

Auriga

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Auriga

Auriga, the Charioteer, is marked by Capella, a brilliant yellow-white star that makes the whole pentagon-shaped figure easy to find even under moderate light pollution. From Central Ohio it rides high overhead on winter evenings and sits low toward the northern horizon the rest of the year — close enough to circumpolar that it is often described as never setting from mid-northern latitudes, though at Columbus's latitude of very nearly 40°N it does dip below the horizon for a few hours a night rather than staying up continuously; the strict cutoff for a star to stay up all night from 40°N is a declination above 50°, and Capella's declination is 46°.

Finding it

Capella anchors the figure: a single bright star roughly overhead on January evenings, easy to distinguish from anything nearby by brightness alone. From Capella the pentagon runs through Menkalinan, Theta Aurigae (Mahasim), down to Elnath — which belongs on paper to [Taurus](#), not Auriga, but closes the shape at its southern point regardless — and back up through Hassaleh. The whole figure is high and well placed on winter evenings, and low in the north through late spring and summer.

The stars

Star	R A (h)	De c (°)	Mag	Spectral type	Distan ce (ly)	Name meaning
Capella	5. 27 8	46 .0 0	0.08	G8 III + G0 III, plus two M dwarfs	42.9	Latin, "little she-goat"
Menkalinan	5. 99 2	44 .9 5	1.90	A1m IV + A1m IV, eclipsing binary	~79.3	Arabic, "shoulder of the rein-holder"
Theta Aurigae (Mahasim)	5. 99 5	37 .2 1	2.62	A0p Si	~166	Arabic, "the wrist" (of the charioteer)
Elnath	5. 43 8	28 .6 1	1.65	B7 III	134	Arabic, "the butting one" — shared with Taurus
Hassaleh	4. 95 0	33 .1 7	2.69	K3 II–III	~450	origin untraced; the older Arabic name, Al Kab, means "ankle of the rein-holder"
Epsilon Aurigae (Almaaz)	5. 03 3	43 .8 2	3.03 (out of eclipse)	F0 Iab, plus a dark disc companion	~3,460	Arabic <i>al-ma'az</i> , "the billy goat"

Capella, a four-star system

Capella looks like a single bright star — the sixth-brightest in the night sky — but it is four stars in two unrelated pairs. Capella Aa and Ab produce essentially all of the light: two yellow giants (G8 III and G0 III),

each around two and a half times the Sun's mass, orbiting each other every 104 days at a separation of about 0.74 AU, roughly the distance from the Sun to Venus — too close to resolve visually even with a large telescope, and known only through spectroscopy. Roughly 10,000 astronomical units from that inner pair orbits a second, much fainter pair, Capella H and Capella L, two small red dwarfs (M2.5 V and M4 V) bound to the brighter pair only loosely, by gravity and little else. The whole system sits 42.9 light-years away. The name is Latin, "little she-goat," for Amalthea, who nursed the infant Zeus in Greek myth.

Epsilon Aurigae's century-long mystery

Epsilon Aurigae, traditionally called Almaaz, is an eclipsing binary with an eclipse unlike any other well-known star: every 27 years its light dims for roughly two years at a stretch (640 to 730 days), far too long to be one ordinary star simply passing in front of another. Eclipses were first suspected in 1821 and studied seriously from 1904 onward, but what was actually doing the eclipsing remained genuinely unclear for most of the twentieth century — proposals ranged from a semi-transparent star in the 1930s, to a hot star wrapped in a shell of gas in 1961, to, from 1965 onward, a large disc of material seen edge-on. That disc model was not confirmed by direct observation until an interferometric imaging campaign during the 2009–2011 eclipse, very close to a century after the eclipses were first noticed. The system itself, at roughly 3,460 light-years, is far more distant than Capella: the visible primary star is an F-type yellow supergiant so large that, placed where the Sun is, its surface would extend roughly from Mercury's orbit to Mars's.

Myth and history

Auriga's own figure — a standing man holding the reins of a chariot, without the chariot itself usually drawn — is most often identified with Erichthonius of Athens, the mythical inventor of the four-horse chariot, said to have been placed in the sky by Zeus for the achievement. Alternative Greek identifications exist (Myrtilus, Hippolytus among them), with none clearly dominant over the others in the ancient sources. Capella and the "Kids" beside it (Zeta and Eta Aurigae, not part of the site's chart here) were sometimes treated as a constellation of their own, Capra or Hircus, layered onto the charioteer rather than original to him.

In Babylonian tradition the same stars were grouped as GAM, a crook or scimitar, associated with herding rather than driving — a different job for broadly the same idea of someone in charge of animals.

Deep sky

Auriga holds three open clusters bright enough for binoculars and, under a dark sky, borderline naked-eye: M36 (NGC 1960), M37 (NGC 2099), and M38 (NGC 1912), each around sixth magnitude and a few thousand light-years away. M37 is generally judged the richest and brightest of the three, with roughly 150 stars, against roughly 60 in M36 and 100 in M38. All three sit inside the pentagon of the main figure and are easy to sweep up with binoculars once Capella has been found.

Key dates

Date	Event
c. 1000 BCE (<i>approximate</i>)	Babylonian tradition groups these stars as GAM, a herder's crook.

c. 150 CE	Ptolemy catalogues Auriga in the <i>Almagest</i> .
1821	Johann Fritsch first records unusual dimming in Epsilon Aurigae.
1904	Hans Ludendorff publishes the first detailed study establishing Epsilon Aurigae's roughly 27-year eclipsing period.
1930	The IAU's modern constellation boundaries formally place Elnath (once also catalogued as Gamma Aurigae) in Taurus alone.
2009–2011	An interferometric observing campaign directly resolves the eclipsing disc around Epsilon Aurigae, confirming the model first proposed in 1965.

Related

- [Taurus](#) — shares Elnath, the star that closes Auriga's own figure.
- [Orion](#) — Rigel, on the Winter Hexagon that also runs through Capella.
- [Canis Major](#) and [Canis Minor](#) — Sirius and Procyon, the Hexagon's southern anchors.