

SCHOOL	CLASS	CH	TITLE	SYNOPSIS	TEXTBOOK(S)	NOTES
PHYS	1173	3	Intro to Astronomy 1	Overview of physics and cosmology in modern astronomy, intro to application of physical law	<u>Astronomy for Everybody</u> , S. Newcomb; <u>The Stars in Their Courses</u> , J. Jeans; [Optional] <u>Astronomy and Cosmology</u> , J. North	Pre-requisites include pre-Calculus level math.
PHYS	1203	3	Intro to Astronomy 2	Overview of physics and cosmology in modern astronomy, intro to application of physical law	<u>Astronomy of the 20th Century</u> , O. Struve; <u>Astronomy</u> , F. Hoyle; [Optional] <u>Matter, Earth and Sky</u> , G. Gamov	PHYS 1173
PHYS	2033	3	General Astronomy 1	Specific topics in astronomy such as celestial dynamics, coordinate systems, EM spectrum	<u>Exploration of the Universe</u> , G. Abell; <u>Astronomy</u> , F. Hoyle; [Optional] <u>Matter, Earth and Sky</u> , G. Gamov	PHYS 1203
PHYS	2073	3	General Astronomy 2	Specific topics in astronomy such as celestial dynamics, coordinate systems, EM spectrum	<u>Astronomy of the 20th Century</u> , O. Struve; <u>Astronomy</u> , F. Hoyle	PHYS 2033
ASTR	1003	3	Constellations and the Night Sky	Understanding the nightly and seasonal motion of the sky, and the modern constellations	<u>Viewing the Constellations with Binoculars</u> , B. Kambic; <u>All of Astronomy</u> , F. Watson	ASTR 1001 co-requisite
ASTR	1001	1	Constellations Lab		Constellation Hunter OP - AL	
ASTR	1053	3	Amateur Astronomy	Core course on the purpose and need in society of amateur astronomers	<u>Astronomy for Amateurs</u> , Popular Mechanics; [Optional] <u>Beyond the Observatory</u> , H. Shapley	
ASTR	1061	1	Pre-Telescopic Lab		Astronomy Before the Telescope OP-AL	ASTR 1053 co-requisite
ASTR	1013	3	Atmospheric Phenomena	Skywatching for non-astronomical effects and events	<u>Out of the Blue</u> , J. Naylor; <u>Field Guide to Natural Phenomena</u> , K. Heidorn and I. Whitelaw; [Optional] <u>Rainbows, Mirages and Sundogs</u> , R. Gallant	
ASTR	1083	3	Binocular Observing	Use of binoculars to observe celestial objects		
ASTR	1081	1	Binocular Observing Lab		Binocular Double Star OP Binocular Messier OP Binocular Multiple Star OP - AL	Co-requisite ASTR- 1083
ASTR	2003	3	Intro to Telescopes 1	Development, types, and uses of optical telescopes	<u>Astronomy and the Telescope</u> , M. Reimer; <u>Celestial Objects for Common Telescopes Vol 1 and 2</u> , T.W. Webb	Small telescope required
ASTR	2001	1	Intro to Telescopes 1 Lab		Galileo OP - AL	Co-requisite ASTR-2003
ASTR	2013	3	Intro to Telescopes 2	Use of telescopes by amateurs, automation, filters, magnification selection	<u>Deep Sky Observing with Small Telescopes</u> , D. Eicher; <u>Burnham's Celestial Handbook Vol 1-3</u> , R. Burnham	Small telescope required
ASTR	2011	1	Intro to Telescopes 2 Lab		Urban OP - AL	Co-requisite ASTR-2013
ASTR	2043	3	Planetary Observing	Observing other planets and their satellites within solar system	<u>Seeing the Solar System</u> , F. Schaaf; <u>Pictorial Guide to the Planets</u> , J. Jackson	

ASTR	2041	1	Planetary Observing Lab		Solar System OP- AL	Co-requisite ASTR-2013
ASTR	2023	3	Lunar Observing	Observing our natural satellite	<u>Exploring the Moon Through Binoculars</u> , E. Cherrington, Jr.; <u>Pictorial Guide to the Moon</u> , J. Jackson	
ASTR	2021	1	Lunar Observing Lab		Lunar 1 and 2 OP's - AL	Co-requisite ASTR-2023
ASTR	2053	3	Transient Phenomena	Observing comets, meteors, occultations, etc. that change in real time	<u>Observing Meteors, Comets, Supernovae and Other Transient Phenomena</u> , N. Bone; <u>Rendezvous in Space - the Science of Comets</u> , J. Brandt, R. Chapman	
ASTR	2113	2	Artificial Satellites	Observing artificial satellites and impact on astronomy	<u>Observing Earth Satellites</u> , D. King-Hele	
ASTR	2063	3	Solar Observing	Observing the nearest star	<u>Observing the Sun with Coronado Telescopes</u> , P. Pugh	
ASTR	3003	3	Telescope Operation 1	Hands on and remote operation of telescopes, choice of targets, observational planning	<u>Observational Astronomy for Amateurs</u> , J. Sidgwick; <u>Double and Multiple Stars</u> , J. Mullaney	
ASTR	3001	1	Telescope Operation Lab 1		Binocular DSOP Multiple Star OP - AL	Co-requisite ASTR-3003
ASTR	3013	3	Telescope Operation 2	Hands on and remote operation of telescopes, choice of targets, observational planning	<u>The Observational Amateur Astronomer</u> , P. Moore ed.; <u>The Study of Variable Stars Using Small Telescopes</u> , J. Percy	
ASTR	3011	1	Telescope Operation Lab 2		Variable Star OP, Carbon Star OP - AL	Co-requisite ASTR-3103
ASTR	3023	3	Deep Sky Observing 1	Observing objects beyond our solar system	<u>Deep Sky Observing - the Astronomical Tourist</u> , S. Coe; <u>Visual Astronomy Under Dark Skies</u> , A. Cooke	
ASTR	3021	1	Deep Sky Lab 1		Messier OP, Caldwell OP	Co-requisite ASTR-3103
ASTR	3033	3	Deep Sky Observing 2	Observing select objects beyond our solar system	<u>Nebula and How to Observe Them</u> , S. Coe; <u>The Milky Way</u> , B. and P. Bok	
ASTR	3031	1	Deep Sky Lab 2		Bright and Dark Nebula OP, GC and OC OP-AL	Co-requisite ASTR-3103
ASTR	3043	3	Advanced Amateur Astronomy	Advanced topics in equipment and methods	<u>Advanced Amateur Astronomy</u> , G. North; <u>New Generation of Small Telescopes</u> , D. Hayes, D. and R. Genet, ed.	
ASTR	3063	3	Space Telescopes	General review of space based observatories	<u>The Promise of Space</u> , A. Clarke; <u>Science in Space</u> , L. Berkner, H. Odishaw	
ASTR	3073	3	Photometry	General review of photometry and its uses	<u>A Practical Guide to Lightcurve Photometry and Analysis</u> , B. Warner; <u>Exoplanet Observing for Amateurs</u> , B. Gary	
ASTR	4003	3	Telescope Operation 3	Hands on and remote operation of telescopes, choice of targets, observational planning	<u>The Herschel Objects and How to Observe Them</u> , J. Mullaney	

ASTR	4001	1	Telescope Operation Lab 3		Double Star OP, Hserchel 1, 2 and Society OP AL	Co-requisite ASTR-4003
ASTR	4013	3	Telescope Operation 4	Hands on and remote operation of telescopes, choice of targets, observational planning	<u>The Observational Amateur Astronomer</u> , P. Moore ed.; <u>The Study of Variable Stars Using Small Telescopes</u> , J. Percy	
ASTR	4011	1	Telescope Operation Lab 4		Variable Star OP, Carbon Star OP - AL	Co-requisite ASTR-4103
ASTR	4043	3	Astrophysical Concepts	General review of astrophysics	<u>Astrophysical Concepts</u> , M. Harwit; <u>Extragalactic Distance Scale</u> , S. van den Bergh, C. Pritchett, ed.	
ASTR	4063	3	Cosmology for Amateur Astronomer	General review of cosmology	<u>Mathematical Cosmology and Extragalactic Astronomy</u> , I. Segal; <u>The Search for Gravity Waves</u> , P. Davies	
ASTR	4093	3	Astrometry	General review of astrometry and its uses	<u>Complementary Approaches to Double and Multiple Star Research</u> , A. McAlister and W. Hartkopf, ed.	
ASTR	4133	3	Spectroscopy	General review of spectroscopy and its uses	<u>Complementary Approaches to Double and Multiple Star Research</u> , A. McAlister and W. Hartkopf, ed.	
ASTR	4113	3	Radio Astronomy	General review of radio astronomy and its uses	<u>The Radio Sky and How to Observe It</u> , J. Lashley	
ASTR	4131	1	Senior Lab	Select 2 subjects	Spectroscopy OP, Earth Satellite OP, Radio OP, Active Galactic Nuclei OP - AL	

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30 Electives

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