

AS 101 – The Solar System (Spring 2016)

Course Syllabus

Course Description:

AS101 is an introduction to the Solar System. In order to understand the Solar System in the context of the Universe, we will explore key concepts in astronomy. The goal of the course is to help students understand basic physical principles, the scientific process, and to appreciate our place in the Universe. Note that the syllabus may change based on class progress. Changes will be announced in class.

Instructor:

Professor Philip Muirhead
Office: CAS 403
Phone: 617-353-6553
Email: philipm@bu.edu
Office Hours: TWRf 1-2:20

Teaching Fellows:

Danielle Pahud, dpahud@bu.edu
Office hours: MT 1:00-1:50, F 10:00-10:50am in CAS 524

Jonathan Wurtz, jwurtz@bu.edu
Office hours: MWF 12:00-12:50 in CAS 524

Meeting Times:

Lecture: MWF 11:00 to 11:50 in CAS 522

Day Labs: All day labs meet in CAS 521 **starting Tuesday Jan 26.**

A2 Friday 1:30 to 2:50 (TF: J. Wurtz)

A3 Tuesday 2:00 to 3:20 (TF: D. Pahud)

A4 Tuesday 11:00 to 12:20 (TF: D. Pahud)

A5 Thursday 12:30 to 1:50 (TF: D. Pahud)

A6 Wednesday 3:30 to 4:50 (TF: J. Wurtz)

A7 Monday 1:00 to 2:20 (TF: J. Wurtz)

A8 Tuesday 3:30 to 4:50 (TF: D. Pahud)

Night Labs: Meet at Judson Coit Observatory (Roof of CAS, follow staircase left of 520) on Mondays, Tuesdays and Thursdays at 8:30pm, **weather permitting**. You should only have to attend two clear nights over the semester to complete the night labs. See below for more information. Call 617-353-2630 for a recorded message about 1 hour before the lab start time. Choose option #1 to see if the night lab will be held that night and option #2 for other night lab information.

Website:

We will use Blackboard for course materials and access to online homeworks via MasteringAstronomy: <https://learn.bu.edu>

Required Textbook:

The textbook is The Cosmic Perspective: The Solar System 7th Ed. & MasteringAstronomy. Mastering Astronomy is an online package accessible through Blackboard using a code provided with your book. If you did not purchase the textbook with MasteringAstronomy, you will have to pay for MasteringAstronomy when you sign up through Blackboard. MasteringAstronomy is required for the course.

Grading:

20% Homework

25% lab exercises

20% In-class exams

25% final exam

10% participation

All requests for grading corrections need to be made in writing.

Note that if a student misses 3 day labs or both night labs they will not receive credit for the course (a "D" or "F" letter grade, or a "W" if withdrawn), regardless of other work. This policy is to ensure that students complete the laboratory component of the course, required for CAS divisional studies requirement.

Homework:

Homework is done online via MasteringAstronomy, accessible through Blackboard. On Blackboard click "Tools", then "Pearson's MyLab & Mastering." You will have to setup your account following the instructions.

When your account is set up, you will access the assignments by clicking "Tools" then "Pearson's MyLab & Mastering", then "Mastering Assignments." Assignments are due by start of lecture (11:00am) on Mondays. Late homework will receive no credit.

Mastering provides hints for the questions if requested, and gives you multiple opportunities to answer the questions if you answer incorrectly. However, bonus credit is given if you answer the questions without using the hints, and credit is reduced significantly for every time you answer incorrectly. **Maximum credit is given if you answer correctly the first time without requesting a hint.** The first assignment is a tutorial for how to use MasteringAstronomy.

Day Labs:

Day labs take place in CAS 521 each week. The laboratory component is required for the course, so students must be enrolled in either A2 through A8. We will drop the two lowest day lab grades at the end of the semester. However, because the

laboratory is a significant part of the course, if you miss 3 or more day labs you will not receive credit for the course.

Night Labs:

In addition to the Day Labs, students are required to complete two night labs over the course of the semester. The Department of Astronomy's J. B. Coit Observatory is located on the roof of the CAS building. Nights labs will be done here on Monday Tuesday and Thursday nights over the semester, provided the night is clear. Each of the two labs should take about an hour to complete. It is essential not to wait until the end of the possible observing sessions to observe since weather is unpredictable. If you miss one of the two observing sessions because the last two weeks are cloudy, no make-up will be possible. If you miss both, you will not receive credit for the course. To check if the observatory will be open on a given night, call 617-353-2630 for a recorded message about 1 hour before the lab start time. Choose option #1 to see if the night lab will be held that night and option #2 for other night lab information.

The first night lab, "Motions in the Sky" will be available Monday January 25 through Thursday March 3rd. The second night lab "Name That Star" will be available Monday March 14th through Thursday April 28th. If you do not complete the lab within those dates, no make ups will be available.

Lab Manuals: <http://www.bu.edu/astronomy/undergraduate/manuals/>

Exams:

There will be 3 midterm exams (only 2 count) and 1 final exam. You may choose to take 2 of the midterms, and there will be no make up exams.

The final exam will take place Wednesday May 4th, 2016, from 12:30 to 2:30 pm in CAS 522.

Planetarium Visit:

The Boston Museum of Science has a planetarium capable of displaying the night sky as seen from any point on Earth. We have arranged a planetarium visit on **Monday Feb 8th and Tuesday Feb 9th starting at 6:30pm**. Please allow plenty of time to get from BU's campus to the Museum of Science (at least 45 minutes). After the program, you will turn in a simple set of questions for extra credit that will count towards your lab grade. Note that it is not possible for us to schedule an additional planetarium visit. You only need to attend one of the shows. It is not possible to earn additional credit by attending both shows.

Attendance & Late Policy:

You are expected to attend class. If you miss a class, check Blackboard for any assignments or news and talk with a fellow student to learn what else you missed. Under normal circumstances, the policies on late work are as follows: Late homeworks will not be accepted. If your lab reports are late, they will have 25% of

the maximum possible score deducted for each day past the due date. The exams must be taken at the scheduled times.

Classroom Etiquette:

Please arrive punctually for the start of class and remain for the duration of the class. If you arrive late or depart early, try to minimize the disruption this causes to other students. Turn off mobile phones during class.

Academic integrity:

Group study is encouraged, but your work must be your own. Work that is copied will not be given any credit. If an answer in a homework question or a lab report requires written sentences, do not copy your answer directly from the textbook, a website, or any other source. All students are expected to follow the BU Academic Conduct Code (www.bu.edu/academics/resources/academic-conduct-code/). Cases of suspected academic misconduct will be referred to the Academic Conduct Committee and evidence forwarded.

Course Schedule (subject to change):

Week	Date	Lecture	Reading Assignment	Day Lab
1	Wed Jan 20	Welcome, Intro	Syllabus	No lab first week
	Fri Jan 22	A Modern View of the Universe 1	Ch. 1	
2	Mon Jan 25	A Modern View of the Universe 2; HW#1 Due	Ch. 1	Skygazer-Orrery, Night Lab 1: <i>Motions in the Sky</i> begins
	Tues Jan 26			Day Labs Begin
	Wed Jan 27	A Modern View of the Universe 3	Ch. 1	
	Fri Jan 29	Discovering the Universe for Yourself 1	Ch. 2	
3	Mon Feb 1	Discovering the Universe for Yourself 2; HW#2 Due	Ch. 2	Skygazer-Orrery
	Wed Feb 3	Discovering the Universe for Yourself 3	Ch. 2	
	Fri Feb 5	The Science of Astronomy 1	Ch. 3	
4	Mon Feb 8	The Science of Astronomy 2; HW#3 Due	Ch. 3	Gravity
	Wed Feb 10	The Science of Astronomy 3	Ch. 3	
	Fri Feb 12	Ch. 3		
5	Tues Feb 16	Making Sense of the Universe 1; HW#4 Due	Ch. 4	Gravity
	Wed Feb 17	Making Sense of the Universe 2	Ch. 4	
	Fri Feb 19	Making Sense of the Universe 3;	Ch. 4	
6	Mon Feb 22	Exam #1	Ch. 1-4	Spectroscopy
	Wed Feb 24	Light and Matter 1	Ch. 5	
	Fri Feb 26	Light and Matter 2	Ch. 5	
7	Mon Feb 29	Light and Matter 3; HW#5 Due	Ch. 5	Spectroscopy, Last week for Night Lab

				1: <i>Motions in the Sky</i>
	Wed Mar 2	Telescopes 1	Ch. 6	
	Fri Mar 4	Telescopes 2	Ch. 6	
	Mar 5-Mar 13	Spring Recess		
8	Mon Mar 14	Telescopes 3	Ch. 6	Telescopes and Optics, Night Lab 2: <i>Name that Star</i> begins
	Wed Mar 16	Our Planetary System 1; HW#6 Due	Ch. 7	
	Fri Mar 18	Our Planetary System 2	Ch. 7	
9	Mon Mar 21	Our Planetary System 3; HW#7 Due	Ch. 7	Telescopes and Optics
	Wed Mar 23	Formation of the Solar System 1	Ch. 8	
	Fri Mar 25	Formation of the Solar System 2	Ch. 8	
10	Mon Mar 28	Formation of the Solar System 3; HW#8 Due	Ch. 8	Cratering
	Wed Mar 30	Exam #2	Ch. 5-8	
	Fri Apr 1	Jovian Planet Systems 1	Ch. 11	
11	Mon Apr 4	Jovian Planet Systems 2; HW #9 Due	Ch. 11	Cratering
	Wed Apr 6	Jovian Planet Systems 3	Ch. 11	
	Fri Apr 8	Asteroids, Comets and Dwarf Planets 1	Ch. 12	
12	Mon Apr 11	Asteroids, Comets and Dwarf Planets 2; HW#10 Due	Ch. 12	Extrasolar Planets
	Wed Apr 13	Other Planetary Systems 1	Ch. 13	
	Fri Apr 15	Other Planetary Systems 2	Ch. 13	
13	Mon Apr 18	Patriots' Day, No Class		Extrasolar Planets
	Wed Apr 20	Other Planetary Systems 3; HW#11 Due	Ch. 13	
	Fri Apr 22	Our Star 1	Ch. 14	
14	Mon Apr 25	Our Star 2; HW#12 Due	Ch. 14	Last week for Night Last week for Lab 2: <i>Name that Star</i>
	Wed Apr 27	Our Star 3	Ch. 14	
	Fri Apr 29	Exam #3	Ch. 11-14	
	Wednesday May 4	Final Exam, 12:30 to 2:30 in CAS 522	Ch. 1-14	