

Geometric Mechanics
Master's Program in Mathematics
Fall Semester, 2026/27

Professor: Pedro Girão

Course Description

1. Mechanical systems
2. Holonomic constraints
3. Rigid body
4. Non-holonomic constraints
5. Lagrangian and Hamiltonian mechanics
6. Completely integrable systems
7. Symplectic and Poisson geometry
8. Symmetry and reduction

Office hours

Mondays, after class.

Evaluation

Homework is due two weeks after it is assigned and is worth 50% of the final grade. There will be two exams: on Friday, **January 15** and on **Thursday, January 28**. If a student decides to attend both, the best of the two grades will be considered; it is worth 50% of the final grade. To be approved a student must have an exam grade of 8 or more. Final grades of 19 or 20 are confirmed in an oral exam.