HW#3 DUE
Th. Feb 26	Spectra and Telescopes	Chapter 5	
Tu. Mar 3	<b>EXAM I</b>	Chapters 1-5	Exam Day
Th. Mar 5	The Terrestrial Planets: Geology	Chapter 7	
Tu. Mar 10	The Terrestrial Planets: Atmospheres	Chapter 7	HW#4 Due
Th. Mar 12	The Jovian Planets	Chapter 8	
Mar 15-22	<b>SPRING BREAK!!!</b>		
Tu. Mar 24	Moons, Asteroids, & Comets	Chapter 9	
Th. Mar 26	Formation of Solar Systems	Chapter 6 & 10	
Tu. Mar 31	The Sun	Chapter 11	HW#5 DUE
Th. Apr 2	The Properties of Stars	Chapter 12	
Tu. Apr 7	Powering the Stars	Chapter 11 & 12	HW#6 DUE
Th. Apr 9	Stellar Lifetimes	Chapter 13	
Tu. Apr 14	<b>EXAM II</b>	Chapters 6-13	Exam Day
Th. Apr 16	Stellar Evolution	Chapter 13	

Tu. Apr 21	White Dwarfs, Neutron Stars, Black Holes	Chapter 14	
Th. Apr 23	The Milky Way	Chapter 15	
Tu. Apr 28	Expansion of the Universe	Chapter 16	HW#7 DUE
Th. Apr 30	The Big Bang	Chapter 17	
Tu. May 5	Dark Matter & Dark Energy	Chapter 18	HW#8 DUE
Th. May 7	Life in the Universe	Chapter 19	
Tu. May 12	The Big Picture and Overview for Final	All Material	
Fri May 15	<b>FINAL EXAM (8am-10am)</b>	All of the above	Exam Day

**YES!!! The final exam starts at 8 am!**