

## AST 347 - Undergrad Cosmology Fall 2023

### Lecturer:

- Prof. Vivian Miranda

### Contact:

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- Office: YITP - Math Building 6104 (6<sup>th</sup> floor)

### Class Times:

- Tuesdays and Thursdays, 8:30 AM - 9:50 AM, MELVILLE LBR W4535

### Office Hours:

- Tuesday 1:30 - 2:45 PM at the YITP - Math Building 6104 (6<sup>th</sup> floor)
- Wednesday 01:00 – 2:00 PM at the YITP - Math Building 6104 (6<sup>th</sup> floor) (w/ Evan Saraivanov)

### Course grade:

- Homework Problem Sets (25%)
- Midterm Exam 1 (20%)
- Midterm Exam 2 (25%)
- Final Exam (30%)

### Course Textbook:

- Introduction to Cosmology by Barbara Ryden.

### Suggested Textbook for Additional Reading (not mandatory):

- Cosmology, the Science of the Universe by Edward Harrison
- A Course in Cosmology, From Theory to Practice by Dragan Huterer

### Class Structure:

- Homework problem sets will be assigned on Tuesdays and are due the following Tuesday.
- Midterm Exam 1 will be in mid-October.
- Midterm Exam 2 will be in mid-November.
- The Final Exam will be in mid-December.
- We will cover roughly one chapter of the textbook per week.

### Topics to be Covered:

- Fundamental Observations
- Intro to Spacetime Curvature
- Cosmic Dynamics
- Single-Component Universes
- Multi-Component Universes
- Measuring Cosmological Parameters
- Dark Matter
- The Cosmic Microwave Background
- Nucleosynthesis and the Early Universe
- Inflation and the Very Early Universe
- The Formation of Structure

**Grading Scale:** Grading scale with grade thresholds

A 93-100; A- 90-92; B+ 87-89; B 83-86; B- 80-82; C+ 77-79; C 74-76; C- 72-74; D+ 70-72; D 60-69; F 0-59

NOTE: These letter grades are threshold scores only. Actual final scores needed to earn a certain letter grade may be lowered if warranted based on the difficulty of the exams. In other words, if your final total points in the course equal 93%, you will not earn less than an A; however, the threshold for an A may be lower.

**Americans with Disabilities Act:**

If you have a physical, psychological, medical or learning disability that may impact your course work, please get in touch with Disability Support Services, ECC (Educational Communications Center) Building, room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

**Academic Integrity:**

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at <http://www.stonybrook.edu/uaa/academicjudiciary/>

**Critical Incident Management:**

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.