

**AST 301--Scalo**  
**GUIDE TO READING AND STUDY: CHAPTERS 1--6, 15, 16**  
(Takes you up to exam #3)

This list is meant to tell you in detail which sections will (and will not) be covered on exams, and to suggest review questions in the book and at the text web site.

Remember that I consider these questions homework, but instead of turning in the answers, I will include some of them on each exam.

At the end of each chapter, the recommended questions are marked "RD" for the "Review and discussion" questions, and "TF" for the "Conceptual self-test: true or false/multiple choice" questions. Information about multiple choice questions at the textbook web site ("TWS"; select "Study Guide" for each chapter after selecting our book, Astronomy Today 5/e, at the text book web site [www.prenhall.com/chaisson/](http://www.prenhall.com/chaisson/)) is given in terms of which questions you should NOT attempt (either too numerical or material not covered)—try the rest. Notice that the questions I suggest you look at provide you with an accurate assessment of what I will and will not include on the exams, and at what level.

You will benefit most by trying your hand at the suggested questions *after* you have thoroughly studied the material, so you can see how prepared you actually are. You will also probably find it beneficial to think about the "Learning Goals" at the beginning of each chapter, once before you start to read each chapter, and again when finished and/or when preparing for each exam.

**FOR EXAM #1**

**Chap. 1:** Read "Scientific Notation" (App.1) and "Angular Measure" (p.11).

Mark Appendix 2 on "Astronomical Measurement" as a useful reference on units that are used in the rest of the text, in case you become confused about units.

Look through pp. 8 through 24 (topics having to do with the night sky, seasons, eclipses, ...), but you won't be tested on it because it interrupts the main flow of topics; however I urge you to read it if you want to understand the most basic astronomical events you can experience with your own eyes.

Sec.1.7: Measurement of distance--important.

RD: 1, 5, 8, 17-19; TF: 1, 2, 9, 10, 19, 20.

Textbook Web Site: NOT 3, 4, 7-10.

**Chap. 2:** Look over sec.2.1 and 2.2 on historical topics, but they won't be on the test. Read sec.2.3 (Heliocentric model). and 2.4 (The Birth of Modern Astronomy), but only for the basic idea. Things like "retrograde motion" and the phases of Venus won't be on the exam.

Read "More Precisely" 2-2 and 2-3, but of course I won't ask you to carry out any calculations.

Get serious with secs. 2.5 (Kepler's Laws), 2.6 (Dimensions of the Solar System), and especially 2.7 (Newton's laws).

RD: 2, 4, 9, 10, 13-15, 20; TF: 3, 5, 6, 9, 12, 15, 17, 19, 20.

TWS: NOT 4, 9, 10.

**Chap.3:** Don't worry about details concerning temperature scales ("More Precisely 3-1", p. 72) or numerical aspects of radiation laws ("More Precisely 3-2, p.76). We will postpone sec. 3.5 on the Doppler Effect to Exam #2.

RD: 2, 3, 5, 11, 12-16; TF: 1, 4-6, 11, 12, 15-19.

TWS: NOT 3, 4, 5, 7.

## **FOR EXAM #2**

**Chap. 3, sec. 3.5** on the Doppler Effect. RD 17-19, TF 20 in Chap.3.

**Chap. 4** (Spectroscopy)

"More Precisely 4-1" (p.90) will not be on exam.

RD: 3, 4, 8-10, 12, 15-20; TF: 1-6, 9, 10, 15-17, 19.

TWS: Try all of them.

**Chap. 5** (Telescopes)

In section 5.1, you won't be tested on subsections on "Reflecting and refracting telescopes" or "Telescope design" in sec.5.1. Read "Discovery 5-1" on Hubble Space Telescope (pp. 114-115). Don't worry about the right-hand column of Table 5.1 (p.137); but DO use the middle column to test whether you understand text material.

RD: 1, 4-11, 13-17; TF: 1, 2, 4-6, 8, 14, 15.

TWS: NOT 5, 8.

## **FOR EXAM #3**

**Chap. 6** (The Solar System)

We will *not* cover the various space missions discussed in sec. 6.6.

Read the "More Precisely 6-1" on p.147, but such numerical examples will not be on the exam. Also read the "More Precisely 6-2" on p. 112 to understand the concept. You don't have to memorize any of the information in Table 6.1 (p. 146), although it might help you to look at it awhile. However Table 6.2 (p. 150) IS very important to learn.

RD: 1, 3-8, 10, 11, 17-20; TF: 1-3, 5-8, 11, 13, 14, 16, 19, 20.

TWS: NOT 3, 8, 9.

**Chap. 15** (Formation of Planetary Systems)

The "Discovery 15-1" on p. 390 is for your interest only, but will not be on the exam.

RD: All; TF: All.

TWS: Try them all.

**Chap. 16** (The Sun)

Because of time constraints we are going to skip sec. 16.5 "The Active Sun," but I urge you to at least look at the figures and their captions to get a feel for how complex the surfaces of stars must be.

In sec. 16.2 on energy production by the proton-proton cycle, I don't expect you to memorize all the reactions in the sequence (p. 410), but I DO expect you to understand what you read on it well enough to understand the basics of how the sun makes light by nuclear fusion in its core.

RD: All except 13-17; TF, all except 8, 9, 17-19

TWS: NOT 1, 5, 9.

In later chapters we will cover nearly all the material, so you will be trying all the questions, except those that require numerical calculations. For this reason I probably won't hand out a "reading guide" for the later chapters; I will just tell you if a certain subsection is not going to be covered on the exam (it will be rare).