

## Evolution of Stars and Stellar Systems (C004452)

**Course size** *(nominal values; actual values may depend on programme)*

**Credits** 6.0

**Study time** 180 h

**Course offerings in academic year 2025-2026**

A (semester 2)

English

Gent

**Lecturers in academic year 2025-2026**

Vanbeveren, Dany

VUB

lecturer-in-charge

**Offered in the following programmes in 2025-2026**

[Master of Science in Teaching in Science and Technology \(main subject Physics and Astronomy\)](#)

[Master of Science in Physics and Astronomy](#)

[Master of Science in Physics and Astronomy](#)

**crdts**

**offering**

6

A

6

A

6

A

**Teaching languages**

English

**Keywords**

**Position of the course**

**Contents**

Observations of stars with similar spectral characteristics are linked to theoretical evolutionary phases of single stars and of binaries. We investigate how to calculate theoretical fractions of stars with similar characteristics and we discuss the influence of physical parameters that critically affect the theoretical predictions. The predictions are then compared to the most recent observations. Finally, we discuss how the various types of stars and stellar populations affect the evolution of galaxies (chemical evolution) and we distinguish elliptical galaxies (single starburst galaxies) and spiral galaxies where star formation proceeds continuously in time.

**Initial competences**

Stellar structure and stellar evolution

**Final competences**

To acquire sufficient knowledge in order to start a masterthesis or a PhD within the research group of the Theoretical Astrophysics of the Vrije Universiteit Brussel. Indeed, the main research subject of the group is the study of large groups of stars, how they evolve, how they contribute to the overall evolution of galaxies.

**Conditions for credit contract**

Access to this course unit via a credit contract is determined after successful competences assessment

**Conditions for exam contract**

This course unit cannot be taken via an exam contract

**Teaching methods**

Seminar, Lecture

**Study material**

None

**References**

## **Course content-related study coaching**

### **Assessment moments**

end-of-term and continuous assessment

### **Examination methods in case of periodic assessment during the first examination period**

Oral assessment

### **Examination methods in case of periodic assessment during the second examination period**

Oral assessment

### **Examination methods in case of permanent assessment**

Participation

### **Possibilities of retake in case of permanent assessment**

examination during the second examination period is possible in modified form

### **Extra information on the examination methods**

Oral exam and permanent evaluation during the lectures.

### **Calculation of the examination mark**

Teamwork (PE): 50%

Oral exam: 50%