1971

UA66/12 Hardin Planetarium General Program Schedule

WKU Hardin Planetarium

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I. Introduction

The Hardin Planetarium of Western Kentucky University is an institution devoted to the astronomical and space age educational needs of the students, faculty, and staff of the University and the citizens of western Kentucky.

Although the main objective is educational in nature, the planetarium can also be entertaining. The keynote of the planetarium is the fascinating realism with which one can successfully reproduce the heavens. The presentations are spectacular, and the audience is not consciously aware of being taught. One learns by seeing and by individual participation.

Educationally, it is the most sophisticated visual teaching aid ever invented. The ability to condense time by stopping and restarting the instrument provides an excellent opportunity to demonstrate over and over again difficult passages in astronomical concepts without fear that the lessons may become repetitive or boring.

The Hardin Planetarium easily shows the diurnal movement of the heavens from east to west as a reflection of the earth's rotation from west to east. Superimposed on this daily motion are the effects of the annual motion of the sun, moon, and planets as a reflection of the earth's revolution around the sun.

By an ingenious combination of diurnal and annual motion, perpetual noonday, midnight, spring, or autumn can be shown revealing such concepts as the rise and fall of the sun's meridian-crossing at noon during the year, the continuously changing sky as a result of the sun's passage through the Zodiac, and the intricate direct and retrograde motions of the planets while the moon roams the sky in quick monthly successions, showing its waxing and waning phases. Latitude changes can be effected in a few seconds, enabling a demonstration of the mysteries of the midnight sun and aurora within the arctic and antarctic circles.
A projected luminescent grid system superimposed on the star sphere changes the sky into a three-dimensional blackboard on which such concepts as altitude, azimuth, time, celestial equator, ecliptic, parallels of latitude, meridian, equinoxes, solstices, and the nautical triangle can be demonstrated with the greatest ease for comprehension and retention.

Additional special effects demonstrate such things as meteor showers, constellation figures, setting sun, aurora, spacecraft as they pass overhead, solar system view from far in space, and views of planets and moon through powerful telescopes superimposed over the planetarium sky giving the illusion of an imaginary space traveler approaching the object.

Various programs have been designed to meet the needs of different groups within our community. A series of planetarium demonstrations for the teaching of basic astronomical concepts is available to school children of all levels from K to grade 12 in public and private schools. In addition, there are programs available for interested groups, such as clubs and civic organizations, other colleges, and the general public.

II. Program Schedule

1 School Programs


   Thursday, 7:30 p.m.
   Saturday, 10:30 a.m.
   Sunday, 2:30 p.m.

2 Public Programs

   Thursday, 7:30 p.m.
   Saturday, 10:30 a.m.
   Sunday, 2:30 p.m.

III. School Programs

School presentations constitute one of the planetarium's most vital services to the educational community. These presentations are divided by grades and are arranged by appointment only.

The programs described on the following pages are adapted, both in content and level of presentation, to a wide variety of student backgrounds and abilities. Please select the program or sequence of programs that best suits your educational needs. The sequence was designed to enable teachers to bring their groups more than once a year. Guidelines are presented below, and further assistance may be obtained by calling 502-745-4044.

In this picture you see a school group visiting the observatory located on the roof of the Kelly Thompson Complex for Science, Central Wing. This observatory houses several 4 1/4 inch reflecting telescopes, as well as a 12 1/2 inch Cassegrain type reflection telescope.
The program series is divided into four levels of complexity. Each level provides a sequence of programs designed to carry the student from earth, through the solar system, and on to the depths of outer space. Using the series, more than one trip to the planetarium can be planned, if desired and practical, with each visit fitting smoothly with the previous one both in content and level of presentation.

If you choose the first program of each level, you have a progression which will carry your group further into a particular subject area, each succeeding level dealing with more difficult concepts. The first program of each level is earth centered, the second program takes you through the solar system, and the third at levels "B" through "D" carries you beyond the solar system to the depths of space.

To select an appropriate program for an upcoming visit, first look over the brief summaries. Then select one from the level you feel is appropriate for your individual class. Almost all of the programs include some introduction to current constellations, evening stars, and the apparent rising and setting of celestial bodies. Each program is a self-contained unit and does not rely heavily on other programs from any level for background material.

After making your selection, please call or write the planetarium as far in advance of your planned visit as possible. This is a very important step! Remember, someone else may have already chosen your date and time, and the planetarium will take appointments on a first-come-first-served basis. After your appointment and program selection are confirmed by the secretary, she will mail to you the planetarium guide booklet pertaining to the show you have chosen. It will contain more information concerning the program itself, the outline of the actual show, previsit and post-visit information, and a comprehensive bibliography. We strongly encourage you to use these materials in order to obtain as much benefit as possible from a planetarium visit.

After your visit, you will receive by mail an evaluation sheet concerning your views and those of your students. Any comments, suggestions, or questions pertaining to the planetarium or its services are always welcome.

We hope to hear from you soon.

Please Note!

Program length varies with age, ability, and level. None will be shorter than 1/2 hour or longer than 1 hour. A visit to the observatory will add approximately 15 minutes to your visit time.

The planetarium program will start promptly at the announced time. Late arrivals will be admitted to the projection chamber only during the first five minutes of a program.
Philosophy: The "A" level planetarium programs are designed to introduce the very young student or the slow learner to the planetarium and what it can do. Basic astronomical concepts that he can see with the naked eye are stressed to make him aware of the regular changes occurring in the current sky above. The two programs of this level are best suited for kindergarten, first and second grades. Third grade students who have never been to a planetarium before are encouraged to select the A2 program since this one is slightly more involved than A1.

A1 "The Sky Tonight"
This program is designed for the very young student who has never been to the planetarium. To him, this is an awesome experience which teaches him much about what the planetarium is and what it can do, in addition to astronomical facts. Day and night and what is visible in the current sky are the main astronomical concepts that are covered.

A2 "The Sun and Its Family"
This program is designed for the very young student who has never been to the planetarium. To him, this is an awesome experience which teaches him much about what the planetarium is and what it can do, in addition to astronomical facts. This program is similar to A1, but there is more emphasis on the moon and planets. Both programs are designed to acquaint the student with the current sky.

Philosophy: The programs at this level expand the scope of the observations made in the "A" presentations. They are particularly geared to the average fourth and fifth grade classes; however, they can be chosen by a third grade class that has been to the planetarium or by sixth grade classes that have never been to the planetarium. The "B" level is still geocentric in nature, and the material presented is based on observations that can be made from the earth. However, they are more extensive than the "A" level.

B1 "Touring the Earth and Sky"
This program stresses how astronomical observations can be used as a basis for time-keeping and navigation. It is kept at a basic level; however, concepts such as latitude, meridian, altitude, and time zones are introduced. The student will be able to view the skies from different latitudes on the earth, especially from the North and South Poles where the midnight sun and aurora are seen. In addition, the program will take the student to the center of the earth (assuming the earth
is transparent) to compare the surface features of the earth superimposed over the stars in the heavens. This is the basic problem of navigation - using the celestial bodies to find our position on earth.

B2 "The Moon"
This program is devoted to our nearest space neighbor - the moon. It will be divided into two parts: first, the earthbound knowledge - facts learned about the moon from our observations on earth, covering the topics of phases, motions, surface features, and origin; second, the knowledge gained during the space age from its birth in 1957 to the present Apollo series which landed man on the Moon.

B3 "Survey of the Heavens"
The main objective of this program is to stimulate children to look at the sky. It deals with many naked-eye phenomena that are easy to see under the right conditions: constellations, visible planets, meteors, the moon, comets, the Milky Way, evening and morning stars, and the aurora. The student observes the current sky from dusk to dawn, exploring many astronomical aspects of observational astronomy that he can observe in the real sky.

Philosophy: This level is best suited for grades six through eight or for below-average ninth grade students. The only exception is Cl, which can be covered by superior fifth grade classes. The C3 program is best suited for junior high classes. General curriculum students of higher grade levels should also choose a program in this series because "D" levels are designed primarily for mature science students. In conclusion, this series represents a transition from primarily observational astronomy to the discussion of conclusions that can be drawn from careful observation.

C1 "Reasons for the Seasons"
The main objective of this program is to acquaint the student with the four seasons and why they exist. The earth's rotation and revolution about the sun are discussed. The tilt of the earth's axis with respect to the orbital path, the main reason for the seasons, is also explained. The difference between the solar and sidereal day, which gives rise to the different constellations per season, is demonstrated. In addition, the ecliptical path of the sun is traced throughout a year to show the main reason for the different temperatures on the earth's surface - the changing altitude of the sun at noon.
C2 "Motions of the Planets"
The five naked-eye planets, sun, and moon comprise the seven heavenly bodies that move regularly among the stars. The movement of these bodies has fascinated men of all ages, and they searched eagerly for ways to explain these apparent motions in the sky with some actual motion. There arose two famous models: Ptolemy's geocentric system and Copernicus' heliocentric system. The student will observe the motions of the naked-eye planets over many months and compare them with both systems to see which is correct.

C3 "The Sun and Its Stellar Neighbors"
The main objective of this program is to impress the student with the important concepts about the stars and the vastness of the universe in which they appear. The sun, the nearest and most important star to us, will be discussed first. Then much of the information obtained about our nearest star will enable us to deduce important physical properties about other stars which are very remote from us. With this information we can determine how a star is born and how it dies. In addition, the program will cover the huge city of stars in which the sun is embedded - the Milky Way Galaxy.

Philosophy: This series of planetarium programs is designed to supplement courses in earth and physical science for high school and college students. These are the most involved shows in the planetarium, as "all stops have been pulled." They are more theoretical in nature than the previous level, but not so sophisticated as to be beyond the grasp of the ninth grade science student.

D1 "It's About Time"
This program deals with time and navigation on a more advanced level than the Bl program. The objective of this program is to discuss the concepts of the celestial sphere and the spherical earth. The observer's position on earth(latitude and longitude) is determined from the known accurate positions of celestial objects in the sky. Topics covered will be latitude, longitude, and time zones on earth and right ascension, declination, and sidereal time, altitude, and azimuth on the celestial sphere. It is shown how the positions of celestial objects can be used as a base for timekeeping and navigation. The student will observe the celestial sphere and its fundamental coordinates from several different positions on the earth's surface.
D2 "Eight Men Who Changed the Universe"
This program is historical in nature and deals with eight giants who altered our outlook on the Universe - Ptolemy, Copernicus, Brahe, Kepler, Galileo, Newton, Hubble, and Von Braun. Each man and his major contribution to science will be discussed, starting with Ptolemy (Ca 100 AD) and his geocentric model of the Universe to Von Braun, who successfully built the huge Saturn V rocket which carried astronauts to the moon. Whenever possible, the scientific method of investigation will be used. This program is particularly suited for mature, intelligent liberal arts students.

D3 "The Dynamic Universe"
This program is an extension of the C3 program in which stars, clusters, nebulae, and galaxies and some aspect of cosmology are discussed. The program begins with a brief survey of the sun - the nearest star - and what basic properties we can easily determine about it. Using this information, we will be able to deduce some basic physical properties of other more remote stars. Distances, temperatures, and colors will be discussed along with the life cycle of a star from birth to death. In addition, the program will cover our home galaxy, the Milky Way. Next, other galaxies are introduced, and the program will conclude with some brief aspect of cosmology.

IV. Public Programs

Schedule 1971-1972

THE SKY TONIGHT August 26 - September 31
THE CASE OF THE UFO October 2 - November 21
STAR OF BETHLEHEM November 29 - December 19
STAR LORE January 20 - March 9
ACTION AT TAURUS March 23 - May 11

Programs will be presented to the general public on Thursdays at 7:30 p.m., Saturdays at 10:30 a.m., and Sundays at 2:30 p.m., from August through May. The only exception to this schedule will be the Christmas show.* These programs are geared toward the layman and are found to be interesting and informative to all age levels, both children and adults alike.

*STAR OF BETHLEHEM will be presented Mondays through Fridays at 7:30 p.m., Saturdays at 10:30 a.m., and Sundays at 2:30 p.m. and 4:40 p.m.

Please Note!

The planetarium will be closed during most University holidays. For further information call or write:
Hardin Planetarium
Western Kentucky University
Bowling Green, Kentucky 42101
(502) 745-4044

Astronomy Club

The Jaggers Astronomical Society is an organization devoted to amateur astronomy and has been in existence for over seven years. The society meets monthly at the planetarium for lectures, movies, planetarium shows, and observation sessions. Membership is currently open, and interested persons may call Mrs. T. C. Cottrell at 843-8164 for more information.

Acknowledgement

The Hardin Planetarium wishes to express its gratitude and thanks to the Astronomy for Teachers class (405) of the summer, 1969, for their help and suggestions in the production of the school programs. Listed are the names and addresses of the teachers in the class should you wish to contact them concerning the program.
Mr. Paul B. Campbell  
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Western Kentucky University  
Bowling Green, Kentucky 42101

Mr. Donald E. Demaree  
1150 Berkeley Square  
Louisville, Kentucky 40213

Mr. Ronny C. Hendricks  
Franklin-Simpson High School  
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Mrs. Shirley Holland  
Dishman-McGinnis School  
Bowling Green, Kentucky 42101

Mrs. Vandalyn Hooks  
Mary Mitchell School  
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Mr. James M. McClain  
Mt. Sterling High School  
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Mr. William F. Peabody

Mrs. Sally Rogers  
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