

The December Sky

By far the most distant object you can spot without optical aid is the [Andromeda galaxy](#). In long-exposure photographs it spans 3° , or the equivalent width of six full moons across. Without a telescope you might see a fuzzy circle of light. Any pair of binoculars will make it more obvious. What you are seeing is the combined light of many billions of stars.

While the bright core of Andromeda is visible to the naked eye from a dark site, it has a companion that is the same distance from us (2.5 million light-years), but is much more difficult to observe. Messier-33 is a low-mass galaxy that is oriented with its spiral arms facing us. But compared with Andromeda, it emits very little light while covering a considerable area of the sky. Astronomers call these *low surface brightness* galaxies and they are very difficult to observe beyond the local group.

While the M33 galaxy itself is a difficult object even with a 10" telescope from a dark site, one of M33's star-forming regions, is more obvious. It even has its own catalog number: [NGC 604](#). NGC 604 is largest star-forming region in the local group of galaxies, and dwarfs Messier-42, which is the closest star forming region to Earth. NGC 604 glows with the red light of ionized hydrogen and can be seen to the lower left of the galaxy's center in [this image](#) taken by Kentucky's own Doghouse Astronomer, Dean. Both M31 and M33 are visible in this [APOD image](#). M33 is the centered smudge just above the horizon.

You will find the locations of M31 and M33 on our [all-sky finder chart](#) and the PDF of this flyer at [our web site](#).

UK MacAdam STUDENT OBSERVATORY

UK's MacAdam Student Observatory, designed and built in 2007, was officially opened in 2008. The Observatory is located atop Parking Structure #2 between the W.T. Young Library and the Chemistry-Physics Building, and its dome houses a high-quality 20-inch reflecting telescope plus a variety of state-of-the-art optical instruments. The Observatory is dedicated to serving UK students as well as astronomy enthusiasts of every age and experience level throughout Kentucky.

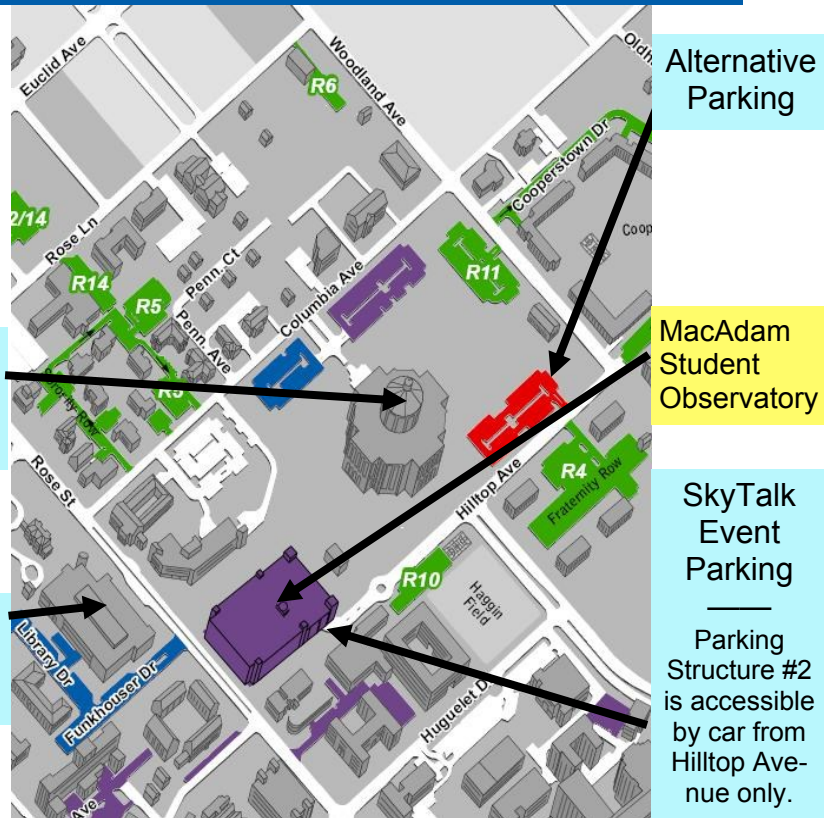
Are you interested in informal talks on astronomy and astrophysics? Are you curious about telescope design and operation? Would you care to take a look through the eyepiece?

The Department of Physics & Astronomy in UK's College of Arts & Sciences welcomes you! Join us to experience the excitement of stargazing through a powerful telescope. An up-to-date calendar of events can be found on our website:

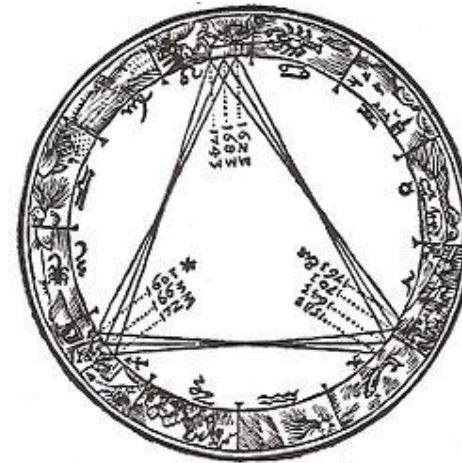
<https://pa.as.uky.edu/observatory>



How to find the MacAdam Student Observatory



Kentucky SkyTalk



Kepler's Trigon from *De Stella Nova in Pede Serpentarii*, published in 1606. The title refers to the last naked-eye supernova seen in the Milky Way. The diagram depicts close encounters between Saturn and Jupiter that occur at roughly 20 year intervals.

Dr. Gary Ferland— University of Kentucky
Thursday - December 14, 2017 7:00 PM
Chemistry-Physics Building Room 155

The Star of Bethlehem

The Gospel of Matthew records a peculiar astronomical event that occurred at the birth of Christ. Could the "Christmas Star" have been a nova, a supernova, a comet, or some other spectacular sight? I will talk about what was visible around the time of the birth of Christ, and describe Kepler's idea that that the Star was a planet alignment that guided the "wise men from the East."

Tonight's *Kentucky SkyTalk* is part of an ongoing series. These are presented by the UK Department of Physics and Astronomy, and the MacAdam Student Observatory. Held every 2nd Thursday of the month, they are always free and open to the public.

Monthly Meetings

The MSO hosts monthly public-observing sessions, each with a kick-off 40 minute presentation in the Chemistry-Physics Building. The presentations will take place even on cloudy nights. If the sky is clear, the observatory will open after the talk! Can't make the SkyTalk? Then come after!

Next month:

Clocks & Calendars: How & Why We Measure Time

January 11, 2018 - **7:00 PM** - Chem-Phys Room 155
Tim Knauer—University of Kentucky