

<b>Level:</b> bachelor			
<b>Course title:</b> Fundaments of astronomical spectroscopy			
<b>Status:</b> elective			
<b>ECTS:</b> 6			
<b>Requirements:</b> /			
<b>Learning objectives</b> Spectroscopy is the main tool, which helps us learn about physical properties of astronomical objects. The goal of this course is to teach the students about different spectroscopic methods that are used in studying different astrophysical objects.			
<b>Learning outcomes</b> After the successful completion of the course titled «Spectroscopy of the Universe» the students will be trained to process and interpret spectra of different astronomical objects and based on that to learn about their physical properties such as temperature, rotation speed, distance, composition etc.			
<b>Syllabus</b> <i>Theoretical instruction</i> Introduction to spectroscopy and history; Spectrographs; Continuous spectra; Line spectra and transition probabilities; Line profile, width and intensity; Solar spectra and determination of elemental abundances; Stellar spectra, spectral classes, spectra of binary systems; Spectra of supernova remnants; Nebular spectra; Spectra of galaxies; Quasar spectra, Lyman alpha forest; Spectra of the cold interstellar medium and the 21 cm line. <i>Practical instruction</i> With the goal of solidifying the material covered in class, large attention will be given to practical work where students will be encouraged to process spectra, apply spectroscopic methods as well as to solve problems in class which will help prepare them for homework problems and written exam. <i>Term paper</i> The goal of assigning a term paper is to provide students a deeper introduction into a specific topic chosen by them. Students will have to search the literature on their own, after which they have to write a short description of the topic where they have to present the key points and what they learned about the topic. An important part of the term paper assignment will be making and delivering an in-class presentation of the term paper topic, in order to help improve their presenting skills as well as to share the knowledge about a certain topic with fellow students.			
<b>Weekly teaching load</b>			Other:
Lectures: 2	Exercises: 2	Other forms of teaching: 1	