Wednesday Jan. 22

Syllabus and class notes are at: www.as.utexas.edu

go to courses, AST301 – Introduction to Astronomy – Lacy

Homework is due on Friday.

If you didn't measure the Moon last weekend you can do it in the morning. Look for the half-lit Moon in the west in the morning.

Topics for this week

Describe how the motion of the Sun across the sky varies during the year. Explain how the motion of the Earth around the Sun causes these changes.

Explain how the apparent motion of the Sun during the year causes the seasons.

Describe how the motion of the Moon around the Earth causes the phases of the Moon and eclipses.

Why don't eclipses occur every month?

Weekly quiz

Put the following objects and distances in order from smallest to largest

1. Earth
2. distance from Earth to Moon
3. Sun
4. distance from Earth to Sun
5. distance from Sun to nearest star
6. Milky Way Galaxy
7. Universe

Jupiter is about 5 AU from us and Uranus is about 20 AU from us. If they had the same diameters, how would they compare in apparent or angular size?

Jupiter would appear about 4 times larger.

Weekly Quiz continued

In fact, Jupiter is about 3 times larger in diameter than Uranus.

Combining their different diameters with their different distances,

How do Jupiter and Uranus compare in angular size?

Jupiter appears about 12 times larger.

Say what causes the Moon to go through phases. That is, why does it sometimes appear full, and sometimes we see a half or crescent Moon?

The Sun lights up one half of the Moon (not always the same half).

We see one half, but sometimes it is the lit half and sometimes it is the dark half, or some of each.

Apparent motion of stars during a night

The Earth rotates on its axis through the poles once a day.

The west-to-east rotation makes stars appear to move east-to-west, generally rising in the east and setting in the west.

The appearance is the same as if the stars were on a giant sphere surrounding the Earth, which rotates east-to-west about an axis running through the Earth's poles.

This imaginary sphere is referred to as the celestial sphere.

The axis of rotation passes through the celestial poles, which are directly above the Earth's poles.

The celestial equator is a line on the celestial sphere above the Earth's equator.

Quiz

1. If you were standing on the pack ice at the north pole in the wintertime and watched the sky for 24 hours, you would see Polaris ..

A. remain directly overhead

B. circle the horizon

C. rise in the east and set in the west, passing directly overhead

Quiz

1. If you were standing on the pack ice at the north pole in the wintertime and watched the sky for 24 hours, you would see Polaris ..

A. remain directly overhead

B. circle the horizon

C. rise in the east and set in the west, passing directly overhead

Quiz

2. If you were standing at the north pole and watched the sky for 24 hours, you would see the big dipper …

A. remain stationary in the sky

B. circle around the sky

C. rise in the east and set in the west, passing directly overhead

D. rise in the east and set in the west, passing south of overhead

Quiz

2. If you were standing at the north pole and watched the sky for 24 hours, you would see the big dipper …

A. remain stationary in the sky

B. circle around the sky

C. rise in the east and set in the west, passing directly overhead

D. rise in the east and set in the west, passing south of overhead

Quiz

3. If you watch the sky during a night in Austin, Polaris will…

A. rise in the northeast, pass north of overhead, and set in the northwest

B. rise due east, pass near overhead, and set due west

C. rise due east, pass north of overhead, and set due west

D. remain stationary near overhead

E. remain stationary about 30^{o} above the north horizon

Quiz

3. If you watch the sky during a night in Austin, Polaris will…

A. rise in the northeast, pass north of overhead, and set in the northwest

B. rise due east, pass near overhead, and set due west

C. rise due east, pass north of overhead, and set due west

D. remain stationary near overhead

E. remain stationary about 30^{o} above the north horizon

Quiz

4. As seen from Austin, Orion rises near due east. During a night it …

A. passes near overhead and sets near due west

B. passes south of overhead and sets near due west

C. passes near overhead and sets in the southwest

D. passes south of overhead and sets in the southwest

Assignments for Friday

Finish reading chapters 1-3

Homework is due of Friday.

If you want help on homework or anything covered in the course, come to discussion session Thursday at 6:00 in RLM 15.216B.