

ASTRONOMY 353 – SPRING 2015
ASTROPHYSICS

Unique No. 47400

Course Web Page

Course information including important announcements, homework assignments, homework solutions, and lecture notes will be made available within the University's Canvas portal:

<https://utexas.instructure.com/courses/1127086>

Instructor

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Teaching Assistant

Benny Tsang

Research: the first explosions in the universe!

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TA Help Sessions: To be scheduled preceding exams and homework due dates

Help Session Location: RLM 15.216b

COURSE OBJECTIVES

The course introduces astronomy, physics, and other science and engineering majors to fundamental astrophysical concepts and principles and their applications. The concepts are developed from first principles, thus linking the elementary physics curriculum (classical and quantum mechanics, electromagnetism, thermodynamics) to a variety of astrophysical phenomena. The material is introduced rigorously and/or with order-of-magnitude and dimensional analysis techniques. The lectures are interactive and are designed to foster proficiency in independent physical reasoning and mathematical modeling. Where possible, connections to current research problems will be highlighted.

This course carries the Quantitative Reasoning flag. Quantitative Reasoning courses are designed to equip you with skills that are necessary for understanding the types of quantitative arguments you will regularly encounter in your adult and professional life. You should therefore expect a substantial portion of your grade to come from your use of quantitative skills to analyze real-world problems.

PREREQUISITES, LECTURES, HELP SESSIONS, OFFICE HOURS, AND STUDENTS WITH DISABILITIES

Prerequisites

To take Astronomy 353, you should have taken calculus and multivariable calculus, and should have taken calculus-based courses in classical mechanics and in electromagnetism at the level of the standard physics major curriculum. Hands-on experience with vector calculus and ordinary and partial differential equations is also assumed.

Hours and Venue

The class meets in the Robert Lee Moore Hall (RLM), Room 15.216b on Mondays, Wednesdays, and Fridays at 11:00 – 11:50 a.m.

Help Sessions

TA study sessions will be preceding exams and homework due dates in RLM 15.216b.

Office Hours

Instructor office hours: by appointment in RLM 17.220; Prof. Milosavljevic is normally available to meet you every day. Please send email to request appointment.

Students with Disabilities

Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 471-6259.

TEXTBOOKS

Required Textbooks (On Reserve at Physics, Mathematics, and Astronomy Library)

The Physics of Stars, Second Edition, by A. C. Phillips (Wiley)

Recommended Reading (On Reserve at Physics, Mathematics, and Astronomy Library)

Astrophysics in a Nutshell, Dan Maoz (Princeton)

EXAMS AND GRADING

Exams

There will be 4 in-class exams, on **February 11**, **March 13**, and **April 10**, and **May 8**, and no final exam. Please bring a calculator and writing paper to each of the exams! The cumulative exam grade will count 50% of the final grade. Exam grades will *not* be dropped.

Homework

There will be weekly homework assignments with some exceptions for exam weeks. The cumulative homework assignment grade will count 40% toward the final grade. You are encouraged to collaborate on the homework assignments and work groups, but you must write the final answers on your own.

Short Quizzes and Attendance

Short quiz scores and class attendance will count 10% toward the final grade.

Calculation of the grade

Component	Maximum Score
Exams	$4 \times 12.5\% = 50\%$
Homework Assignments	40%
Attendance	10%
Total	100%

Score Range	Grade
$85\% \leq S \leq 100\%$	A
$70\% \leq S < 85\%$	B
$55\% \leq S < 70\%$	C