Models of the Universe from Hipparchos to Hawking

Spring 2006 Graham School Master of Liberal Arts
Rocky Kolb
Lectures: Tuesdays 6:30pm – 9:30pm, Gleacher Center

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Grades will be based 90% on a final paper. The paper will be in the form of an investigation of some specific topic related to the subject of the course. Details will be provided later in the term. The remaining 10% of the grade will be based on homework in the form of one-page written assignments due at the beginning of class.

There are three ***Textbooks***:

- *Blind Watchers of the Sky,* Kolb
- *The Little Book of the Big Bang,* Hogan
- *A Brief History of Time,* Hawking

It may be useful for you occasionally to consult a basic astronomy textbook. There are many available in libraries. I have no favorite.

The class ***website*** is http://home.fnal.gov/~rocky/Graham06/. All images shown in class will be available on the website in pdf format.

Course Description:

The course will involve lectures and discussions concerning the question "What is the origin and nature of our Universe?" I would like you to learn something about what we know, and also how we know it. In addition to what we know and how we know it, in this class we will explore the question, "Why do we want to know about the universe" and "How have our views (or models) of the Universe impacted things we cherish, like art, literature, religion, and basketball?"

The title of the course is "Models of the Universe." Note that it is Models, not Model. The course is not simply concerned with "Our present model of the Universe." I will speak about the history of the Universe, but even more about what might be called the history of the history of the Universe. The readings and lectures in this course will trace the development of our view of the universe starting with the Earth-centered cosmology of Aristotle, through the sun-centered universe of the Copernican revolution, to the modern big-bang theory and recent speculations about a

quantum origin of the universe. The course focuses on the ideas as well as the people who shaped our view of the universe.

If you are interested in a course mainly about our present model of the Universe, I recommend the Saturday course taught by my colleague Michael Turner.

The universe is more interesting than the people who study it. However, the study of the universe is a human endeavor, and the story of the people and ideas that shaped our view of the universe is a great story. The early part of the course will provide an historical background that will better enable us to appreciate the ideas of 20th century cosmology and the issues facing cosmology in the 21st century.