

## Physics of Supernovae and Gamma-Ray Bursts - astro8502

<i>Course</i>	Physics of Supernovae and Gamma-Ray Bursts
<i>Course No.</i>	astro8502

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	2+1	4	WT

### Requirements:

**Preparation:** Introductory astronomy and cosmology lectures

**Form of Testing and Examination:** Written or oral examination, successful exercise work

**Length of Course:** 1 semester

**Aims of the Course:** The student will learn basic physics on supernova and gamma-ray burst, and will have an overview on their applications to various fields of astrophysics.

### Contents of the Course:

Basic physics on stellar hydrodynamics, radiation processes, and stellar death.

Type Ia supernova: observations and theory. Application to cosmology

Core collapse supernova: observations and theory

Gamma-ray bursts: observations and theory.

Implications for massive star population and star-formation history

Supernova nucleosynthesis and chemical evolution of galaxies

Explosions of the first generations of stars

Some related issues: supernova remnants, neutrinos, shock break-out, etc.

**Recommended Literature:** Lecture notes with key references for each topic will be provided.

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