

# FAIRBANKS



# MUSEUM & planetarium

## Introduction to Astronomy

*Galaxies: What Are They and How Do They Impact Us?*

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*The following instructions represent additional resources for continued study of the topics covered in our "Introduction to Astronomy" online class. All materials are the property of Planetarium Educator Hannah Buckner who created them. Any websites included are the property of the individual website owners and have been reviewed by a Fairbanks Museum & Planetarium educator.*

## Overview & Purpose

Students will be able to describe what a galaxy is and the general aspects of a typical galaxy as well as be able to demonstrate an understanding of where Earth resides in the Universe.

## Objectives

1. Describe what a galaxy is, what it is made up of, and the parts of a galaxy depending on its type.
2. Describe the location of the Solar System within the Milky Way.

## Highlights of this Lesson

1. Galaxies are common throughout the Universe
2. There are 3 main types of galaxies: Spiral, Elliptical, and Irregular
3. Scientists estimate that there are between 1 to 2 TRILLION galaxies in the Observable Universe
4. Galaxies are important in the formation of stars

## Lesson Vocabulary

1. **Spiral Galaxy** → a flattened, rotating galaxy with pinwheel-like arms of interstellar material and young stars, winding out from its central bulge

2. **Elliptical Galaxy** → a galaxy whose shape is an ellipse and that contains no visible interstellar matter
3. **Irregular Galaxy** → a galaxy without any clear symmetry or pattern; neither a spiral nor elliptical galaxy
4. Unbarred
5. Barred
6. **Bulge** → a tightly packed group of stars within a larger formation. This term almost exclusively refers to the central group of stars found in most spiral galaxies
7. **Halo** → an extended, roughly spherical component of a galaxy which extends beyond the main, visible component
8. **Disk** → Galactic discs consist of a stellar component (composed of most of the galaxy's stars) and a gaseous component (mostly composed of cool gas and dust)
9. **Arms** → regions of stars that extend from the center of spiral and barred spiral galaxies. These long, thin regions resemble a spiral and thus give spiral galaxies their name.

## Materials

1. <https://www.youtube.com/watch?v=I82ADyJC7wE&list=PL8dPuuaLjXtPAJr1ysd5yGIyiSFuh0mIL&index=38>
2. <https://www.youtube.com/watch?v=O2sg-PGhEg&list=PL8dPuuaLjXtPAJr1ysd5yGIyiSFuh0mIL&index=39>

## Homework

Please watch the two Crash Course videos in the Materials section and write down anything you learned or took away from the videos and this class.

## Have Any Questions?

If you have any questions, concerns, or comments please feel free to reach AmeriCorps Educator Hannah Buckner at [hbuckner@fairbanksmuseum.org](mailto:hbuckner@fairbanksmuseum.org).

