

An introductory though challenging textbook aimed at non-science college students, emphasizing inquiry learning, critical analysis and the nature of science.

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## UNDERSTANDING THE UNIVERSE:

### AN INQUIRY APPROACH TO ASTRONOMY AND THE NATURE OF SCIENTIFIC RESEARCH

656 pages, 513 BW illus, 39 color illus, 297 exercises

Cambridge University Press

Feb 2013

An introductory though challenging textbook aimed at non-science college students, emphasizing inquiry learning, critical analysis and the nature of science.

- Material is covered in great depth, but only those topics most essential to the field.
- Relates scientific concepts to everyday experience
- Active learning: emphasizes how we know what we know. Involves the student in the chain of reasoning, including blind alleys.
- Two-track system of mathematics at the level of simple arithmetic with exponential notation. First the Logic of the Calculation, then the Detailed Calculation in a sidebar.
- You Must Decide: questions in which the student is asked to make a firm choice concerning an issue for which there is no right answer – and to defend this choice in a well reasoned essay.
- The Nature of Science: This Chapter deals not with any particular astronomical topic, but with science as a way of thinking that is unique in history. What has made science such a powerful agent of change in modern society?

Reviewers have said –

This unique text provides a superb framework for introducing students to the approaches scientists take to solving problems. By posing a variety of mysteries faced by both ancient and contemporary astronomers, gathering and presenting data, searching for patterns, asking questions, posing and testing hypotheses both qualitatively and quantitatively, Greenstein introduces his readers to the tools of the detective-scientist. Stephen Strom . . . delivers on its promises. It is indeed inquiry based, and overtly uses astronomy as a means to explore the nature of science. . . [this text] does not merely tell students about the Universe; it helps them understand the Universe. Bruce Partridge