

# Observations Fall 2024

During the semester you will be required to attend one First Quarter Night and either one Dark Sky Night or do a Virtual Observations then write an Observations Report. ***If you do not attend a 1<sup>st</sup> Quarter Night or take the 1<sup>st</sup> Quarter Night Quiz, your Observations Report will be worth a maximum of half the possible points (maximum 2 out of the possible 4 points). There is no substitute for not attending a 1<sup>st</sup> Quarter Night or taking the 1<sup>st</sup> Quarter Night quiz.*** The First Quarter nights will be held in the Sundquist Science Complex Tommy Head Atrium with actual observing (if clear) in the Archwood parking lot. ***There will be no cancellation of 1<sup>st</sup> Quarter Nights.*** The schedule is:

## First Quarter Nights

Wednesday September 11 @ 7:30pm	Thursday October 10 @ 7:30pm
Thursday November 7 @ 7:30pm	

Dark Sky Nights will be held at the APSU Observatory on the grounds of the APSU Environmental Education Center. A map and directions to the observatory can be found at [www.apsu.edu/physics/astronomy/observations/map-and-directions-apsu-observatory](http://www.apsu.edu/physics/astronomy/observations/map-and-directions-apsu-observatory) . The Dark Sky Nights are weather dependent so if the skies are cloudy and/or rainy for a particular night it will be cancelled and we will attempt to hold it the next night (i.e. Tuesday 9/24 is cancelled so we will try again Wednesday 9/25). If that night is also rainy/cloudy it, too, will be cancelled. The three exceptions to the rain/cloud delay are the two Thursday nights (there will not be a make-up day on a Friday night) and Saturday November 24 (there will not be a make-up day on a Sunday night). Cancellation notice will be posted by 5:00pm on the day of the observations on <https://www.apsu.edu/physics/astronomy/observations/observations.php>. The schedule for the Dark Sky Nights is:

## Dark Sky Nights

Wednesday September 4 @ 8:00pm	Tuesday September 24 @ 8:00pm	Thursday October 3 @ 7:30pm
Thursday October 24 @ 7:30pm	Monday October 28 @ 7:00pm	Saturday November 23 @ 7:00PM

A list of “Things To Observe” will be posted a day or two before each observing night on [www.apsu.edu/physics/astronomy/dark-sky-nights](http://www.apsu.edu/physics/astronomy/dark-sky-nights). It is strongly advised that you to look over the “Observations Report” section BEFORE coming to the Observing Nights so you know what information you need to collect and you bring a notebook to take notes with.

## Virtual Observation

The Virtual Observations can be done instead of attending a Dark Sky Night. If all objects are found and all the required information for each object is found you will receive the full 3 points for attending a Dark Sky Night. If you only find some of the objects and/or some (but not all) of the information you will receive some (but not all) of the 3 points for attending a Dark Sky Night.

Below is a list of 35 objects and five planets to locate. For all except the planets you must find each object and record what constellation it is in. Once you find which constellation it is in you must determine which month it is (or was) best viewed in (the star charts in the back of the textbook will help you in determining the month). For the planets, find which month it was or will be most visible in the evening skies during 2024 (when was it or will it be at opposition), which constellation it was in or will be in at that time and how bright it will be. Next, describe what type of object it is from the following possibilities: planet, planetary nebula, supernova remnant, emission nebula, absorption nebula, reflection nebula, spiral galaxy, elliptical galaxy, irregular galaxy, open cluster, globular cluster, black hole, quasar or double star. Next, find the distance to the object and its apparent visual magnitude. Finally, include images of your favorite five objects. For the planets you can do a web search for what month they are highest in the evening sky. For the M, NGC and IC objects and named stars you will also have to use a web search. On the web you might try the Interactive NGC/IC Catalog Online (link to it can be found in the ***Astronomy Links*** on the APSU Astronomy website). Put all the information you find into a neat table that can be easily read. Include this table and the images of your five favorite objects with the **Observations Report you turn in on Tuesday November 26.**

Albireo	M10	M41	M79	NGC 2264
Algieba	M12	M42	M81	NGC 2419
Cor Caroli	M13	M44	M87	NGC 6543
IC 434	M15	M45	M94	NGC 7000
M1	M19	M51	M104	3C 273
M3	M20	M57	NGC 869	Gaia BH1
M9	M36	M76	NGC 1502	Sagittarius A*
Neptune	Mars	Jupiter	Saturn	Uranus

## Observations Report

After you have attended a Dark Sky Night or completed the Virtual Observations **and** attended a 1<sup>st</sup> Quarter night or taken the First Quarter Night quiz, you must do an Observations Report. It should be typed with double line spacing. The report is due Tuesday November 26 and is to be submitted to the Assignment in the class D2L. **Once the Assignment box closes reports will no longer be accepted** (it closes at 11:59pm Tuesday November 26).

The report should consist of two major parts. Part 1 should consist of information about the various telescopes, mounts, equipment, cameras and observing aids shown and used on the 1<sup>st</sup> Quarter Night. ***This must include:*** types, sizes and manufacturers of the telescopes; types of mounting systems; drawings of the optical systems of the telescopes (see Figures 6.4 & 6.5 on page 146 and 6.8 & 6.9 on page 148 of your text for the kinds of drawings) and, finally, observing aids and devices (i.e., cameras, CCD's, filters, star maps, planespheres, etc.). A PowerPoint presentation with the much of the information presented at the 1<sup>st</sup> Quarter Night can be found in the ***Observing Nights*** link on [www.apsu.edu/physics/astronomy/1st-quarter-observing-nights](http://www.apsu.edu/physics/astronomy/1st-quarter-observing-nights).

Part 2 should consist of information about the celestial objects you saw on the 1<sup>st</sup> Quarter Night and the Dark Sky Night or your Virtual Observations table. This must include (but is not limited to): what were they (i.e., planet, star, nebula, cluster, etc.); their name or catalog number; other objects associated with them (i.e., moons, nebulosity, satellite galaxies, etc.); their location (constellation they are in); a brief description of the object (what it looked like) and, finally, which telescope you saw them through. For additional information on the objects, check out the Interactive NGC/IC Catalog on the ***Astronomy Links*** page of [www.apsu.edu/physics/astronomy/links](http://www.apsu.edu/physics/astronomy/links).

## **Format for the Observations Report**

1. The cover page should include a title, your name, date of 1<sup>st</sup> Quarter Night (if you attended one) and date of Dark Sky Night (if you attended one).
2. Introduction. A brief summary of what the report is about. Probably one or two paragraphs in length.
3. Part 1: Telescopes, mounts, cameras, astronomical equipment, star maps, planespheres and observing aids.
4. Part 2: Celestial objects viewed at the observing nights or your Virtual Observations table and images of your five favorites.
5. Conclusions. What did you learn? Was it worthwhile? Would you recommend that this be repeated every semester in the astronomy class? What can be done to improve it?
6. List of references: the format for your references is not important ***but all references should be cited including those for the Virtual Observations.***

### **Grading:**

Observations Report...4-points

1<sup>st</sup> Quarter Night Attendance...3-points

Dark Sky Night Attendance or Virtual Observations...3-points

**The Observations count for 10% of your course grade.**