



to enable anyone, anywhere, to participate in scientific discovery through variable star astronomy

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November's Featured Variable: Epsilon Aurigae in Auriga, the Charioteer

I bet you have seen a star twinkling —the air surrounding Earth makes it look like the star is sparkling! Even if we went to outer space, we could see many stars change in brightness.

“Variable stars” continuously dim, brighten, and dim. Some complete this pattern in under a second, while others take years.

One variable star YOU can see tonight is Epsilon Aurigae, also named Almaaz, the Billy Goat. It is located just west of the pentagon that forms the constellation Auriga, the Charioteer, and about three degrees southwest of the bright star Capella, the Latin word for “Nanny Goat.”

Every 27 years, Epsilon Aurigae stays dim for almost two years. This is an example of an “eclipsing binary,” where a bright star is obscured periodically by a dimmer object passing in front of it. But what is the dimmer object eclipsing Epsilon Aurigae?

During the eclipse of 2009–2011, collaborations between professional and amateur astronomers collected enormous amounts of data to find out. They determined it is an orbiting star that is within an immense gas cloud that cannot be seen in visual light.

Try recording your observations below:

Time	Magnitude
_____	_____
_____	_____
_____	_____

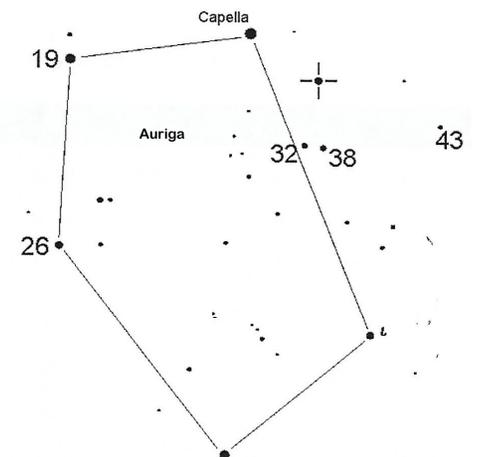
Star Finder Chart for Epsilon Aurigae

You can estimate a star's brightness (magnitude), but first note: in star comparison and finder charts like below or at aavso.org/featured-variables:

- brighter stars are indicated by larger dots
- the *brighter* the star, the *lower* the magnitude number
- any magnitudes given are to the nearest tenth—but without a decimal point, because it could be confused as a star. So, 19 = magnitude 1.9.

Find two comparison stars close to your given variable star's brightness: one brighter, one dimmer, and observe them: is the variable's brightness half-way between the two comparisons'? A quarter? Really close? Apply that fraction to the difference between the two magnitudes and you estimated the star's brightness for that time!

This finder chart, or the larger chart at aavso.org/featured-variables, will help you find Epsilon Aurigae in the night sky. The  icon indicates the location of Epsilon Aurigae.



About the AAVSO

The American Association of Variable Star Observers (AAVSO) is an international nonprofit organization of citizen and professional astronomers interested in stars that change in brightness—variable stars.

From its earliest days in 1911, AAVSO members have included some of the most prolific astronomers of the 20th & 21st centuries.

AAVSO Databases

AAVSO International Database (AID): The largest and most comprehensive digital variable star database in the world, with over 43 million variable star observations—a free resource for the entire scientific community

Variable Star Index (VSX): a collection of up-to-the-minute data on over 200,000,000 specific variable stars

Spectroscopy Database: spectroscopic observations of stars

Solar Database: Sudden Ionospheric Disturbance (SID) Database, and data relating to sunspot observations

Exoplanet Database: long-term follow-up information on planets orbiting other stars

Community



Explore



Education



Connect with the AAVSO

Who are AAVSO Members?

- ★ A **citizen scientist**—contributes to science by acquiring data on variable objects and submitting them to our databases, or other activities, such as data mining.
- ★ An **educator or mentor**—teaches observing skills to fellow AAVSO observers, through instructing AAVSO CHOICE courses or being a mentor.
- ★ A **student**—is learning how to find a star, set up a telescope, observe, submit data, or is increasing their astronomy knowledge
- ★ A **professional astronomer**— uses AAVSO data and services to advance their research
- ★ An **AAVSO Ambassador**—a student or young professional representing AAVSO through astronomy education and activities

Interested in becoming an ambassador?

- www.aavso.org/ambassador-program
- Email Lward@aavso.org

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You, your friends, and colleagues are also invited to join us for AAVSO's:

Free 2021 How-to Hours & Webinars
aavso.org/2021-webinars



AAVSO can help YOU become a citizen astronomer!

Discover the benefits of membership and join us!

<https://www.aavso.org/join-aavso#benefits>

Benefits include being able to participate in our **mentor program**: beginners are paired with an experienced observer for guidance and techniques:

<https://www.aavso.org/mentor-program>

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AAVSO Tools for Beginner Observers:

Beginner Tutorials: aimed at those with absolutely no experience, these introduce variable star science basics and then provide "challenges" for you to apply the concepts:
<https://www.aavso.org/tutorials>

AAVSO Online Forum: talk to peers for advice: <https://www.aavso.org/forum>

Observing Manuals: each one is dedicated to a type of observing, including visual, CCD, DSLR, Spectroscopy, Solar, and more:
<https://www.aavso.org/observing-manuals>

CHOICE Courses: peer-taught informal online observing courses:
<https://www.aavso.org/choice-astronomy>

Let's connect and explore

