ASTR/PHYS 109: Big Bang and Black Holes
Fall 2017

Course objectives: This course is designed to give an intuitive understanding of the Big Bang and Black Holes, without mathematics, and de-mystify it for non-scientists. The primary goal is for students to learn about the origin and evolution of the Cosmos and communicate their understanding using their own words to a lay audience.

Prerequisites: None

Instructor: Prof. David Toback
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Email: toback@tamu.edu (office hours by appointment)
Course website: http://people.physics.tamu.edu/toback/109

Textbook and Reading:
Required and recommended reading schedule at
http://people.physics.tamu.edu/toback/109/LecturesReading.pdf

Required Textbook: “Big Bang, Black Holes, No Math,” by Toback
You can get this book at the bookstore or order online. EBook format is also available online. See bigbang.physics.tamu.edu for more details.

Recommended books:
“A Briefer History of Time,” by Hawking and Mlodinow
“Theory of Everything,” by Hawking
“Stephen Hawkings’s Universe,” by Filkin
“The First Three Minutes,” by Weinberg

Other readings can be downloaded from the web
All books available on Reserve at the Library

Course Work and Grading: The bulk of the grade for this course is in the writing component. A premium will be placed on the ability to understand and convey the excitement about science, cosmology and the physical universe to the lay reader. There are two additional parts of the grade: 1) Pre-Lecture Reading Question (PLRQ) assignments designed to both help you be well prepared for lecture, as well as help you get good at asking scientific questions, and 2) online End-Of-Chapter (EOC) quizzes in eCampus (to consolidate learning after class). By percentage, the grade is based on:

- Short papers: 90%
- PLRQ assignments and In-class quizzes: 5%
- EOC quizzes in eCampus: 5%

Note that you cannot pass the course without passing all the EOC quizzes (you will be allowed as many attempts as needed for this). There are significant penalties for late assignments.
Frequently Asked Questions: Answers to frequently asked questions about grading and other parts of the class can be found at http://people.physics.tamu.edu/toback/109/109FAQ.shtml. It is expected that all students have read this document.

Students in the Honors Sections: The regular sections and honors section meet together during the regular class period. However, each honors student will have an additional Research Paper that will be part of their paper grade. More information about it can be found at http://people.physics.tamu.edu/toback/109/Honors/

Description of the Writing Portion of the Course: Each paper assignment will be submitted online and graded using the Peerceptive system on eCampus. For those of you who have not used this system before this means you will be evaluating the quality of the papers of your peers as part of the assignment. Accordingly, your total grade for this portion will be based on the quality of the text, as well as the quality of your evaluations.

Many students find using Peerceptive to be the most difficult and unpleasant portion of the course. The instructor believes evaluating papers, as a way of learning to critique your own work, and the work of others, is the most important part of the class and one of the best ways to improve your writing. We will spend time discussing each paper in class, and there will be a practice Peerceptive assignment before the first paper.

We want to help all students get excellent grades. For this reason, before each paper is due, students will be encouraged to submit drafts to the TA for feedback with enough time for the TA to respond with comments (drafts will be submitted to TurnItIn on eCampus, with feedback returned to the same place). Comments will be returned in the same location.

In the case that you don't get the grade you want on your paper, you will be encouraged to resubmit your paper. Note that this can only help the text submission portion of your paper grade, and in general, we will take the average of the two scores as long as the first draft shows a "good-faith" effort. Exceptions will be made in rare cases.

ADA Policy: The American's with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Disability Services in Cain Hall B118, call 845-1637, or e-mail disability@tamu.edu. Additional information is available at http://disability.tamu.edu.

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