

1.4 Motion of the Celestial Sphere

PRE-LECTURE READING 1.4

- *Astronomy Today*, 8th Edition (Chaisson & McMillan)
- *Astronomy Today*, 7th Edition (Chaisson & McMillan)
- *Astronomy Today*, 6th Edition (Chaisson & McMillan)

VIDEO LECTURE

- Motion of the Celestial Sphere¹ (23:43)

SUPPLEMENTARY NOTES

Celestial Sphere's and Earth's Daily Motion

- Stars rise in the east and set in the west.
- Hence, the celestial sphere rotates east to west.
- Hence, Earth rotates west to east.
- Hence, Earth rotates counterclockwise as viewed from the top down.
- Or clockwise as viewed from the bottom up.
- Stars rotate around the north and south celestial poles.
- Stars near the north and south celestial poles that never rise or set are called circumpolar stars.
- At the north and south poles, all stars are circumpolar.
- At the equator, no stars are circumpolar.

¹<http://youtu.be/n.UeZ0-XDdU>

EXERCISES

- Experiment with UNL's Celestial and Horizon Systems Comparison².
- Experiment with UNL's Coordinate Systems Comparison³.
- Experiment with UNL's Big Dipper Clock⁴.
- On a clear night, look at the constellations, or patterns of stars, in the northern and southern skies. Carefully sketch the sky in both directions to help you remember the locations of the constellations with respect to the horizon. Include buildings, trees, mountains, etc., for reference.

Check back a few hours later (the longer you wait, the better). How have the constellations in the northern sky moved? How have the constellations in the southern sky moved?

- Experiment with UNL's Meridional Altitude Simulator⁵. (Leave on "No Object".)
- Experiment with UNL's Declination Ranges Simulator⁶.

ASSIGNMENT 1

Do Question 2.

²<http://astro.unl.edu/classaction/animations/coordsmotion/celestialhorizon.html>

³<http://astro.unl.edu/classaction/animations/coordsmotion/celhorcomp.html>

⁴<http://astro.unl.edu/classaction/animations/ancientastro/dipperclock.html>

⁵<http://astro.unl.edu/classaction/animations/coordsmotion/meridalttdiagram.html>

⁶<http://astro.unl.edu/classaction/animations/coordsmotion/latsim.html>