



The Observer

April 2015 (#37)

Schedule of public programs on last page!

THE CALENDAR, THE MOON, PASSOVER, AND EASTER

In 2015 Passover begins on April 3, which is also Good Friday. Easter falls on April 5. These holidays do not occur on fixed dates like Christmas or the Fourth of July, nor even on a specified day like Derby (first Saturday in May) or Thanksgiving (fourth Thursday in November). So what determines when they occur?



The short answer is that Passover, at least, *does* occur on a fixed date — on the Jewish calendar. Passover is celebrated from the 15th through the 22nd of the Jewish month of *Nisan*, as specified in the book of Exodus (Exodus 12:1-11; 34:14-16). But the Jewish calendar is a lunar calendar — each month begins on a New Moon. Since the length of the lunar cycle is about 30 days, the 15th of Nisan is always on a Full Moon, and therefore



www.jefferson.kctcs.edu/observatory

Passover always begins on a Full Moon. By contrast, the Gregorian calendar used in the United States, and in much of the rest of the world, is a solar calendar. The Gregorian calendar is fixed to the stars and Sun, and therefore to the seasons, not to the Moon. Thus what is a set date on the Jewish calendar is not a set date on the Gregorian calendar, although the months of the Jewish calendar do correspond to seasons (Nisan always occurs in the Spring) thanks to a “leap month” added periodically to keep the months in line with the seasons. So while Passover may always begin on the 15th of Nisan, and always in the Spring, in the year 2015 the 15th of Nisan is April 4 (a day on the Jewish calendar begins at sunset, and so the 15th of Nisan starts at sunset on April 3rd), whereas in 2014 the 15th of Nisan was April 15, and in 2016 it will be April 23. Furthermore, on the Jewish calendar, the year is 5775, not 2015. The Gregorian year 2015 is measured from the birth of Jesus of Nazareth, as calculated by Dionysius Exiguus (Dennis the Short) in the sixth century. The Jewish calendar’s 5775 is measured from the birth of the universe itself — from the year it was created by God — as determined by the Rabbi Hillel II in the fourth century. So Passover this year begins on Nisan 15, 5775, which is sunset on April 3, 2015.

The date of Easter is linked to that of Passover, but not precisely. The earliest Christians were Jews. The celebration of Easter was connected to the celebration of Passover, but Easter was celebrated on Sunday. Early Christians followed the Jews in determining the date of Passover. Over time Christianity drew people from non-Jewish cultures, and by the Council of Nicea in 325, a system was constructed for determining the date of Easter on the calendar of the Roman Empire (the Gregorian calendar is itself a slightly modified version of the Roman calendar). The Roman calendar began with March and ran through February, as seen in the table at right. This is why we have *September*, *October*, *November*, and *December* — they are just months seven (*sept*), eight (*oct*), nine (*non*), and ten (*dec*) — and months five and six were renamed *July* and *August* for Julius and Augustus Caesar. This is also why February has only 28 days — it is the month the Romans stuck in at the end of their year. The bishops at the Council decided that to be consistent with Hebrew scripture, Easter would be

Month number	Name
1	<i>March</i>
2	<i>April</i>
3	<i>May</i>
4	<i>June</i>
5	<i>Quintilis</i>
6	<i>Sextilis</i>
7	<i>September</i>
8	<i>October</i>
9	<i>November</i>
10	<i>December</i>
11	<i>January</i>
12	<i>February</i>

celebrated on the first Sunday following the first Full Moon following the Spring equinox (when the Sun is above the equator as seen from Earth, and spends twelve hours above the horizon and twelve hours below the horizon). The equinox is always around March 20. Thus Easter is always in the Spring, and always under a waning gibbous Moon. It can fall as early as March 22 and as late as April 25. In 2014 Easter fell on April 20; in 2016 it will be on March 27. Thus while Easter and Passover often coincide (April 20 and 15 in 2014; April 5 and 3 in 2015), they do not always (March 27 and April 23 in 2016).

However, not all Christians celebrate Easter on April 5 this year. There are various technical differences in the calculations of Easter used by Eastern Orthodox Christians. They celebrate Easter this year on April 12.

Lastly, the calendar used in Islam is a lunar calendar, but does not include “leap months” so its months do not correspond to certain seasons. Thus major religious holidays — such as Eid al-Adha (عيد الأضحى), which celebrates Abraham’s submission to God’s command in Genesis 22, or Eid al-Fitr (عيد الفطر), which marks the end of Ramadan, the Islamic holy month of fasting — rotate through the seasons. The start of Ramadan, for example, changes by about ten days each year. In 2015, Ramadan begins in June, whereas in 2000 it began in November, and in 2030 it will begin in January.

It is all connected to the calendars different cultures developed using the Sun, Moon, and stars.



Jefferson



Community & Technical College
HIGHER EDUCATION BEGINS HERE



2015 Schedule

South Harrison Park Observatory Programs

	Jan 24	6:30pm to 8:30pm	
	Feb 14	7:00pm to 9:00pm	
	Feb 28	7:30pm to 9:30pm	
March 14	8:30pm to 10:30pm	NASA Program – DAWN visiting Ceres Asteroid	
	March 28	8:30pm to 10:30pm	
	April 11	9:00pm to 11:00pm	
	April 25	9:00pm to 11:00 pm	
	May 16	9:30pm to 11:30pm	
	May 23	11:00am to 1:00pm	Daytime
	June 6	9:30pm to 11:30pm	
	June 20	11:00am to 1:00pm	Daytime
	July 11	9:30pm to 10:00pm	
	July 18	11:00am to 1:00pm	Daytime
Aug 8	9:00pm to 11:00pm	NASA Program – New Horizons visiting Pluto	
	Aug 22	11:00am to 1:00pm	Daytime
Sept 19	8:00pm to 10:00pm	NASA Program – International Observe the Moon Night	
	Oct 17	7:30pm to 9:30pm	
	Oct 24	7:30pm to 9:30pm	
	Nov 7	6:30pm to 8:30pm	
	Nov 21	6:30pm to 8:30pm	

All programs at South Harrison Park are open rain or shine.

Daytime programs allow you to safely view the Sun using solar filters.

Nighttime programs allow you to view the Moon, Stars, Planets, and more.

The facility is handicapped accessible and we feature a video display system for cloudy days and/or nights.

Contacts: Park Astronomer – Henry Sipes Cell 270-668-2103
Harrison County Park Office – 812-738-8236

Websites: <http://www.harrisoncoparks.com/Observatory.html>
<http://www.jefferson.kctcs.edu/observatory/>

