

Astronomy 200 Lab Exercise

Using Stellarium



Purpose:

- To learn how to use the main features of the planetarium program Stellarium
- To use Stellarium to learn about motion in Stellarium and some basic ideas in astronomy

(Note: There are many features in Stellarium that we will not use in today's exercise. Hopefully this will, however, give you enough familiarity with the program to begin to explore other features on your own. You will need to use this program for future assignments. If you do not have a copy please go to Stellarium.org and download it FOR FREE!!)

Estimated Completion Time: 1 hour

Resources needed:

- Access to a computer equipped with Stellarium
- Text book and on-line lecture notes would be an asset

Questions (2 marks each)

1. The "dog days of summer" are so named because the bright star Sirius in Canis Majoris is rising in the morning. Use the FIND feature (ctrl-F) to find Sirius and tell me:
 - What time Sirius rose on September 14, 2018 as seen from Edmonton.
 - What the magnitude of Sirius is and how far away it is.

2. What are "circumpolar stars"? Which of the following stars are circumpolar from Edmonton: Altair, Vega, Capella, Sirius? Provide a mathematical explanation for the ones that are circumpolar and demonstrate this on Stellarium.

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3. Cambridge Bay is located at $69^{\circ} 07' \text{ N}$ and $105^{\circ} 03' \text{ W}$. How many days of each year will Cambridge bay experience 24 hour sun?
4. Find the time of local noon in Edmonton on November 14, 2019 and January 28, 2020. Why does local noon NOT occur at the same time each day?
5. At what time next month will the moon be new? Determine what constellation the sun and moon are in and whether or not a total solar eclipse is possible. (a simple sketch would help explain your answer)
6. Compare and contrast the constellations Orion, Cygnus and Ursa Major (using Western names) with how the Inuit and the first people of the western plains (Dakota/Nakota.Lakota) incorporated these constellations in their sky lore.