

ACE Study Resource – ASTR 1110

Syllabus:

To search for your course syllabus, follow these instructions.

1. Visit the following website: <https://info.tamtu.edu/>
2. Input your course (ex: ASTR 1110) into the “Search” box and make sure you are in the current term (ex: Spring 2022). Click “Search.”
3. Scroll down until you find your specific course (ex: ASTR 1110.201) and professor’s name.
4. Click on “Syllabus” under your course and the file will automatically download. You are done!

Textbook(s):

Fraknoi, A., Morrison, D., & Wolf, S. C. (2016). Astronomy. Houston, Texas: OpenStax. [Free, open-source textbook from <https://openstax.org/books/astronomy/pages/1-introduction>]

Palen, S., & Larson, A. M. (2015). Learning Astronomy by Doing Astronomy. New York, New York: W. W. Norton & Company, Inc.

Key Concepts:

- Mathematical and Scientific Methods
- Phases of the Moon
- Kepler’s Laws
- Light and Spectra
- Spectral Classification of Stars
- The Hertzsprung-Russell Diagram
- Astronomical Measurements
- Altitudes of Objects on the Meridian
- Extraterrestrial Tourism
- Blackbody Curves
- Finding Distances to Stars (Parallax)

Tips and Strategies:

- Prepare at least two weeks in advance for your final term paper to be submitted toward the end of the semester.
- Schedule a tutoring appointment to outline your essay and/or review drafts.
- Review course topics every week by consistently studying to prepare for the quizzes.
- Visit your professor during their office hours to ask questions or clarify instructions.
- Write down due dates and deadlines for each assignment in a planner.

Resources:

- **Khan Academy:** [Cosmology and Astronomy](#)
- **Academic Center for Excellence Tutoring:** To book an appointment with visit our website, call (956) 326-4223, or send an email to academicsupport@tamtu.edu.

Practice and Application:

Absolute Magnitude Formula: $M_v = m_v - 5 \log d + 5$

1. Fill in the missing numbers in **Table 2.4** based on the given observed quantities for each star. The subscript v is attached to the absolute and apparent magnitudes indicates measurements in the visible portion of the spectrum.

TABLE 2.4

Observed and derived quantities for selected nearby stars.				
Star Name	Apparent Magnitude, m_v	Parallax (Arcseconds)	Distance (Parsecs)	Absolute Magnitude, M_v
Sirius	-1.46	0.37921	2.64	1.43
Rigel	0.12	0.00378		
Betelgeuse	0.42	0.00655		
Deneb	1.25	0.00231		
Regulus	1.35	0.04113		
Bellatrix	1.64	0.01292		
Enif	2.40	0.00473		

Explanation:

It is important to know that we can find the distance, d by using the following formula,

$$d = 1/p$$

where p represents parallax.

Thus, for Rigel, we know that the distance is $1/0.00378 = 264.55$.

To find the absolute magnitude, M_v , we must plug in the information to the formula, as shown below.

$$M_v = m_v - 5 \log d + 5$$

$$M_v = -1.46 - 5 \log(264.55) + 5$$

$$M_v = -8.57$$

Repeat the process for each star.

Disclaimer:

- Please use this document as a supplemental resource. You must follow class instructions and expectations set by your professor.
 - This guide does not substitute your class.
 - This guide does not cover the entire syllabus or course.