Level: master	
Course title: Stellar systems and galactic astronomy	
Status: elective	
ECTS: 8	
Requirements:	

Learning objectives

Acquiring general and specific knowledge about statistics, kinematics and dynamics of the stellar systems and galactic structure.

Learning outcomes

After attending the course and passing the exam, a student should have developed:
- General abilities:
The student is familiar with specific concepts in statistics and mechanics relevant for the analysis of the stellar systems and galaxies and possesses specific knowledge for understanding the structure and dynamics of various stellar systems.

- Subject-specific abilities:
The student is able to solve tasks from the mentioned areas as well as to start scientific research in the field of stellar and galactic statistics, kinematics and dynamics.

Syllabus

Theoretical instruction
Stellar characteristics: Geometrical, kinematical, physical characteristics. Photometric distance. Variation of these characteristics due to motion and evolution.

Stellar statistics: Functions of the stellar magnitudes. Distributions of apparent and absolute magnitudes. Total number of stars in the Milky Way. Statistical description of the Galaxy. Integral equations of stellar statistics. Extinction of radiation. Fluctuation of the apparent magnitude of the galactic field.

Stellar kinematics: Local motion of the Sun in the Galaxy. Statistical parallaxes. Distributions of residual velocities. Velocity ellipsoid. Rotation of the Galaxy.

Star Dynamics: Modeling of the stellar systems. Disturbing forces. Statistical stellar dynamics. Trajectories of the galactic disk stars. Stellar hydrodynamics.

Structure of the Galaxy: Central region. Disk. Halo. Dynamical models of the Galaxy. Galactic spiral structure theory.

Practical instruction
Position of the galactic equator. Apparent distribution of globular clusters. Radiant of an open star cluster. Apex of the solar motion. Parameters of galactic rotation. Galactic orbit of a star.

Weekly teaching load				Other:
Lectures: 3	Exercises: 2	Other forms of teaching:	Student research:	