**STUDY GUIDE FOR QUIZ 1**

Here is the study guide for Quiz 1, Monday, February 10. The quiz will cover chapters 1, 2, 3 and 4. The quiz will come mostly from the Powerpoint slides that you can download from WebAccess, with some problems from the HW. Read the ‘**Summary of Key Concepts’** at the end of each chapter. It will help put the chapter in perspective. The quiz is closed book, ‘open head’. Bring a Scantron, the 50 question rectangular one, and a #2 pencil. I’ll bring the quiz!

It is advisable to first answer your questions on the exam sheets and then transfer your answer to your Scantron. It is highly advisable that you do not erase on the Scantron, since the Scantron machine will sometimes pick up your old, smudged, erased answer, instead of your new, changed answer. If you must erase, use a very good eraser, one that leaves no smudges. In any case, you are responsible for your clean Scantrons. I will not regrade a Scantron if you have smudged answers on it.

**Equation to know from ch 3 is:**

**From Kepler’s 3rd law, p2 = a3**

**Main equations to know from ch 4 are:**

**Newton’s 2nd Law - F = Ma or W = mg**

**Momentum - mxv**

**Angular momentum - mxvxr**

**Universal Law of Gravitation - F = GM1M2/d2**

**Chapter 1 Our Place in the Universe**: Study the following sections, as we did them in class: **1.1 Scale of the universe** – Distance measurements, AU and light year. **1.2 History of the Universe** – Big Bang and expansion of the universe. **1.3 Spaceship Earth** – Motion within the local solar neighborhood. Although we didn’t cover this section read it in the book, **1.4 Human Adventure of Astronomy**. It is short!

**Chapter 2 Discovering the Universe for Yourself:** Study the following subsections **2.1 Patterns in the Night Sky,** **2.2 The Reason for Seasons** (important), precession midnight sun**. 2.3 The Moon, Our Constant Companion** (especially the moon’s phases and how eclipses occur) **2.4 The Ancient Mystery of the Planets** (retrograde motion, stellar parallax).

**Chapter 3 The Science of Astronomy**: **3.2 Ancient Greek Science** (primarily Ptolemy's geocentric model of the universe. **3.3 Copernican Revolution (**Copernicus, Tycho Brahe, Kepler’s laws (**very important**!), Galileo and his observations that overturned the geocentric model**.**

**Chapter 4 Making Sense of the Universe.**  Study the subsections - **4.1 Describing Motion: Examples from Daily Life** (velocity, acceleration (F=ma), force, momentum, mass, weight (w=mg), **4.2 Newton's Laws** (study these as we did them in class, as well as conservation of momentum and angular momentum), **4.3 Conservation Laws in Astronomy** - Study the conservation of angular momentum and the different types of energy. **4.4 Universal Law of Gravitation** (universal law of gravitation, F= GM1M2/d2, bound (elliptical) & unbound (parabolic, hyperbolic) orbits, **4.5 Orbits, Tides, and the Acceleration of Gravity -** How are the tides formed(spring and neap tides, tidal friction),

**Example Test Questions**

1. What is special about an annular eclipse?

 a) At totality, the moon looks red d) It happens every month

 b) At totality, there is a ring around the moon e) It only occurs over San Francisco

 c) It only occurs when the moon is full

2. The moon rotates \_\_\_ as it revolves around the Earth

 a) twice as fast d) never

 b) twice as slowly e) at the same speed

 c) three times as fast

3. Of the following choices, what is the **smallest**?\_\_\_.

 a) Jupiter d) our galaxy

 b) our sun e) our solar system

 c) our moon

4. It is sunset and you see the moon low in the west. What phase is it?

 a) new d) full

 b) first quarter e) waxing crescent

 c) waning crescent

5. As you are sitting taking this exam, \_\_\_.

 a) you and your seat exert equal and opposite forces

b) you exert a greater force on your seat

c) your seat exerts a greater force on you

d) none of the above answers is correct

**Extra credit question.**

What are 5 observations that Galileo made, that helped to overturn the geocentric model of the universe?