

ASTR100: Introduction to Astronomy

Sections 0101-0106, Fall 2024



Prof: [Doug Hamilton](#)

Phone: (301) 405-1548

Email: Please use the [ELMS](#) messaging system

Office: PSC 1153

Office Hours: TuTh 11:00am-1:00pm or by Appt.

Required Class Textbook: OpenStax free textbook available as a PDF from openstax at <https://openstax.org/details/books/astronomy>

Class Web Page: <http://www.astro.umd.edu/~hamilton/ASTR100/>. Packed full with course information, supplementary readings, and interactive programs to make ASTR100 fun and to help you learn. Follow astronomy in the news and see cool space pictures and movies!

Class Meetings:

Lectures meet in PHYS 1412 on TuTh from 9:30am to 10:45pm. Lectures are led by the professor and will include demonstrations, slides, videos etc.

Discussion Sections meet at the [times and places listed below](#) starting Friday Sep. 6 or Monday Sep. 9. Section does not meet the Friday and Monday after Thanksgiving. Discussion sections are led by graduate student [Teaching Assistants](#) (TAs). These weekly meetings provide a smaller and more informal environment for further developing the material taught in class. The TAs will also answer questions about the lectures and reading and will hold review sessions before exams. More details on Section Policies will be provided during the first meetings.

Course Description:

Welcome to Astronomy 100! You are about to embark on an ambitious project - to survey our known Universe in one short semester. We hope that you find this course enjoyable and walk away with a better knowledge and understanding of the universe that we live in. With that goal in mind, the course attempts to focus on major concepts in astronomy and where possible tie 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.

Most of you have chosen this course to fulfill your science requirement (see [GENED Requirements](#) below). GENED courses are designed to ensure that you will take a look at several different academic disciplines and the way they create and analyze knowledge about the world. We will introduce you to ideas and issues that are central to a major intellectual discipline and involve you actively in the learning process. Please take advantage of the opportunities this course offers!

Course Expectations:

Attendance: In order to succeed in this course, I expect you to **attend all lectures and discussion sections**. This is very important! The material on the homeworks and exams are based upon the material covered in the lectures, the text, and discussion sections. If you have to miss a scheduled class meeting, be sure to look at another student's notes and make sure that you understand what was covered. See me or the teaching assistant if you have questions. There will be times during the semester, in both lectures and sections, when we will ask for written responses to questions. Your written answers will count towards your grade in the class.

Preparation: I expect you to be prepared to work. You will understand the lecture more easily if you preview the reading assignment. A more careful reading is recommended after lecture. You should study your class notes sometime before the next lecture to make sure that everything is clear. I encourage you to ask questions in class, in discussion, during **office hours**, and over email.

Study Habits: Study wisely and ask for help if you need it. If you just cram the night before the exam, you probably will not do very well. It is better (and easier) if you keep up with the material on a daily basis. If you have questions, please see me or one of the TAs. We are here to help you learn.

Grading:

I grade on a point scale with different assignments weighted as shown in the table. A description of each of these components is contained in this syllabus.

ASSIGNMENT	Syllabus Cover	Homework	Section	Exam I	Exam II	Final	Total
POINTS	10	90	150	100	100	200	650

Letter grades will be assigned based upon your curved cumulative score. Grades for some discussion sections may be adjusted slightly so that the average grade given by each TA is similar. Here is how your grade will be determined from your point total in the class.

Letter Grade	A	B	C	D	F
Points Needed	585-650	520-584	442-519	357-441	0-356
Percentage	90%-100%	80%-89%	68%-79%	55%-67%	0%-54%

The point scale makes it possible for everyone in the class to do well. For example, if everyone scores above 80% in the course, you would all receive either a B- or better letter grade. I do use +/- modifiers - you will get a "+" if you are in roughly the upper 1/3 of students with the same letter grade and a "-" if you are in the lower 1/3. I may adjust the number of points required to get a given grade depending on the class averages; however, any adjustment will make it easier to get a given grade, never more difficult. You can my current estimate of your grade from the class ELMS site as the semester progresses.

Top three ways to get a good grade in ASTR100: 1) Attend all ASTR100 meetings, 2) Do all ASTR100 assignments, 3) Read the ASTR100 book. Also important to improve your learning in ASTR100: go over your returned assignments and any solution sets carefully within a day or two of when they are returned to you. If you are unsure about why something was marked wrong or you believe that it was incorrectly marked wrong, please contact your TA promptly. Grading will be reconsidered for only **a reasonable time** after the

assignment is returned to you, **typically 7-10 days**.

Midterm Exams

There will be two in-class 75-minute examinations which will be held in PHYS 1412 on Thursday, October 3 and Thursday, November 7. These exams are closed book with no notes, no calculators, and no phones allowed. The exam will be online, taken on your laptop with a lock-down browser that prevents all other activities while the exam is open. You will only be allowed to leave the classroom at a few specified times, and once you leave you cannot return to your exam. Each exam will consist of 25-40 multiple choice questions and three or four essay or problem solving questions. These exams are incremental (i.e., non-cumulative) checkups on how well you have learned the material. The schedule of lectures included in this syllabus shows what material will be covered on each exam. Please bring only your laptop and your ID card to both midterms and the final.

If for whatever reason, the University is *officially* closed on the exam date, the exam date shifts to the next lecture date.

Final Exam

According to University rules, **the final exam for this course will be held on Wednesday Dec. 12 from 10:30 am to 12:30 pm in PHYS 1412**. This final exam is cumulative, that is, it will cover *all* material discussed in this course. However, readings and Homework not covered by the midterm exams (see Lecture Schedule), *will be more heavily weighted* on the final exam. The final will include multiple choice, essay and problem solving questions with the exact combination to be determined.

This exam is also closed book with no notes and no calculators allowed. Please bring your laptop and your ID card to the final.

Missed Exams

If you are not able to take an exam due to illness or other legitimate reasons (as outlined in the Academic Info section of the schedule of classes) and you wish to take a make-up exam, you must

- 1) contact me by email **before** you miss the regularly-scheduled exam and
- 2) submit a **valid written excuse** for your absence **within one week** after the regularly-scheduled exam.

Exams are Major Scheduled Grading Events and, accordingly, proper documentation will be required if you wish to make up a missed exam. Make-up exams will typically be given within one week after you submit the valid written excuse. The make-up exams may consist of essays, problems, and short answer questions, and may also include oral questions asked by the professor.

If you miss the final exam and have a *valid written* excuse, you must arrange for a make-up final within 48 hours after the scheduled exam. The make-up final, like the make-up midterms, will likely have **no multiple choice questions**.

Discussion Sections

Your weekly hour-long discussion section is an integral part of this course. The sections are run by the TAs,

with just general guidelines from me; they will normally include preparing you for lab, review of lecture material, presentation of problems and material not covered in lecture, exercises and quizzes etc. These sections serve as a forum to enhance your understanding of the course material. Your TAs are an excellent resource; get to know them and use that resource! Exams and other paperwork will be returned to you by your TA. Please attend all your discussion sections. If for some reason you have to miss one of these meetings, talk to your TA for options for making up the work.

Be sure to attend the discussion section for which you registered. The only way to switch sections is through the registrar's office; **unofficial changes are not allowed**. Memorize your section number and put it on everything that you turn in.

Section	Discussion	Location	TA Name
0101	M 1:00pm-1:50pm	ATL 1114	Marshall Hobson-Ritz
0102	M 2:00pm-2:50pm	ATL 1114	Antoine Washington
0103	M 3:00pm-3:50pm	ATL 1114	Antoine Washington
0104	F 10:00am-10:50am	ATL 1113	Sophie Robbins
0105	F 11:00pm-11:50am	ATL 2428	Sophie Robbins
0106	F 12:00pm-12:50pm	ATL 1114	Marshall Hobson-Ritz

Copying from another student's work - from our class or another - is academic dishonesty and will not be tolerated in this class (see [Academic Integrity](#) below).

Contact Information and Office Hours

The Prof. and the Teaching Assistants all hold office hours that are open to everyone. There is someone available for several hours each day of the week - we are here to help! If you cannot make office hours because you are feeling ill or for another valid reason, please contact us for Zoom options.

Name	Office	Office Hours
Prof. Doug Hamilton	PSC 1153	Tu 11:00am-1:00pm Th 11:00am-1:00pm
Sophie Robbins	PSC 1248	W 11:00am-12:00pm F 2:00pm-3:00pm
Marshall Hobson-Ritz	PSC 1238	M 2:00pm-4:00pm
Antoine Washington	ATL 1239	M 1:00pm-2:00pm W 2:00pm-3:00pm

Homeworks

There are a total of six homeworks in this course. All homeworks will be posted and turned in on ELMS. Homework solution sets will also be posted on ELMS.

All homeworks must be typed and turned in at **11:59 pm** on the due date. Homeworks turned in after this will

be considered late and docked at least 20%. **Homeworks may not be turned in by email.** If you experience a valid emergency, you must write your TA an email or leave them a voice mail message **before the assignment is due**, telling them why you will be late. Occasionally, you might need to upload a PDF to ELMS. But computer problems are not a valid excuse for being late; just ask a friend or your TA for help if you need it.

Although you may discuss the homework problems with your friends, **the final writeup must be in your own words.** Copying from anyone else's homework, **copying from a website**, copying from the book, copying from another printed or online source, or allowing anyone to copy your homework is academic dishonesty (see [Academic Integrity](#) below) and is unacceptable in this class. If you consult a reference other than the course text, please acknowledge it in your homework - *this includes websites, paraphrasers, and chatbots!*

Extra Credit

There are many ways to earn extra credit in this class:

- Attend Class: I will frequently ask questions worth bonus points during lectures.
- Do the Extra Credit questions on each homework assignment.
- Fill out the ASTR100 class evaluation in October.

Please do not ask for other extra credit opportunities.

Special Circumstances

Students with a documented disability should let me know as soon as possible (preferably on the first day of class) so that appropriate academic accommodations can be made.

Academic Integrity

The academic community at the University abides by a Code of Academic Integrity. Acts of academic dishonesty include cheating, fabrication, facilitating academic dishonesty, and plagiarism. Activities including, but not limited to, cheating on exams or quizzes, copying homework answers from a website, a friend or a book, allowing your homework or paper to be copied, and submitting forged excuses for absences are violations of this code. Academic Dishonesty hurts the whole University of Maryland community - if you are aware of an incident in ASTR100, please report it to one of the TAs or me, anonymously if you wish. If we suspect that a serious incident of academic dishonesty has occurred, we will turn the case over to the Student Honor Council to investigate and resolve. If the suspected party is judged 'responsible' for the act(s) of academic dishonesty, the normal sanction is a course grade of 'XF' on the student's academic transcript which denotes failure due to academic dishonesty. This is far worse than an F. More information can be found on the web at <https://academiccatalog.umd.edu/undergraduate/registration-academic-requirements-regulations/academic-integrity-student-conduct-codes/>; pay particular attention to the links for students. Also, take a look at my [Academic Dishonesty FAQs](#). **We are very serious about this.**

GENED Requirements

ASTR100 is intended for non-science majors and requires no more than a modest, high-school level science

and math background. This course satisfies U. Maryland's requirement for a *non-lab* natural science course. To satisfy the requirement for a *lab* natural science course, you might wish to consider ASTR101. Note that **you cannot get credit for both ASTR100 and ASTR101**. Please be sure that you have chosen the correct course.



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ASTR100 LECTURE SCHEDULE

Lecture Date	Lecture Topic	Reading
Tue. Aug. 27	Introduction, The Scale of the Universe	OpenStax 1.4-1.7
Thu. Aug. 29	A Brief History of the Universe	OpenStax 1.9
Tue. Sep. 3	Seasons on Earth	OpenStax 4.2
Thu. Sep. 5	The Motions of the Moon and Planets	OpenStax 4.5, 4.7; Syllabus Cover Sheet due
Tue. Sep. 10	Competing Cosmologies	OpenStax 2.2, 2.4
Thu. Sep. 12	Kepler's Laws & The Scientific Method	OpenStax 3.1, 3.3; HW#1 due
Tue. Sep. 17	Newton's Laws of Motion	OpenStax 7.1
Thu. Sep. 19	Planetary Formation	OpenStax 7.4
Tue. Sep. 24	Terrestrial Planet Surfaces	OpenStax 10.2, 10.4
Thu. Sep. 26	Terrestrial Planet Atmospheres	OpenStax 10.3, 10.5; HW#2 due
Tue. Oct. 1	The Giant Planets	OpenStax 11
Thu. Oct. 3	EXAM I	OpenStax Reading; HW 1-2
Tue. Oct. 8	Moons, Asteroids, and Comets	OpenStax 12.1, 12.3, 13
Thu. Oct. 10	Extrasolar Planets	OpenStax 21.4, 21.5
Tue. Oct. 15	Revisiting Planetary Formation	OpenStax 21.6
Thu. Oct. 17	Light and Atomic Physics	OpenStax 15.1, 15.2; HW#3 due
Tue. Oct. 22	The Sun	OpenStax 17.1-17.3
Thu. Oct. 24	Other Stars	OpenStax 18.1, 18.2, 18.4
Tue. Oct. 29	A Small Star's Life	OpenStax 21.1, 21.2, 22.1
Thu. Oct. 31	A Big Star's Life	OpenStax 22.2, 23.2; HW#4 due
Tue. Nov. 5	White Dwarfs and Neutron Stars	OpenStax 23.1, 23.4
Thu. Nov. 7	EXAM II	OpenStax Reading; HW 3-4
Tue. Nov. 12	Black Holes	OpenStax 24.5, 24.6
Thu. Nov. 14	Our Galaxy and Other Galaxies	OpenStax 25.1, 25.2, 26.2
Tue. Nov. 19	Galactic Distances	OpenStax 26.4, 26.5
Thu. Nov. 21	The Big Bang Theory	OpenStax 29.3, 29.4, 29.6; HW#5 due
Tue. Nov. 26	Dark Matter and Dark Energy	OpenStax 28.4, 29.5
Thu. Nov. 28	THANKSGIVING!!	
Tue. Dec. 3	Fate of Our Universe	OpenStax 28.5, 29.2
Thu. Dec. 5	Life, the Universe, and Everything	OpenStax 30; HW#6 due
Thu. Dec. 12	FINAL EXAM (10:30am-12:30pm)	OpenStax Reading; HW 1-6

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Last Modified: Tue Oct 29 11:21:16 2024