

# Morphological Classification of Galaxies by *Euclid*

Galaxies come in a stunning variety of shapes and structures that reveal their origins and evolution. From smooth ellipticals to graceful spirals and chaotic irregulars, each form shows how galaxies grow, create stars, and interact over cosmic time. The Euclid space telescope, with its exceptional depth and sharpness, will capture these shapes for tens of millions of galaxies across one third of the sky over its six-year mission. This will help astronomers understand how a galaxy's structure relates to its mass, activity, and surroundings. Even the smallest and faintest dwarf galaxies are now visible in remarkable detail, offering key clues to how larger systems like our own galaxy, the Milky Way, formed.

CREDIT: ESA/Euclid/Euclid Consortium/NASA, diagram by J.-C. Cuillandre, L. Quilley, F. Marleau

ELLIPTICALS



E0E3E5E7

This Hubble-de Vaucouleurs classification of galaxies shows the classical morphological sequence from ellipticals (E, left) to lenticulars (S0) through spirals (S) to irregulars and dwarfs (right). The fork divides barred and unbarred spiral families: SA (unbarred), SAB (weakly barred) and SB (strongly barred), and lowercase letters “a” to “d” indicate progressively later spiral stages (tighter to looser arms). The trailing “m” (e.g., SAm) denotes Magellanic, very-late-type systems (patchy, often one-armed). The Milky Way is classified as an SBc galaxy. Below the main sequence are three auxiliary panels showing objects not represented in the fork: (1) edge-on galaxies with varying bulge-to-disk ratios and warps; (2) interactions and mergers illustrating gravitationally driven morphological change; and (3) the morphological diversity of dwarf galaxies.

## Edge-on Spirals



## Mergers and Interactions



## Elliptical and Irregular Dwarfs



SPIRALS

LENTICULARS

SA0

SAa

SAb

SAc

SAd

SAm

INTERMEDIATE SPIRALS

SABa

SABb

SABc

SABd

SABm

IRREGULARS

Im

DWARFS

dE

BARRED SPIRALS

SB0

SBa

SBb

SBc

SBd

SBm

Irregular galaxy IC 2009 (Im)