

# astronomical calendar

BUHL PLANETARIUM & OBSERVATORY

winter  
2017–18

December 14  
6:00 am



## DECEMBER 2017

3	Su	○	Full “Cold Moon” and Supermoon – 10:46 am
6	We		Mercury 1 degree below Saturn (Look southwest just after sunset)
10	Su	☾	Last Quarter Moon – 2:51 am
13	We		Mars 4 degrees below Moon (Look southeast in the am) Geminid Meteor shower maximum (Mid-evening until dawn Dec 14)
14	Th		Jupiter 3 degrees below the Moon (Look southeast in the am)
18	Mo	●	New Moon – 1:30 am
21	Th		Winter Solstice – 11:27 am
26	Tu	☾	First Quarter Moon – 4:20 am

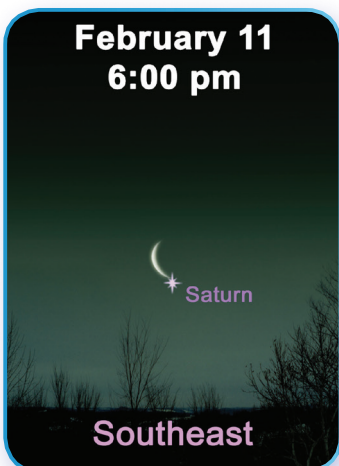
January 11  
6:30 am



## JANUARY 2018

1	Mo	○	Full “Wolf Moon” – 9:24 pm Mercury at greatest western elongation (Look southeast at dawn)
3	We		Quadrantid Meteor Shower (Overnight until dawn on Jan. 4)
4	Th		Earth reaches perihelion (closest) 91,401,983 miles from the Sun
7	Su		Jupiter less than 1 degree above Mars (Look southeast in the am)
8	Mo	☾	Last Quarter Moon – 5:15 pm
11	Th		Jupiter and Mars 3 degrees to right of Crescent (Look southeast in am)
13	Sa		Saturn 1/2 degree above Mercury (Look southeast at dawn)
14	Su		Saturn and Mercury 5 degrees below Crescent (Look southeast in am)
16	Tu	●	New Moon – 9:17 pm
24	We	☾	First Quarter Moon – 5:20 pm
31	We	○	Full “Blue Moon” – 8:26 am
31	We		Partial Lunar Eclipse starts 6:48 am above western horizon

February 11  
6:00 pm



## FEBRUARY 2018

1	Th		Regulus 4 degrees to right of the Moon (Look west in the am)
5	Mo		Spica 5 degrees below Moon (Look southwest in the am)
7	We	☾	Last Quarter Moon – 10:53 am Jupiter 5 degrees below Moon (Look south in the am)
9	Fr		Mars 4 degrees to right of Crescent (Look southeast in am)
10	Sa		Mars 5 degrees above Antares
11	Su		Saturn 1 degree below Crescent Moon (Look southeast in the am)
15	Th	●	New Moon – 4:05 pm
23	Fr		Aldebaran 2 degrees to right of the Moon (Look south in the pm)
23	Fr	☾	First Quarter Moon – 3:09 am

## Winter Planet Visibilities

<b>December</b>	<b>Morning:</b>	Mars and Jupiter (SE) Mercury (SE) late month
	<b>Evening:</b>	<i>No Planets Visible</i>
<b>January</b>	<b>Morning:</b>	Mercury and Saturn (SE), Mars and Jupiter (S)
	<b>Evening:</b>	<i>No Planets Visible</i>
<b>February</b>	<b>Morning:</b>	Saturn (SE), Mars and Jupiter (S)
	<b>Evening:</b>	Venus (Low in the west mid month)

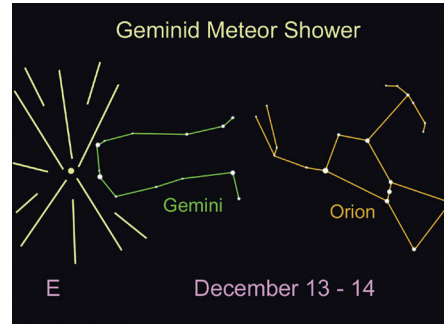
## Preview of 2018 Celestial Events

This will be a great year for viewing Mars. The Red Planet will make its biggest and brightest appearance since 2003. Mars starts off the year as a “morning star” in Libra, where it will join-up for a stunning conjunction with Jupiter on January 7. When Mars goes into opposition at the end of July in Capricorn, it will only be about 35.7 million miles from the Earth. This will cause the -2.77 magnitude planet to appear about 2 times brighter and its apparent disk diameter about one-third larger than it did during its last close encounter with the Earth in 2016. At opposition, a planet rises around sunset, is visible all night long and sets around sunset.

Saturn will also put on a stunning display for stargazers and backyard telescopes in 2018. Because its magnificent rings are angled wide open and fully displayed again this year, pale-yellow Saturn will shine at its brightest during the early summer. Saturn starts the year in Sagittarius, low in the southeastern sky at dawn and has an eye-catching conjunction with Mars on April 2. The ring world will be at its brightest in the evening sky when it goes into opposition and reaches its closest point to the Earth on June 27. Jupiter will begin the year in the morning sky in Libra very close to Mars and can be seen shortly after 10 pm by mid-April. The Jovian giant will go into opposition on May 9 and shine at a stunning -2.5 magnitude.

Venus will start the year in the glare of the Sun and becomes visible again low in the western evening sky in mid-February. Our “evening star” will climb to its highest position in May and reach its greatest brilliancy in September. Venus will sink below the horizon in October, and then rapidly return as a “morning star” in mid-November. Venus will continue to brighten and reach its greatest brilliancy in December. Mercury will make its best evening sky appearances in March and early July. The diminutive world will make its best morning sky appearances from late August to early September and once again in December.

This should also be a good year for viewing meteor showers, especially the Perseids in August and Geminids in December. Unfortunately, moonlight will interfere somewhat with the Quadrantids in January and Orionids in October.



## Geminid Meteor Shower

The Geminid meteor shower, one of the year’s best displays of “shooting stars,” will peak during the entire night of December 13 and the morning of December 14. The Geminids and the Perseids in August are the most prolific meteor

showers of the year. Under good skies, the shower could produce nearly 120 meteors per hour at its peak. However, the shower appears to have been intensifying in recent years and it’s possible for observers to see 160 meteors per hour.

Best viewing will be from 10 pm through 6 am. Observing can take place earlier in the night because Gemini will be well above the horizon by 8:30 pm. But, as with all meteor showers, peak viewing will occur after midnight. Since the waning crescent moon rises around 4 am, it will not interfere with this year’s display during the shower’s peak viewing hours.

To enjoy the Geminid meteor shower, observe from a location that is as dark as possible and allows you to see a large portion of the sky. Don’t use your telescope or binoculars. The meteors will appear to radiate from the stars near Gemini and Orion, but they can spread out over most of the sky.

## January’s Partial Lunar Eclipse

On January 31, a Total Lunar Eclipse will be visible over Asia, Australia, the Pacific and north-western North America. Because the eclipse occurs before dawn, viewers in most of the U.S and our area will only see a partial eclipse.

The Full Moon will be very low in the west-northwestern sky when it enters the Earth’s outer penumbral shadow at 5:51 am. The first hint that something is happening to the moon won’t occur until about 6:48 am when the moon enters the Earth’s dark inner shadow called the umbra. At that time, the moon will only be about 5 degrees above the horizon. Maximum eclipse will occur when the moon is setting at 7:29 am, so your best view will be around 7:10 am when the moon is just above the horizon. To get your greatest view of the partial eclipse, observe from a high location or find an unobstructed area with a clear sightline of the west-northwestern horizon. The next total lunar eclipse that can be viewed in its entirety from North America and our area will be in January 2019.

### science fact:

January is one of those rare months where there are two full moons. The first one will occur on January 1, and the second full moon is on January 31. According to a modern misunderstanding of an older definition, the second full moon in a calendar month is now known as a Blue Moon. Typically, there is only one full moon each month. Because it takes the moon about 29 ½ days to circle the Earth once in its orbit, it is possible to fit two full moons in a single month.