

Introduction to Astronomy
ASTR 115, Section 3, SFSU, Fall 2016
Professor: Julio Magalhães (“Dr. J”)

ASTR 115 INTRODUCTION TO ASTRONOMY – SYLLABUS

Lecturer:

Julio Magalhães (“Dr. J.”). Office: HSS 332.

Office Hours: Thursday, 1:15 – 3:15 PM, and by appointment

Phone: 650-209-0604, *Best way to contact me:* Email: DrJ@sfsu.edu (put “ASTR 115” at start of subject line)

Time & Classroom: Tuesday & Thursday 11:00 AM – 12:15 PM, Science Building 201

Final Exam: Thursday December 15, 10:45 AM – 1:15 PM

Course Description: An introductory level course that introduces the structure of the universe and the big ideas about our universe. Introduces the solar system, stars, galaxies, the universe at large and the search for extraterrestrial life and planets beyond our solar system. The course emphasizes how we have been able to learn so much about the universe without ever leaving our local neighborhood around Earth through the application of careful observation and the methods of science.

Course Objectives:

1. To provide students with an understanding of the placements and motions of visible objects in the universe as seen from Earth in the sky.
2. To provide an understanding of physical nature of key features of the universe such as planets, stars, and galaxies and our ideas about their origin and evolution.
3. To describe and explain the methods and techniques used by astronomers to develop our ideas about the universe.
4. To provide an understanding of the nature and history of science through the study of astronomy.

Course Prerequisites: The course has no astronomy, physics, or math (beyond high school level) prerequisites.

Required Course Materials:

E-textbook & web-based homework & learning resources package: *Modified MasteringAstronomy with Pearson eText -- Standalone Access Card -- for The Essential Cosmic Perspective, 7/e*, ISBN 9780321929358.

- Includes the eText version of *The Essential Cosmic Perspective (7th edition)* by Bennett, Donahue, Schneider & Voit (2015).
- Includes *Modified Mastering Astronomy* web-based homework & learning resources.
- Accessed through www.pearsonmylabandmastering.com using access code from standalone access card available at SFSU Bookstore and other sources. Can also be purchased directly using a credit card at www.pearsonmylabandmastering.com. A link & instructions are also provided on the course iLearn page.

To access our course at the Pearson website you will need the following course ID:

Mastering Astronomy Course ID: magalhaes09981

- *Modified Mastering Astronomy* allows you to sign-up for a 14-day free trial period in case you are waiting for financial assistance to arrive or want to postpone making a final commitment. *If you choose to use this trial-period, make sure you do not allow your trial period to expire without making a payment as this lapse has led to problems in the past for some students.*

Lecture-Tutorial Workbook: *Lecture-Tutorials for Introductory Astronomy* (3rd edition) by Prather, Slater, Adams, and Brissenden (hardcopy); ISBN: 9780321820464

This workbook will be used in class to give you a chance to think about and work with the concepts introduced in lecture and in the readings to strengthen your knowledge of these concepts. You will work with one or two other students in class to complete these lecture tutorials and assist each other. I will

announce through e-mail or in lecture which lecture-tutorial will be used at the next class, so you may bring only the pages corresponding to the lecture-tutorial to be used in a specific class (rather than bringing the whole workbook).

Assessment / Grading

Based on the total number of points accumulated by the end of the semester. Try to focus on the learning; let the grades take care of themselves!

Homework:	350 points	(35%)
Lecture-tutorials, in-class activities, & quizzes:	100 points	(10%)
Telescopic Observation:	50 points	(5%)
Midterm exams (best 2 of 3):	300 points	(30%)
Final exam (comprehensive):	100 points	(10%)
Class participation & attitude:	100 points	(10%)
TOTAL =	1000 points	

A: 100% -85%, **B:** 84.9% - 70%, **C:** 69.9 % - 55%, **D:** 54.9 % - 40%, etc. ; CR= 60-100%

Incompletes are only given for extraordinary circumstances (e.g. death in the family, personal illness) that prevent a student from completing the course.

Homework: Homework questions and online tutorials will be regularly assigned, submitted, and graded through the website www.pearsonmylabandmastering.com. These will be designed to let you work with the key concepts in each unit and to assess your knowledge of concepts covered in lecture and in the textbook readings. *Pay careful attention to the due dates (listed on course schedule at end of this syllabus) and times for each assignment as late work will be assessed a penalty that increases quickly with time after the due date.*

Lecture-tutorials, in-class activities, & quizzes: Lecture-tutorials are in-class activities from the lecture-tutorial workbook. Additional in-class activities will also be part of the class. They will be completed in class with one or two other students. To assess your efforts and understanding of the lecture-tutorial material, the worksheets will either be collected and reviewed, or a quiz will be administered electronically by having you login to *Learning Catalytics* from the classroom using a laptop computer or other mobile devices (smart phones, tablets, etc.). Assessment of your answers to other in-class activities will also be performed electronically with *Learning Catalytics*. *Learning Catalytics* is included free as part of the required *Modified Mastering Astronomy* package described above.

Telescopic Observation: To connect you to the cosmos directly, you will have to attend an observing session (a.k.a. a “star party”) hosted by an amateur astronomy organization, by the SFSU Observatory on campus, or by an off-campus observatory such as the Chabot Space and Science Center in the East Bay. You need to make four observations of different heavenly bodies, and you will need to complete a special observation sheet on which you will record your observations. *The course iLearn page will have the special observation sheet and links to further information on the star party schedules of local amateur astronomy organizations and observatories. The due date is listed on the course schedule included at the end of the syllabus.*

Exams: Three midterm exams and a final exam will be given. Your lowest midterm exam score will be dropped. If you miss an exam, you can count it as your “dropped exam”. If you “bomb” a midterm exam, come see the professor *immediately* to work out a plan of study so that you will do better on the next exam. *The final exam will be comprehensive.* Exam questions will be primarily of the true-false, matching or multiple-choice variety, and they will be closed book. Questions will be based on concepts covered in lecture, on the homework, in the readings, during in-class activities, and in the lecture-tutorials done in class. *Focus on keeping up with lectures, homework, reading, in-class activities, and lecture-tutorials, and your exam grades will be fine!*

Class Participation & Attitude: Regular attendance of all classes is expected, and your attendance will be recorded electronically using *LearningCatalytics*. *LearningCatalytics* will also be used to provide you with another route for asking questions and participating. Your attendance record, attitude, and participation in class will be

assigned a grade. It will be necessary for you to be prepared for class, attend class, be on time, be courteous, and pay attention. Plan to be an enthusiastic participant, not simply a listener.

Attendance Policy: *Attendance in class is required.* Because this course is built around frequent in-class activities to accompany the lecture, your attendance and full participation at each class period will be an essential component of your success in the course. We will be using Internet-based classroom response systems (*Learning Catalytics*) to follow your progress during lecture, to administer quizzes, to take attendance, and to provide another route for you to ask questions. If you miss a class it is your responsibility to find out what you missed.

Student Responsibilities

- FAITHFUL CLASS ATTENDANCE is a must since material will be presented in class that is not found in the readings. In addition, part of your grade is based on in-class participation, activities, and quizzes.
- Show COMMON COURTESY
- ARRIVE ON TIME. At the instructor's discretion, late arrivals may not be allowed into class
- Please turn cell phones off; no "instant messaging" during class.
- ASK QUESTIONS, BE ENGAGED, and PARTICIPATE !

Plagiarism: The general rule is that if you get an idea or piece of information from a source, then you need to cite that source – otherwise it is considered plagiarism. Also you are not allowed to use ANY wording from some other source unless you put it in quotes. Borrowing a sentence and slightly rewriting it is plagiarism. Plagiarism also includes employing or allowing another person to write or substantially alter work that a student then submits as their own. *Any assignment found to be plagiarized will be given a zero grade.* Serious cases will be reported to the Dean of the College, and may be reported to the University Judicial Affairs Officer for further action.

Important SFSU dates, deadlines, & associated resources

September 14, 2016 (Wednesday):

- Deadline for ADDING A COURSE USING PERMISSION NUMBERS obtained from instructor.
- Deadline for DROPPING A COURSE WITHOUT GETTING A “W” (withdrawal) on your transcript.

LATE ADD (“Adding by Exception”) PERIOD: After September 14: It is your responsibility to procure a late permission number from your instructor and add the class following the procedure described by the Registrar. Faculty cannot add you into a class on their end.

DEADLINE FOR CR/NC grading option: October 19, 2016 (Wednesday):

- You must change the grading option to CR/NC on SF State Gateway. You should inform instructor you have selected CR/NC option.
- Don't select CR/NC if a course is required for your major!

LATE WITHDRAWALS:

- **September 15 - November 18:** Must SUBMIT A PAPER WITHDRAWAL PETITION. Withdrawal from a class will be considered for serious and compelling reasons only and must have accompanying documentation. The following reasons are not considered serious and compelling: Changing your major, poor performance, class not required for graduation/major, lacking the pre-requisite, instructor forgot to drop me, not attending class or more time needed for other classes. Withdrawal is processed online by Instructor, Chair and Associate Dean.
- **November 19 – December 14:** You may not withdraw from a class or the University, except only in the case of a serious documented illness or verified accident. A paper PETITION & proof of accident or serious illness (“beyond student’s control”) must be submitted to instructor. Usually involves semester withdrawal from all courses. Withdrawal is processed online by Instructor, Chair and Associate Dean.
- **After December 14: No withdrawals permitted.**

Check your registration through *SF State Gateway*: Sign up for CR/NC, drop and add classes by the appropriate deadline online through *SF State Gateway*. ALWAYS check your registration after making any changes and BEFORE deadlines to be sure you are registered properly for your classes. Deadlines for all registration procedures, including withdrawals and requests for credit/no credit, are listed in the class schedule and will be strictly adhered to by the instructor, the Department Chair and the Associate Dean of the College of Science & Engineering. **It is ALWAYS the student's responsibility to ensure their schedule is correct, even if the instructor indicates they will drop you.**

This can be viewed on the Registration Calendar at the following website:

<http://www.sfsu.edu/~admisrec/reg/regsched2167.html>

Disability Programs and Resource Center: Students with disabilities who need reasonable accommodations are encouraged to work with the instructor and contact Disability Programs and Resource Center (DPRC). They are located in SSB 110, can be reached by telephone at 415-338-2472 (voice/TTY) or by e-mail at dprc@sfsu.edu.

Student disclosures of sexual violence: SF State fosters a campus free of sexual violence including sexual harassment, domestic violence, dating violence, stalking, and/or any form of sex or gender discrimination. If you disclose a personal experience as an SF State student, the course instructor is required to notify the Dean of Students. To disclose any such violence confidentially, contact:

The SAFE Place - (415) 338-2208 _ http://www.sfsu.edu/~safe_plc/

Counseling and Psychological Services Center - (415) 338-2208 <http://psyservs.sfsu.edu/>

For more information on your rights and available resources : <http://titleix.sfsu.edu>

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Course Schedule & Key Dates

Week #	Date	Topic/ Event	Reading Assignment Due	Homework Assignment Due
1	Thu, Aug 25, 16	Course Introduction		
2	Tue, Aug 30, 16	Our Place in the Universe - Part 1	<i>Bennett "How to Succeed" & Foreward, pgs. xxii-xxvi.</i>	
2	Thu, Sep 1, 16	Our Place in the Universe - Part 2	<i>Bennett Chap. 1</i>	"Introduction to MasteringAstronomy"
3	Tue, Sep 6, 16	Observing & Understanding the Celestial Sky Show – Part 1		"Our Place in the Universe"
3	Thu, Sep 8, 16	Observing & Understanding the Celestial Sky Show – Part 2	<i>Bennett Chap. 2</i>	
4	Tue, Sep 13, 16	Observing & Understanding the Celestial Sky Show – Part 3		
4	Thu, Sep 15, 16	The Science of Astronomy – 1	<i>Bennett Chap. 3</i>	"Observing the Celestial Sky Show"
5	Tue, Sep 20, 16	The Science of Astronomy – 2		
5	Thu, Sep 22, 16	MIDTERM EXAM #1		"The Science of Astronomy"
6	Tue, Sep 27, 16	Making Sense of Motion in the Universe – 1	<i>Bennett Chap. 4</i>	
6	Thu, Sep 29, 16	Making Sense of Motion in the Universe – 2		
7	Tue, Oct 4, 16	Making Sense of Motion in the Universe – 3		
7	Thu, Oct 6, 16	Light: The Cosmic Messenger – 1	<i>Bennett Chap. 5</i>	"Making Sense of Motion in the Universe"
8	Tue, Oct 11, 16	Light: The Cosmic Messenger – 2		
8	Thu, Oct 13, 16	Light: The Cosmic Messenger – 3		
9	Tue, Oct 18, 16	MIDTERM EXAM #2		"Light: The Cosmic Messenger"
9	Thu, Oct 20, 16	Our Planetary System: Part 1	<i>Bennett, Chap. 6</i>	
10	Tue, Oct 25, 16	Our Planetary System: Part 2	<i>Skim Bennett Chap. 7-10</i>	
10	Thu, Oct 27, 16	The Sun: Our Very Own Star	Bennett Chap. 11	"Our Planetary System"
11	Tue, Nov 1, 16	Surveying the Stars – 1	Bennett Chap. 12	
11	Thu, Nov 3, 16	Surveying the Stars – 2		"The Sun: Our Very Own Star"
12	Tue, Nov 8, 16	Lives of the Stars	Bennett Chap. 13	
12	Thu, Nov 10, 16	MIDTERM EXAM #3		"Surveying the Stars" & "Lives of the Stars"
13	Tue, Nov 15, 16	The Bizarre Stellar Graveyard	Bennett Chap. 14	
13	Thu, Nov 17, 16	Our Galaxy – 1	Bennett Chap. 15	"The Bizarre Stellar Graveyard"
14	Nov. 22 & Nov. 24, 16	FALL RECESS: NO CLASS		
15	Tue, Nov 29, 16	Our Galaxy – 2		Telescopic Observation Assignment Due
15	Thu, Dec 1, 16	Galaxies & The Foundation of Modern Cosmology – Part 1	Bennett Chap. 16	"Our Galaxy"

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Course Schedule & Key Dates (continued)

Week #	Date	Topic/ Event	Reading Assignment Due	Homework Assignment Due
16	Tue, Dec 6, 16	Galaxies & The Foundation of Modern Cosmology – Part 2		
16	Thu, Dec 8, 16	Life in the Universe	Bennett Chap. 19	"Galaxies & The Foundation of Modern Cosmology"
17	Tue, Dec 13, 16	Dark Matter, Dark Energy, & The Fate of the Universe	Bennett Chap. 17, 18	
17	Thu, Dec 15, 16	FINAL EXAM		<i>Extra Credit Homework:</i> "The History of the Universe & Life"