

ASTR400B Syllabus

Theoretical Astrophysics: Galaxies and Cosmology

Details:

Professor: Daniel Stark
email: dpstark [at] email.arizona.edu
Office hours: Time by appointment.

Graduate TA: Raphael Hviding
email: rehviding [at] email.arizona.edu
Office hours: TBA or by appointment.

The class is “Live Online” modality and will be conducted virtually on zoom throughout the entire semester. The class will meet Tuesday and Thursday at 2-3:15pm. The connection details for lectures and office hours will be provided on the D2L course site.

Required Textbook

Introduction to Cosmology, Second Edition (2017), B. Ryden

Optional Textbook

Galaxies in the Universe: An Introduction, Second Edition (2007), L.S. Sparke & J.S. Gallagher

The course will follow the Ryden in the first half of the semester as we cover topics of modern cosmology. The Sparke & Gallagher textbook will cover material that we will cover in the final half of the class. It is a good resource if you are interested in galaxies or star cluster dynamics and will supplement the lecture material, but it is not required for the course.

Grading:

Homework: 30%
Class Participation / Attendance: 20%
Exams: 50%

Homework

The homework sets will be accounted in class and provided on D2L. Students should first attempt to solve problems on their own. Books and published papers may be consulted, but students should not look at old homework solutions or solutions of the problems that may be available online. Discussion of the problems with other students is permitted after students have tried the problems on their own. The submitted homework should represent each student's individual work. Homework will be submitted *before* class on the due date. Anything turned in after the due date will be considered late. Work turned in before the next class period will receive 75% credit. Work turned in two class periods following the due date will receive

50% credit. Work turned in more than two class periods late will not receive credit. Exceptions can be made for some extraordinary circumstances.

Midterms and Final Exam

There will be a midterm examination during class on **Tuesday, March 16**. The exam will be closed book and closed notes. The internet is not to be consulted during the exam. The final will also be closed book and will take place on **Monday May 10** from 3:30 pm to 5:30 pm. A review sheet will be provided, as will relevant equations. There will be a short oral component associated with each exam. This will be scheduled by the professor and TA at a later date.

Class Participation / Attendance

This will be assessed through attendance, discussion/participation, and in-class activities. Please come to class ready to learn and engage with your peers. In order to ensure a productive learning environment for all students, please note the following rules:

1. Laptops, tablets, and cell phones must only be used for connecting into the Zoom and note taking.
2. Follow the University of Arizona Code of Academic Integrity

Goals and Learning Outcomes for ASTR 400B

1. Demonstrate the ability to meaningfully analyze, apply and integrate the principle findings, common applications, current problems, fundamental techniques, and underlying theory of cosmology and galaxy formation.
2. Employ discipline skills related to the observational techniques, instrumentation, computational methods, and software applications used to investigate modern astrophysical phenomena and problems.
3. Develop proficiency with communicating, translating and interpreting fundamental astronomical concepts and research results in oral and/or written formats.
4. Develop mastery-knowledge of the study of cosmology and galaxies.

If you anticipate barriers related to the format or requirements of this course, please meet with me so that we can discuss ways to ensure your full participation in the course. If you determine that disability-related accommodations are necessary, please register with Disability Resources (621-3268; <https://drc.arizona.edu/>) and notify me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations.

Code of conduct: Students are expected to understand and follow the Student Code of Conduct, which is available at <https://deanofstudents.arizona.edu/policies-codes>.