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| **Level**: bachelor | | | | |
| **Course title: Stellar Systems and Galactic Astronomy** | | | | |
| **Status**: obligatory | | | | |
| **ECTS**: 5 | | | | |
| **Requirements**: | | | | |

**Learning objectives**

The goal of this course is to introduce students to the nature, origin and dynamics of stellar systems and galaxies, as well as issues related to these topics, such as the Dark matter and MACHO objects.

**Learning outcomes**

After successful completion of the course, students will be familiar with the theory of formation and maintenance of stellar systems and galaxies and trained to draw information from astronomical observations relevant to this issue.

**Syllabus**

*Theoretical instruction*

Characteristics of the stars and stellar systems hierarchy; N-body problem (two body problem in detail); stellar statistics, stellar kinematics, stellar dynamics, the Virial theorem, globular clusters, open clusters, galaxies, Hubble classification of galaxies; the Milky Way galaxy, structure, kinematics (including Solar neighbourhood), dynamics, Oort's constants, rotation curve, dark matter problem; Local group, Local group galaxies: Andromeda Nebula, Magellanic Clouds etc.

*Practical instruction*

To concretize the material lectured, much of attention will be devoted to practical exercises where students will be encouraged to deal with their own relevant observational material and solve problems from the stellar dynamics, which will help them during homework and exam preparations.

*Seminar*

The aim of the seminar is in-depth knowledge of the particular topic selected. Students should make an independent literature search, after which they will make a short summary in the written form where the essence and the main conclusions of the selected topic will be described. An important part of the work will be devoted to the preparation of presentation in order to learn how to write and perform in front of the students, as well as introducing other students to a chosen topic.

| **Weekly teaching load** | | | | Other: |
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| Lectures: 3 | Exercises: 1 | Other forms of teaching: 0 | Student research: | |