

## Independent Observing Project Description

ASTR:1771 Lab

For your observing project, you will document your study of an astronomical object in greater detail than we've done in in lab, taking on the role of an amateur astronomer. In science, we strive to explain how we collected our data and how we analyzed it as clearly as possible. This is so that other scientists can reperform our experiment and (hopefully!) confirm our results. We communicate how we collected the observations, analyzed the data, and arrived at a conclusion as part of a publication in scientific journals. Professional journals are "peer-reviewed", meaning they are vetted by other scientists for clarity and correctness. *A goal throughout your final project is to offer enough details that your work could be peer-reviewed – if a classmate looked at your paper or presentation, they should follow it closely enough to be able to reproduce your work.*

For your project, select a project from the list below. Every group must pick a different project. You will then collect and examine observational data of that object using the Iowa Robotic Observatory. You will then produce astronomical data products (e.g. light curves, animations, tri-color images). You'll make calculations based on that data, and report your results to the class and your instructor.

### **Comet Leonard Imaging, Animation, and Photometry, Other Comet Imaging**

[https://skyandtelescope.org/astronomy-news/how-bright-will-comet-leonard-get/?fbclid=IwAR2qExhGekCo\\_Ona1dgEl0pMDatexuiYps5vMBiG4Z\\_GxXH1WqhM1loxrvE](https://skyandtelescope.org/astronomy-news/how-bright-will-comet-leonard-get/?fbclid=IwAR2qExhGekCo_Ona1dgEl0pMDatexuiYps5vMBiG4Z_GxXH1WqhM1loxrvE)

### **Asteroid Imaging, Animation, and Photometry**

### **Nova in Cassiopeia Imaging and Photometry (Spectra?), Other Nova/Supernova Search, Imaging, and Photometry**

<https://skyandtelescope.org/astronomy-news/observing-news/bright-nova-erupts-in-cassiopeia/>

### **Variable Star Photometry**

### **Exoplanet Transit Photometry**

### **Mass of Gas Giant Planets**

### **Galaxy Classification**

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### **Potentially Helpful Resources**

JPL Small Body Database Browser: [https://ssd.jpl.nasa.gov/tools/sbdb\\_lookup.html#/](https://ssd.jpl.nasa.gov/tools/sbdb_lookup.html#/)

The Sky Live for asteroid, comet coordinates: <https://theskylive.com>

Swarthmore College good finding chart tool: [https://astro.swarthmore.edu/transits/finding\\_charts.cgi](https://astro.swarthmore.edu/transits/finding_charts.cgi)

Variable stars: <https://www.aavso.org/variable-stars-main>

Relative photometry in MaxIm DL 6: <https://www.youtube.com/watch?v=JBOcRJakJts>