

Open Cluster Club Chair:

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Open clusters are of tremendous importance to the science of astronomy, if not to astrophysics and cosmology generally. Star clusters serve as the "laboratories" of astronomy, with stars now all at nearly the same distance and all created at essentially the same time. Each cluster thus is a running experiment, where we can observe the effects of composition, age, and environment. We are hobbled by seeing only a snapshot in time of each cluster, but taken collectively we can understand their evolution, and that of their included stars. These clusters are also important tracers of the Milky Way and other parent galaxies. They help us to understand their current structure and derive theories of the creation and evolution of galaxies. Just as importantly, starting from just the Hyades and the Pleiades, and then going to more distance clusters, open clusters serve to define the distance scale of the Milky Way, and from there all other galaxies and the entire universe.

However, there is far more to the study of star clusters than that. Anyone who has looked at a cluster through a telescope or binoculars has realized that these are objects of immense beauty and symmetry.

Whether a cluster like the Pleiades seen with delicate beauty with the unaided eye or in a small telescope or binoculars, or a cluster like NGC 7789 whose thousands of stars are seen with overpowering wonder in a large telescope, open clusters can only bring awe and amazement to the viewer.

These sights are available to all. Whether a large or small telescope is used, whether one observes with only binoculars or the unaided eye, or whether one observes from a dark sky location or a light-polluted city, these clusters are there waiting on any clear night for us to take a look.

Performing this program and receiving the certificate and award pin, signifies that you too, have undertaken the task of studying these wonderful and diverse star systems and hopefully, have a new understanding and appreciation for these deep sky objects.

Rules and Regulations

The Open Cluster Observing Program is open to any Astronomical League member in good standing, either through an affiliated club or through a Member-at-Large membership.

The nature of this program is not just observation of the selected open clusters, but the ability to classify them based on the Trumpler classification system and the ability to sketch selected clusters. This, overall, enhances the observing experience and allows even the most advanced observer to find detail in these clusters that is normally overlooked.

There are two types of programs within the Open Cluster Observing Club:

Basic Program:

- Observe any 100 of the 125 open clusters on the provided list.
- Sketch any 25 of the 100 open clusters that you observe.
- Classify all 100 observed clusters under the Trumpler classification system.
- All observing techniques may be used under the basic program. Including go-to, computer controlled, star hopping, digital setting circles, etc.

Advanced Program:

- Observe all 125 of the open clusters on the provided list
- Sketch any 50 of the open clusters that you observe
- Classify all 125 observed clusters under the Trumpler classification system
- All observing techniques may be used under the advanced program. Including go-to, computer controlled, star hopping, digital setting circles, etc.

Those completing the Basic Program who want to move up to the Advanced Program must observe an additional 25 open clusters that were not observed under the Basic Program. Furthermore, the observer must sketch an additional 25 open clusters that had not been previously sketched to qualify for the Basic Program.

The Trumpler Classification System: The observer will be required to classify all of the open clusters observed in this program under the Trumpler classification system. Examples of some of the official Trumpler classifications are given on page 6. By classifying all of the open clusters, the observer will be developing a better understanding of their differences and appearances.

The Sketch: The observer is also required to make a sketch of any 25 (the basic program) or 50 (the advanced program) clusters they observe. The sketch does not have to be a work of art, but it does need to accurately depict the cluster. Since open clusters are made of stars, a drawing of small dots in a pattern of the cluster is all that is needed.

Because the goal of this program is to have the observer see the differences in the clusters, it is highly recommended that the same telescope and similar power be used for

all of the clusters. By doing this, it will ensure that the differences that are seen are cluster differences and not power differences.

Observations: For each object, the observer is required to record the location, date & time, seeing, transparency, aperture, power, a brief description of the observed object, the Trumpler classification, and a sketch for any 25 (basic) or 50 (advanced) clusters from the list; a sample is on page 11. This format follows that of most Astronomical League observing programs. If the format that you use is more detailed, just make sure that the basic requirements are recorded like they are on page 11.

Awards: Once you have met the above requirements, send in your observing logs, program completed (basic or advanced), name, address, email, affiliation (club association or member-at-large), and phone number to the administrator of this club. Your Astronomical League Awards representative may send in your logs to the administrator as well. Make sure you send copies of your logs and not originals because the administrator of this club **will not** mail back your logs.

The administrator of this club will mail the observer a certificate, letter, and lapel pin when the basic or advanced program has been completed, unless the observer requests that the award be mailed to the Awards Coordinator of their club for presentation at a club meeting.

The individuals completing the advanced program will receive special recognition on their certificate.

Furthermore, only the Advanced Program awards will count toward the Master Observer Award. Keep this in mind when picking what to observe.

Observers completing either the Basic Program or Advanced Program using only starhopping techniques should indicate so in their letter to the program coordinator. These individuals will receive special recognition on their certificate and cover letter.