AST 301, Fall 2010--Scalo

GUIDE TO READING AND STUDY: CHAPTERS 1-3, 6, 15, 16

(Takes you up to exam #3)

[You may notice that Ch16 is not listed on the syllabus until exam 4, but it is one of the few spots where we may or may not have time to get through that chapter in the allotted number of lectures, so I'm including it here in case we do end up including Ch16 on exam 3. In any case, don't worry about it.]

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. So there are three different kinds of items listed. Remember that I consider these questions homework, but instead of turning in the answers, I will include some of them on each exam.

For Ch 1-3, I indicated the day on which I expect to cover each topic in the lectures.

Recommended questions at the end of each chapter are marked "RD" for "Review and discussion", and "TF" for the "Conceptual self-test: true or false/multiple choice." These vary considerably in difficulty, but none involve significant mathematical manipulations—I chose them as relevant warm-ups for exams, and useful ways to find whether you are understanding the material.

There are multiple-choice questions at the **textbook companion web site**, and most of them are good practice. Questions from the textbook web site are labeled "TWS" ("Textbook Web Site") below. To get to these on the internet, go to the textbook web site www.prenhall.com/chaisson/ and select our book, Astronomy Today 6/e (cover will not look the same). You will have had to register already through your access code. Then pick a chapter from the thin horizontal drop down near the top that probably says "Welcome." After selecting a chapter, you have to click the "Go" button to get to that chapter. The left hand side of the resulting screen will have a lot of options, including the ebook itself. If you find yourself at this companion website page (mine is mostly black and white), you are at the right place.

Select "Multiple choice 1", "Multiple choice 2", and "True or False" from the left hand list to test yourself—the site will provide you with answers when you are through. They are somewhat simple, and should be used to gauge your understanding. The questions I suggest you look at provide you with an assessment of what I will and will not include on the exams, although exam questions will generally not be so simple. 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.

Note: You have to register the first time you visit the site—you might have to enter the ISBN number from your textbook, so have it handy. You should need the access code that came with the book, and/or this authorization code from the instructor: MASCALO24313.

I suggest you go through your textbook (soon) and mark all these items (e.g. a mark next to questions listed below, "not on exam" in certain subsections, etc.).

Key to abbreviations below: Recommended end of chapter questions: RD=review and discussion, TF=True/False. Recommended questions at the textbook companion site: MC1, MC2 , T/F correspond to "Multiple Choice 1", Multiple Choice 2," and "True/False."

……

FOR EXAM #1

Chap. 1: Read "Scientific Notation" (App.1) and "Angular Measure" (p.11). This is important as boring background material, and we will cover it in class on Friday, Aug. 27.

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 25 (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. Will probably get to this on Friday Aug 27, probably carrying over to Monday Aug 30.

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

Textbook Web Site: MC1: 4, 8, 13; MC2: 5; T/F: 6, 7, 10, 15

Chap. 2: Look over sec.2.1 and 2.2 on historical topics, but they won't be on the test. Read sections on the Heliocentric model (2.3, to be covered in class next Monday Aug 30) and Birth of Modern Astronomy (2.4), but only for the basic ideas. Things like "retrograde motion" and the phases of Venus won't be on the exam.

Read "More Precisely" 2-1 (p.49), 2-3 (p.55) and 2-3 (p. 57), but of course I won't ask you to carry out any calculations related to them, except for one formula I will explain in class.

Get serious with sections. 2.5 (Kepler's Laws), 2.6 (Dimensions of the Solar System), and especially 2.7 (Newton's laws) and 2.8 (Newtonian mechanics). I will be covering these next Monday Aug 30 and Wed. Sept. 1.

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

TWS: MC1: 1, 3, 6, 8, 11; MC2: 3, 4, 8; T/F: 6, 7, 9, 18

Chap.3: This chapter is the first of two about light. We will cover in lectures on Friday Sept. 3 and Wed. Sept 8, before the exam on Sept 10. (Monday Sept 6 is labor day.)

Don't worry about details concerning temperature scales ("More Precisely 3-1", p. 73) or numerical aspects of radiation laws ("More Precisely 3-2, p.77), although I still recommend you try to read it.

We may postpone sec. 3.5 on the Doppler Effect to Exam #2. It is so important that I may include it on both exams.

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

TWS: MC1: 2 through 10; MC2: 3, 5, 7, 9, 11, 15; T/F: 1, 3, 6, 7, 9, 17

➡ ***Exam #1 occurs here, Friday Sept 10*** ⬅

……

FOR EXAM #2

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

TWS: MC1: 12; MC2:10 (notice no calculation is needed); TF 2, 13, 20.

Chap. 4 (Spectroscopy) This is probably the most boring, difficult, and important chapter in the course. "More Precisely 4-1" (p.92) will not be on exam.

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

TWS: MC1: All except 13,14,15; MC2: All except 7, 10, 11, 14; TF: All except 15.

Chap. 5 (Telescopes)

In section 5.1, you won't be tested on subsections on "Reflecting and refracting telescopes" (p. 108), "Comparing refractors and reflectors" (p. 109), or "Types of reflecting telescopes" (p. 111) 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, 16, 18, 19.

TWS: MC1: Alll except 1, 9, 11; MC2: All except 1,2,7, 8,9,14; TF: All except 2, 5, 7, 11, 16.

➡ ***Exam #2 occurs here, Wednesday Sept 22*** ⬅

……..

FOR EXAM #3

Chapters 6 and 15 are NOT in your textbook, but will be available to read (or print) in the textbook ebook. Page numbers below may be off by a small amount.

Chap. 6 (The Solar System)

We will not cover the various space missions discussed in sec. 6.6. Read the "More Precisely 6-1", but such numerical examples will not be on the exam. Also read the "More Precisely 6-2" in order to understand the concept. You don't have to memorize any of the information in Table 6.1, although it might help to look at it awhile. However Table 6.2 IS important to learn.

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

TWS: MC1: 2, 4, 5, 7, 10, 12, 14, 15. MC2: 4, 7, 8, 9 T/F: 2, 5, 8,12, 20

Continued on next page…

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: MC1: 1, 3, 6, 7, 9, 10, 14, 15. MC2: 2, 4, 7, 10, 12, 14, 15. T/F: 1, 3, 5, 10, 12-15, 20.

Chap. 16 (The Sun) [This and all subsequent chapters are in your textbook—you don't have to read them online. Chap. 16 may be on exam 3, or else if we run out of time, on exam 4. I include the material here in case it is on Exam 3.]

Because of time constraints we are going to skip sec. 16.4 "Solar Magnetism" and 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. 16.6 on energy production by the proton-proton cycle, I don't expect you to memorize all the reactions in the sequence (p. 441, "More Precisely"), but I DO expect you to understand what you read about 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: MC1: 2, 8, 11. MC2: 12, 13, 14. T/F: 4, 9, 13.

For later exams we'll cover nearly all the material in each chapter, so you can use any or all questions, except those that require numerical calculations. For this reason I probably won't hand out a "reading guide" for the later chapters; I'll just tell you if a certain subsection won't be covered on the exam (it will be rare).

➡ ***Exam #3 occurs here,Wednesday Oct 6*** ⬅