

<b>Level:</b> master				
<b>Course title:</b> Cosmic Evolution of Chemical Elements				
<b>Status:</b> elective				
<b>ECTS:</b> 9				
<b>Requirements:</b> none				
<b>Learning objectives</b> Galactic chemical evolution deals with the origin and abundances of chemical elements and their isotopes in stars and the gas. The objective of this course is to introduce students to the subject of the origin elements in the Universe and their evolution, as well as to teach them methods, which will allow them to draw conclusions about the evolution of the galaxy and stellar systems based on measured elemental abundances.				
<b>Learning outcomes</b> After the completion of the course, students should be familiar with nucleosynthesis and galactic processes that affect the evolution of chemical elements and their isotopes, and trained to make conclusions about galactic evolution based on measured abundances.				
<b>Syllabus</b> <i>Theoretical instruction</i> Basics of nuclear physics; Thermonuclear reactions; Introduction to elemental abundances and their measurements; Nucleosynthesis of light elements during the Big Bang; Basics of stellar evolution; Neutron capture reactions – s and r processes; Basics of galactic chemical evolution; Equations of GCE; Some GCR models; Nucleosynthesis of light elements and their GCE; Chemical evolution in other galaxies; Cosmic chemical evolution. <i>Practical instruction</i> With the goal of in-depth understanding of the content covered in classes, a great deal of attention will be given to practical work both during the lectures and in the form of homework. Students will be encouraged to use real astronomical data and draw important information about the galactic chemical evolution, as well as to solve problems in class, which will help prepare them for homework problems and a written exam. <i>Term paper</i> The goal of assigning a term paper is to provide students with a deeper introduction to a specific topic chosen by them. Students will have to independently search the literature and afterwards write a short description of the topic with the task of presenting the key points and their understanding of the topic. An important part of the term paper assignment will be making and delivering an in-class presentation of the topic in order to help improve their presentation skills and share the knowledge about a certain topic with fellow students.				
<b>Weekly teaching load</b>				Other:
Lectures: 3	Exercises: 1	Other forms of teaching: 1	Student research:	