

Observations Spring 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 1st Quarter Night, 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 1st Quarter Night.*** 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 1st Quarter Nights.*** The schedule is:

First Quarter Nights

Thursday February 15 @ 7:30pm	Monday March 18 @ 7:30pm
Tuesday April 16 @ 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 . 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. if Wednesday 02/07 is cancelled we will try again Thursday 02/08). If that night is also rainy/cloudy it, too, will be cancelled. The two exceptions to the rain/cloud delay is Thursday February 1 and Saturday April 8. If it is cloudy/rainy on those nights there will not be a rain/cloud delay night the next night. Cancellation notice will be posted by 5:00pm on the day of the observations on <https://www.apsu.edu/physics/astronomy/observations/dark-sky-nights.php>. The schedule for the Dark Sky Nights is:

Dark Sky Nights

Thursday February 1 @ 7:00pm	Wednesday February 7 @ 7:00pm	Tuesday March 12 @ 8:00pm
Monday April 1 @ 8:00pm	Saturday April 8 @ 8:30pm	

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. 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. **The Virtual Observations cannot be used as a substitute for attending a 1st Quarter 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 Monday April 22.**

Albireo	M10	M41	M79	NGC 2264
Algieba	M13	M42	M81	NGC 6543
Cor Caroli	M15	M45	M86	NGC 6826
IC 434	M16	M51	M94	NGC 7000
M1	M27	M57	M104	3C 273
M3	M36	M65	NGC 869	Gaia BH1
M9	M38	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 1st Quarter night you must do an Observations Report. It should be typed with double line spacing. The report is due Monday April 22 and is to be submitted to the Assignment in the class D2. ***Once the Assignment box closes, reports will not be accepted*** (it closes at 11:59pm Monday April 22).

The report should consist of two major parts. Part 1 should consist of information about the various telescopes, equipment and observing aids shown and used on the 1st 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 1st Quarter Night can be found in the ***Observing Nights*** link on www.apsu.edu/physics/astronomy/1st-quarter-observing-nights.

Part 2 should consist of information about the celestial objects you saw on the 1st 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.

Format for the Observations Report

1. The cover page should include: your name, date of 1st Quarter Night, date of Dark Sky Night and a title.
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 list of references is not important ***but all references should be cited including those for the Virtual Observations.***

Grading:

Observations Report...4-points 1st Quarter Night Attendance...3-points
Dark Sky Night Attendance or Virtual Observations...3-points

The Observations count for 10% of your course grade.