

ALOS: STARS & GALAXIES
MR. LUBELL

RESEARCH A HUBBLE IMAGE

The Hubble Space Telescope (HST) revolutionized the way we interact with the Universe. It brought stunning images of unprecedented quality to the general public and modern developments in astronomy to the forefront of media coverage. The reasons for this are clear: astronomical images portray a scale and beauty unrivaled by human constructions and impart a sense of grandeur, intrigue and breadth that naturally stirs the imagination. Aside from their aesthetic value, however, HST's images have helped launch the field into the twentieth century by providing data of exceptional quality. For this project, your task is to explore in depth one of HST's more famous images. To do so, please consider the following:

1. *What image should I use?*
HST is operated by the Space Telescope Science Institute (STScI), which has a team responsible for taking original scientific images and transforming them into versions suitable for public consumption. The results form the basis for the Hubble Heritage Project, whose website can be found here:
<http://heritage.stsci.edu/index.html>
Browse the gallery and pick an object that strikes your fancy. It may be any non-solar system object.
2. *What is your image showing?*
Every astronomical object is a unique representative of a larger class of objects. Determine precisely what it is your image is a picture of. This means not only considering your object's type, but also the kind of light used to make the picture, any physical features of note, and the object's environment.
3. *Who took it?*
Someone had to be curious enough to ask HST to take the picture. Look up one of the lead scientists for your image and research his/her background, job, and interests. Think about answering questions like: where does this person work? What did they do to get there? Have they done any notable or impressive things in the past?
4. *Why is this image interesting?*
Generally, astronomical data is taken so that we might learn about the unique characteristics that make an object intriguing. The goal, of course, is to learn more about how things in the Universe work, where they came from, and where they're going. Determine what aspects of the image make it interesting to both astronomers and the public alike.

5. *Why did you choose this object?*
Why, indeed? Please discuss your own personal reasons for picking your image and any reactions you might have had to things you learned or discovered about it and the Universe.

After you've completed your research, please **type** and **staple** a **paper between 3 and 4 pages in length** that summarizes your findings on each of the five issues listed above. Papers that are not typed or stapled will have points deducted. Please also provide a **copy of the image** and a brief **bibliography** noting all sources used in your research. The projects are due in class on **Wednesday, May 30th**. If you need help with any aspect of the project, please feel free to contact me.

EXTRA CREDIT

HST images are almost exclusively limited to the visible part of the spectrum. For extra credit, try finding an image of your object that was taken in a non-optical part of the electromagnetic spectrum. In your paper, please provide a copy of the image and discuss what part of the spectrum it was taken in, what instrument was used to take it, and the additional information this image can teach us about your object. *NB: HST occasionally does take pictures in the infrared and ultraviolet. To receive full credit for this component, you must find an image taken using another telescope.*

GRADING OUTLINE

Your projects will be graded on a scale of 1-20, with a maximum of 4 points of extra credit. Distribution of the points will be roughly as follows:

- I. Content
 - A. Basic image description and proper explanation of object type (2 points)
 - B. Full evaluation of the principal features of the image (3 points)
 - C. Sufficient description of a lead scientist (2 points)
 - D. Well thought out discussion of why the image is interesting (5 points)
 - E. Personal reactions (2 points)
 - F. Bibliography/references provided in a proper manner (2 points)
- II. Style - good writing is important
 - A. Organization (2 points)
 - B. Language (2 points)
- III. Other
 - A. Should you use a solar system object, there will be an automatic 4-point deduction.
 - B. This paper should consist of **your own words**. Do not use text from the HST website or other sources in excess and without citations.