

MLSC 550: Modern Astronomy Course Information, Spring 2019

Course Description: This course is an introduction to modern astrophysics beyond the solar system including a brief history of astronomy from antiquity through Galileo and Newton. Our modern understanding of the formation, evolution, and death of stars; the composition and evolution of galaxies; the structure and evolution of the universe will then be surveyed. The goal of the course is to explore the beauty, wonder, and mystery of the Universe and how it can be understood using the tools of scientific inquiry. This introduction to modern astronomy is designed primarily for students without a specific scientific background. Emphasis will be placed on key concepts that astronomers use every day to interpret observations and develop models of the physical Universe.

Meeting time and place:

MLSC 550

Thursdays 6:15 pm – 9:30 pm, Jan. 10 – Mar. 21

ACC 300

Instructor:

Prof. Christopher M. Johns-Krull

Department of Physics and Astronomy

Office: 352 Herman Brown

Phone: (713) 348-3531 E-mail: cmj@rice.edu

Office Hours:

Prof. Johns-Krull will be available before and after lectures for short discussions.

Appointments will be made as needed for additional office hours.

Text:

Title: "Universe" (10th Edition), paperback

Authors: Freedman, Geller, & Kaufman

Publisher: Freeman

Note about the book: This book will be the primary reference text for the course. The 10th edition is the most recent version; however, the text has changed little over the last few years. The professor's copy is the 7th edition. Feel free to get any edition from the 7th up through the 10th.

Additional Texts: There are no other required texts for the course; however, additional material will be brought in from other sources for class discussion and for assignments (see below).

Assignments & Grading:

There will be a total of 6 assignments in the class: 3 papers, 2 observing projects, and a presentation given to the class. The paper topics will be discussed and assigned in class. The first will be on some aspect of the history of astronomy while the second two will be on a modern topic. The goal of the papers is to give each student a chance to go more in depth on topics of interest. The observing projects are designed to get you out and looking at the night sky. Due to the limitations of our location, they will be fairly simple and will involve solar system objects; however, the goal is to give you an experience of observing the sky, analyzing the observations you have taken, drawing conclusions from them, and presenting your work in an organized, written report. In addition, we will organize an evening at our campus observatory for viewing the night sky through the telescope. The

value of each assignment to the final grade is:

Term Papers (3 x 15%)	45%
Observing Projects (2 x 17.5%)	35%
Presentation	20%

Assignment Guidelines:

Papers and assignment reports are to be handed in at the start of class on the due date. No papers or reports will be accepted after the day they are due except in the case of illness or family emergency. All papers and reports should be typed and single-spaced in 12 point font. Figures may be hand-drawn and photos or drawings may be attached as needed. Submission by hard copy is normally required.

Honor Code:

It is okay to discuss assignments, what you have done on a project, and ideas with other students or anyone. However, the final words that go on a paper or report must be your own. Plagiarism is an honor code violation.

* Disability notice: Any student with a disability requiring accommodations in this course is encouraged to contact me after class and also contact Disability Support Services in the Ley Student Center.

Course Schedule

Date	Topics	Chapters from Book
1/10	Introduction to the Universe, Navigating the Sky	1, 2
1/17	Naked Eye Astronomy and a review of History	3, 4
1/24	Some of the Key Physics Needed and the Sun	5, 6, 16
1/31	The Nature of Stars	16, 17
2/7	The Birth of Stars & Planets	17, 18+handouts
2/14	The Deaths of Stars	19, 20
2/21	Black Holes and the Mystery of Relativity	21+handouts
2/28	The Universe of Galaxies	22, 23, 24
3/7	How it Began, Where its Going	25, 26
3/21	Life in the Galaxy	27
TBD	Class Presentations	