

Have you ever wished you knew more about the sky? Your children may ask questions such as “Why does the Moon always have the same side facing the Earth?” “What’s that bright star?” “Why are some stars red and others blue or yellow or orange?” “How did the Solar System come to be the way it is?” What do you tell them?

Now you can find out the answers to these and many other questions – all at no cost to you – and have fun doing it. The Memphis Astronomical Society will offer its Short Course in Astronomy, beginning at its meeting on September 4, 2009. This course, which is taught by experienced amateur astronomers, is designed to bring our newer members and visitors up to date on the fundamentals of amateur astronomy, as well as to provide a “refresher” for our veteran members.

Although the Short Course does not exhaustively cover all aspects of astronomy, it should provide a good preparation for further study, allowing those who complete the course to understand more advanced textbooks and astronomy magazines. At the conclusion of the course, all participants who wish to have their knowledge assessed and who perform at an acceptable level on a written test will be awarded a Certificate of Achievement, attesting that they are “Knowledgeable Amateur Astronomers.” You do not have to be a member of the MAS to attend the course or receive the certificate. There is no charge for the course, and all attending are welcome to come to other events hosted by the Society, including observing sessions at which telescopes will be available for viewing celestial objects.

The Short Course is presented as a series of twelve lectures over a one-year period.

The topics are arranged in a logical sequence; however, it is possible for you to begin at any time or to continue the course even if you have missed one or more meetings. We will be glad to fill you in on the content of any segments you may have missed. During each lecture, very little background is assumed, either from prior knowledge or from earlier in the series.

Although the Short Course does not require any background in mathematics, you might want to bring a simple calculator capable of logarithmic and trigonometric functions. You might also find it advantageous to bring a pencil and notebook. We strongly encourage you to obtain the Short Course Manual, available from the MAS for \$5.

The twelve segments of the course are:

Sept. 4, 2009: *Our Place in the Universe.*

An overview of the Universe providing a framework for the following lectures. Topics include astronomical distance scales; the Milky Way and its contents, including stars, clusters, and nebulae; the range of the human eye; the changing appearance of the Milky Way with the seasons; and other galaxies and their enormous distances from us. Many pictures will be shown of the various objects being discussed.

Oct. 2, 2009: *The Sky and the Earth.*

Star maps, constellations, effects of the Earth’s rotation and revolution and the observer’s latitude, circumpolarity, the celestial coordinate system, sidereal and solar time, the seasons, and precession.

Nov. 6, 2009: *Sun-Earth-Moon Relationships.*

Phases of the Moon, including the Moon’s shape, the names of the phases, their times of rise, transit, and set; Earthshine, rotation and libration; solar eclipses (total, partial, and annular); lunar eclipses; tides.

Dec. 4, 2009: *The Solar System.*

Review of basic facts about our Solar System, especially its overall shape and the orbital motions of the planets, their satellites, and comets; old and new theories of the origin of the Solar System.

Jan. 8, 2010: *Optics and Telescopes.*

Principles of operation of the basic types of telescopes (refractors, reflectors, and catadioptrics), and the relative merits of each; suitable eyepieces and magnifications for observing different types of objects; how to select a telescope.

Techniques for Locating Celestial Objects.

Tried-and-true methods for locating and observing every type of celestial object with your telescope, from the obvious to the challenging.

Feb. 5, 2010: *Early History of Astronomy.*

A brief review of the early astronomers, from the Babylonians, Egyptians, and Greeks to the great discoveries and insights of Copernicus, Tycho, Kepler, Galileo, and Newton.

Mar. 5, 2010: *Distances in the Milky Way.*

Some early attempts to determine the diameter of the Earth, the distance to the Moon, and the scale of the Solar System; measuring distances to the planets; using parallax to obtain the distances to the stars.

Apr. 9, 2010: *Classification and Measurement of Stars.*

The magnitude scale of Hipparchus, nomenclature of stars, spectral classification, distance determination, absolute magnitude and luminosity, size and density of stars, and the Hertzsprung-Russell diagram.

May 7, 2010: *Stellar Evolution.*

One of the cornerstones of modern astronomy: the formation of stars from nebulae, their life on the main sequence, supergiants, variables, planetary nebulae, supernovae, dwarfs, pulsars, neutron stars, and black holes.

June, 2010: *MAS Picnic and Observing.*

July 9, 2010: *Galaxies.*

The origin of the Universe; types of galaxies and their evolution; stellar populations within galaxies; Seyfert galaxies and quasars.

Aug. 6, 2010: *Cosmology.*

The use of Cepheid variables as “yardsticks” to nearby galaxies; distance determinations to more remote galaxies; the red shift and Hubble’s constant; the “Big Bang” and the expanding Universe; the age of the Universe.

If a meeting is canceled because of inclement winter weather, that meeting's lecture will be given at the next meeting, along with the scheduled lecture.

There will be a review of the Short Course at 7:00 p.m. on September 3, 2010, before the regular meeting. Questions may be asked about any of the previous lectures.

The test will be offered to those who wish to take it at 7:00 p.m. on October 1, 2010, before the regular meeting.

We look forward to seeing you and to participating with you in learning more about the wonders of the Universe. Those who are interested and willing to learn will discover that they are entirely capable of grasping much of what constitutes modern astronomy.

If you have questions, you may call

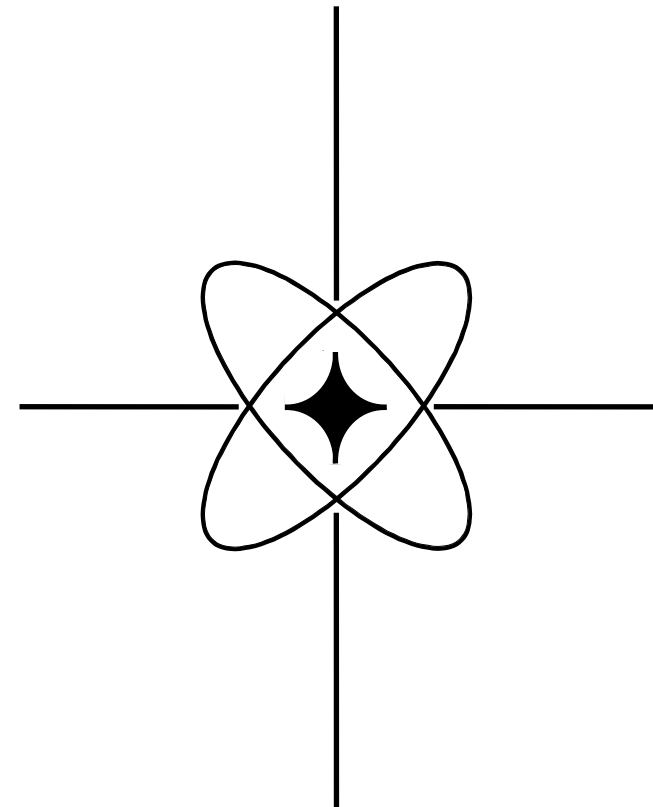
Richard Moore: 737-3278

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The Memphis Astronomical Society was founded in 1953. It is a public service organization dedicated to spreading knowledge of the Universe in which we live. Members come from many occupations, not just the sciences, to increase their knowledge of the sky and their pleasure at viewing it with a congenial group. Visitors are always welcome at the monthly meetings, held in the Science Auditorium of Assisi Hall at Christian Brothers University, at 8:00 p.m. on the first Friday of the month.

Memphis Astronomical Society



Short Course in Astronomy

September 2009 through August 2010