



Dominique Fluri

Physik

## Titel: Astrophysics

### Kursbeschreibung

In this course, you are invited to a journey into the depths of the universe. The idea is to cover the relevant fundamental physics in general and then apply these principles to astrophysics.

As for these applications, we will first examine the most relevant source of information for astrophysicists: light. We will learn how we can infer the properties of distant planets, stars, nebulae, and galaxies just from analyzing the light reaching us from space. Equipped with this knowledge we can then answer many fascinating questions such as the following ones:

- Why does the Sun shine? (The first picture below shows the Sun in UV-light.)
- How do stars and planets form? (The picture on the right-hand side shows the Orion nebula, a star and planet forming region.)
- How do stars evolve to white dwarfs, neutron stars, and black holes?
- How could we find evidence of life on an extrasolar planet, i.e. a planet of a star other than the Sun?

In addition, we will regularly cover newest astrophysical research results. In this sense, we will also discuss findings that nobody knows of at this stage.

### Illustration



### Illustration



### Prüfungen und Notengebung

The course is graded. The final grade will be based primarily on written tests but also on one short oral presentation and your oral contribution.

If you select physics as “Ergänzungsfach”, then the course grade is used as 12<sup>th</sup> grade of your graduation diploma (“Maturitätszeugnis”). Otherwise, the course replaces the physics grades of the 3<sup>rd</sup> school year (“Erfahrungsnote”).

### Weitere Hinweise

The course is intended for all students with an interest in physics and astrophysics who wonder how the universe around us is evolving.

The language of the course is English. However, all students are invited to join the course. In the past, non-immersive students have often chosen this course. The language has never presented any problems (non-immersive students may use German in tests and presentations). On the contrary, you may consider this as a chance to improve your English.

The following generic skills (“überfachliche Kompetenzen”) are practiced in the course:

- Critical-scientific thinking
- Presenting and speaking
- Ability to work in a team
- Reflection skills

Regarding studying at university, this course may interest primarily, but not exclusively, future students in mathematics, physics, chemistry, biology, information technology, and medicine.