Course Policy Statement
Astrophysics II
SP446

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Class participation: The course structure is a seminar. Each student must be an active participant. Bring your textbook and calculator to each class. You are expected to read the textbook before class. Take notes on your reading. Come to class prepared to discuss the most important points. Bring your questions. We will discuss the reading and work on problems as a team in class. You will be graded on your class participation and readiness. At the end of a reading assignment you must turn in a participation sheet.

Tests: You will be permitted to use your textbook (An Introduction to Modern Astrophysics 2nd ed. by Carroll and Ostlie) on both exams.

Course Requirements:
1. Midterm exam: Given in approximately the 8th week of the semester.
2. Homework problems: Due roughly every 5 classes.
3. Final Exam.

Grades:
1. 6 week grades: 50% homework + 50% class participation
2. 12 week grades: 35% homework + 30% class participation +35% midterm
3. 16 week grades: 35% homework + 30% class participation +35% midterm
4. Final grade: 70% 16-week-grade + 30% final exam

No late work is accepted. If you do not turn your work in on time, you will receive a zero on that assignment.
SP446 Student Outcomes

After taking SP446—Astrophysics II—students will:

1. **remember** and **recall** the findings, definitions, concepts, models of extragalactic astrophysics and cosmology
2. **describe** these findings, concepts and models to one another during classroom discussions,
3. **apply** these concepts and models in class-wide discussions,
4. **analyze** complex quantitative and qualitative arguments used to model extragalactic objects and cosmological phenomena,
5. **combine** concepts, findings and models to solve complex problems, making their own arguments about the application of models,
6. **evaluate** the current models of extragalactic objects and cosmology, and **speculate** about the future of astrophysical research.

**Examples:**

1. Students will **recall** that (1) morphology of the Milky Way galaxy, (2) the Hubble classification system, (3) the types of active galaxies (4) the current make-up of the universe.
2. In classroom discussions students **describe** the morphology of the Milky Way galaxy, the Hubble system and the types of active galaxies using in their own words, and drawings. Students provide such descriptions to help move the discussion forward to a deeper level of understanding.
3. In discussions, on homework and on exams, students **apply concepts** such as Hubble’s system to classify galaxies or the virial theorem to estimate the mass of galactic clusters.
4. In discussions, on homework and on exams, students **analyze** models and concepts such as (1) the density wave model applied to the structures of the Milky Way galaxy (2) the merger model of elliptical galaxy formation or (3) the big bang inflation model of the universe.
5. In discussions, on homework and on exams, students **combine** concepts, findings and models to solve complex problems such as when they apply Einstein’s theory of general relativity, Hubble’s law and geometry to estimate the dark matter content of a lensing galaxy.
6. Both in discussions and in essays, students **evaluate** the current models such as the inflation model with a critical eye, looking for theoretical predictions and confirming observations and experiments.