PHYS-401 **Astrophysics III : stellar and galactic dynamics**

Revaz Yves

Cursus	Sem.	Type
Ing.-phys	MA1, MA3	Opt.
Physicien	MA1, MA3	Opt.
Space technologies minor	H	Opt.

Language of teaching	English
Credits	4
Session	Winter
Semester	Fall
Exam	Oral
Workload	120h
Weeks	14
Hours	**4 weekly**
Courses	2 weekly
Exercises	2 weekly
Number of positions	

Summary

The aim of this course is to acquire the basic knowledge on specific dynamical phenomena related to the origin, equilibrium, and evolution of star clusters, galaxies, and galaxy clusters.

Content

1. Introduction: distances, sizes, masses of stellar dynamics systems such as star and galaxy clusters.

2. Potential theory.

3. Stellar Orbits

4. Equilibria of collisionless systems.

5. Stability of collisionless systems.

6. Disk dynamics and the formation of spiral structures

Learning Prerequisites

Recommended courses

Bachelor in physics or mathematics and Astrophysics I and II

Learning Outcomes

By the end of the course, the student must be able to:

- Theorize the laws of stellar dynamics

Transversal skills

- Access and evaluate appropriate sources of information.

Teaching methods

Ex cathedra and exercises supervised in classroom

Assessment methods

oral exam (100%)

Resources

Ressources en bibliothèque

- Galactic dynamics / Binney