# Stargazing Targets, September, 2022
# Ashton Observatory

| Targets – west to east | Angular size | Distance | Dia (Sep) | Mag |
|---|---|---|---|---|
| M3 globular cluster | 18 min | 33 kly | 174 ly | 6.2 |
| Izar (Epsilon Bootis) double star | - | 203 ly | (180 AU) | 2.6 & 2.5 |
| M5 globular cluster | 23 min | 24 kly | 164 ly | 5.7 |
| Alcor & Mizar double stars | - | 86 ly | (30 AU) | 4.0 & 2.2/3.9 |
| M51 spiral galaxy (Whirlpool) | 14 min | 28 Mly | 112 kly | 7.9 |
| M101 spiral galaxy | 24 min | 23 Mly | 162 kly | 7.8 |
| M81 spiral galaxy (Bodes) | 22 min | 12 Mly | 74 kly | 6.8 |
| M82 spiral galaxy (Cigar) | 11 min | 12 Mly | 38 kly | 8.0 |
| M12 globular cluster | 16 min | 16 kly | 73 ly | 6.7 |
| M10 globular cluster | 20 min | 14 kly | 84 ly | 6.6 |
| M8 Lagoon Nebula | 90 min | 4.3 kly | 114 ly | 6.0 |
| M20 Trifid Nebula | 29 min | 5.2 kly | 44 ly | 6.3 |
| M22 globular cluster | 32 min | 10 kly | 97 ly | 5.1 |
| M17 Omega Nebula (Swan/Check) | 46 min | 4.2 kly | 57 ly | 6.0 |
| M16 Eagle Nebula | 35 min | 5.7 kly | 58 ly | 6.4 |
| M11 open cluster (Wild Duck) | 32 min | 6.1 kly | 57 ly | 5.8 |
| Epsilon Lyrae (Double Double stars) | - | 162 ly | (162/156 AU) | 5/6 & 5/5 |
| M57 planetary nebula (Ring) | 1.4 min | 1400 ly | 0.6 ly | 8.8 |
| Albireo double star | - | 430 ly | (4210 AU) | 3.1 & 5.1 |
| M27 planetary nebula (Dumbbell) | 8 min | 1400 ly | 3.2 ly | 7.1 |
| M13 globular cluster (Hercules) | 20 min | 23 kly | 135 ly | 5.8 |
| M92 globular cluster | 14 min | 27 kly | 110 ly | 6.4 |
| M15 globular cluster | 18 min | 34 kly | 178 ly | 6.2 |
| M2 globular cluster | 16 min | 38 kly | 175 ly | 6.5 |
| Saturn, planet 6 | 18.6 sec | 8.9 AU | 9.4xEarth | 0.4 |
| NGC 7293, planetary nebula (Helix) | 15 min | 790 ly | 3.4 ly | 7.6 |
| M30, globular cluster | 120min | 26 kly | 92 ly | 7.2 |
| Uranus, planet 7 | 3.7 sec | 19 AU | 4xEarth | 5.7 |
| Jupiter, planet 5 | 48.3 sec | 4.1 AU | 11.2xEarth | -2.8 |
| M31 spiral galaxy (Andromeda) | 178 min | 2.5 kly | 131 ly | 3.3 |
| NGC 7789, open cl (Caroline's Rose) | 25 min | 5.9 kly | 43 ly | 6.7 |
| NGC 457 open cl (Owl/Dragonfly) | 20 min | 7.9 kly | 46 ly | 6.4 |
| NGC 869/884 open cl (Double Cl) | 18/18 min | 6.8/9.6 kly | 36/50 ly | 5.3/6.1 |
| M81/82 spiral galaxies (Bode's/Cigar) | 22/11 min | 12 Mly | 74/38 kly | 6.8/8.0 |
| M33, spiral galaxy (Pinwheel) | 62 min | 2.8 kly | 51 ly | 5.8 |
| Moon: full = Sep 10; new = Sep 25 | 32.0 min | 240,000 mi | 2,160 mi | -12.4max |

Notes: Most data from SkySafari Pro7 smartphone application, 2022.

Angular size=as viewed from Earth; Distance=distance from Earth; Dia=overall true size; (Sep)=distance between double stars; Mag=apparent visual magnitude from Earth.

min=arcminute; sec=arcsecond; ly=light year (~5.9 trillion miles); kly=ly x1000; Mly=ly x1,000,000.

AU=astronomical unit, 1AU=the average distance from Earth to Sun (=93,000,000 mi). Oort Cloud ≈3.75 ly dia.

Constellations/stars rise approx. 4 minutes earlier/day. The planets move differently per orbit. Moon about 45 minutes later/night.

Milky Way =120x2 kly; total stars =100-400 billion. MW rotates Solar System =483,000 mph. The MW thru space =1,300,000 mph.