Course Content:

The past 10 years has seen an explosion in our understanding of the contents, formation and evolution of the Universe. Changes in our fundamental physics, combined with discoveries from space and ground-based telescopes, have led to a radically different model of our place in the Universe and its origins. The field of cosmology is science's newest endeavor into the most basic questions of humankind's existence; where do we come from and what is our fate? Cosmology is the meeting point of observational astronomy, philosophy and particle physics. However, unlike philosophy, cosmology engages Nature providing a foundation based in observation and experience.

The specific goals of this class are to:

- To gain an understanding of basic science that underlies Astronomy (the forum is modern cosmology).
- To explore the properties of the objects that make up our Universe.
- To formulate a coherent philosophy for interpreting the observational evidence of the hot Big Bang and relating this worldview to new areas of research.

Course Organization:

All lectures in this course will be delivered electronically. The lecture pages will be on the Web in HTML (hypertext mark-up language) format so that they are accessible from any computer, either at home or on campus. The address for this course is abyss.uoregon.edu/~js/ast123.

We are using the computer network in this class for several reasons:

- Network literacy is a key college skill.
- Since the course material is always available, there is less of a need to scramble to take notes during class. You can focus on paying attention. I recommend printing the week's lectures on Sunday, and bringing those pages to class to jot your own notes in the margins.
- There is lots of material out there on the Internet which is relevant for this class.

Even though the web notes replace the need for a textbook, they do not replace your need to attend class. A great deal of material is discussed in lecture that is not in the web notes and will appear on the exams. And difficult concepts in the web lectures will be clarified in class. So please attend.
Use the email system. Often professors only hear from students through office hours, and those students are usually the ones having trouble in the course. When you study or review your notes, send me questions by email. Also email me suggestions and comments about the course, particularly in the first few weeks in order to have an impact during the term.

Grading:

Grading will consist of the following:

- Three exams worth 2/3 of your grade (100 points each)
- On-line quizzes at the end of every lecture worth 1/3 of your grade

The three exams are large, difficult multiple choice exams. Each exam covers 1/3 of the course. The exams are designed using material from the quizzes and lectures, so mastery of both is required for a good grade. Not taking an exam will automatically fail you from the course.

It's very useful not to wait till the last minute to study for an exam. If you miss an exam due to illness you must contact me as soon as possible after the exam. Missing an exam for a good reason usually means an oral make-up exam (these are torture, so you want to avoid missing an exam at all costs).

Notice there is no final exam during final exam week. The three exams taking during the term consist of all the exams towards your grade.
Your grade will be based on the sum of the quiz and exam scores. Note: you must maintain a score of 30% or better on each exam to pass the course. Above 30%, your grade will be determined by the grading curve shown above. Also, skipping exams without excuse will earn you an 'F'.

**On-line Quizes:**

In order to get you to engage the lectures, the class has a quiz system at each web lecture. At the bottom of each lecture you will find a "quiz" button. Hit it and take a quiz of 10 questions. You can restart a quiz and any point, take it with open book, notes or web pages.

These quiz questions count the same as an exam question. Your final grade will be based on the exam scores plus quiz scores. Not doing the quizzes will be the same as not taking an exam. You will find that the quiz material comes from the web lectures and things discussed in class.

NOTE, you have only a limited window to take the quiz, the schedule is posted on the class web page (typically you have a few days after the lecture). Miss the date and you will be unable to take the quiz (the point of the quizzes is to get you to study before the night of the exams, hence the deadline). The quiz answers and scores are posted after the deadline. For this reason you cannot submit your quiz answers late. The answers are posted and late submission will not be allowed regardless of the excuse.

Due to the large number of quizzes, it is highly likely that you will miss a quiz deadline or your dog will eat the internet the night before they are due. Thus, each student will be allowed to drop the three lowest quiz scores for the final grade. If you miss three quizzes, then those three zeros are dropped. If you answer all the quizzes on time, then your three lowest scores will be dropped. If you miss more than six quizzes you will be dropped one letter grade per group of three that you miss.

To summarize:

1. Quizzes are on-line and manatory
2. The deadlines are posted on the main web page
3. Answers and scores are posted immediately after the deadline
4. No late quizzes will be accepted, none, zip, zero
5. You can drop your lowest three quiz scores (these might be the three you missed and got zeros)

**Optional Textbook:**

Some students are uncomfortable with a pure web-based course and would prefer a textbook to study. A good astronomy textbook is available in the bookstore called 'Astronomy Today' by Chaisson and McMillan. If you find the material on the web is insufficient, I recommend this textbook. The following chapters correspond to the class lectures:
<table>
<thead>
<tr>
<th>Lectures 1-3</th>
<th>Chapter 2</th>
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<tr>
<td>Lectures 4-6</td>
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I also recommend a new book, "Cosmology" by Harrison. More in depth, but well worth the read.

Academic Honesty:

A recent survey of UOregon upperclassmen has indicated that 91% admit to cheating on a written assignment or exam. Every effort will be made in this class to deter dishonesty through classroom procedures. You are all welcome to work in groups on Homework assignments, however exams must be based on individual work only (i.e. don't look at someone else's exam). It is degrading to impose draconian security measures to enforce honesty. Instead, we will use the honor system in this course and allow each of you to uphold your personal standards of conduct. For those of you who have failed to develop your own ethics, the University has designed the Student Conduct Program.

Accommodations:

If you have a documented disability and anticipate needing accommodations in this course, please see me as soon as possible. And please request that the Counselor for Students with Disabilities (H. Gerdes, hgerdes@oregon) send a letter verifying your disability.
### Administrative:

- Syllabus
- Frequently Asked Questions about AST123
- Schomber's Schedule
- Academic Calendar
- Math Anxiety
- What to Study?
- Why Big Lecture#Classes?
- Academic Learning Services

### Internet Resources:

- Solar System Live
  - Unit Converter
- 21st Century Science
  - Astronomy/Physics Glossary
- AST121: The Solar System
- Astronomy Web Textbook
  - Temperature Scale
- Greek Alphabet
  - Exponents and Logarithms
- AST122: Birth and Death of Stars

### Lectures:

<table>
<thead>
<tr>
<th>Week 01:</th>
<th>1. Ancient Cosmology</th>
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<td>2. Medieval Cosmology</td>
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<td>3. Newtonian Cosmology</td>
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<td>Note: No Class Apr 5th</td>
<td>4. Atomic Theory</td>
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<td>5. Clockwork Universe</td>
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<td>Week 02:</td>
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<td>8. Relativity</td>
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<td>9. Modern Cosmology</td>
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| Week 06: | 14. Creation |
|          | 15. Geometry of the Universe |
| Week 07: | 17. Early Universe |
|          | 18. Inflation  |
| May 12: Exam #2 | 19. Anthropic Principle |
| Week 08: | 20. Baryogenesis |
|          | 21. Nucleosynthesis |
Quiz Schedule:

Quiz #01/Lecture#01 - Apr 03
Quiz #02/Lecture#02 - Apr 03
Quiz #03/Lecture#03 - Apr 03
Quiz #04/Lecture#04 - Apr 10
Quiz #05/Lecture#05 - Apr 10
Quiz #06/Lecture#06 - Apr 17
Quiz #07/Lecture#07 - Apr 17
Quiz #08/Lecture#08 - Apr 17
Quiz #09/Lecture#09 - Apr 20
Quiz #10/Lecture#10 - Apr 20
Quiz #11/Lecture#11 - May 01
Quiz #12/Lecture#12 - May 01
Quiz #13/Lecture#13 - May 01

Quiz #14/Lecture#14 - May 08
Quiz #15/Lecture#15 - May 08
Quiz #16/Lecture#16 - May 08
Quiz #17/Lecture#17 - May 11
Quiz #18/Lecture#18 - May 11
Quiz #19/Lecture#19 - May 22
Quiz #20/Lecture#20 - May 22
Quiz #21/Lecture#21 - May 22
Quiz #22/Lecture#22 - May 29
Quiz #23/Lecture#23 - May 29
Quiz #24/Lecture#24 - May 29
Quiz #25/Lecture#25 - Jun 01
Quiz #26/Lecture#26 - Jun 01

All quizzes must be done by midnight of the dates listed above.

Scores and answers will be available after each deadline.

Exam and Quiz Scores:

What is my current grade?

Class Discussion Page

The background graphic of these pages is from a chart in Johannes Kepler's 1606 celestial atlas entitled De Stella Nova.
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