

# MSc specialization in Cosmology

The MSc curriculum consists of 60ec (1 year) course work, and two significantly different research projects (24+36 ec) supervised by different staff members. The smaller research project will typically start halfway into the first year, and the larger one during the course of the second year.

The detailed programmes will differ slightly depending on whether the students are enrolled in the physics or astronomy MSc programmes, but will in all cases include a common core curriculum of cosmology courses. Each student's choice of courses is discussed with the De Sitter programme coordinator (who also facilitates the research projects) and approved by the respective study advisors.

Courses offered, number of credits and current lecturer assignment:

<b>Core courses:</b>	<b>ec</b>	<b>Lecturer</b>
Origin and Evolution of the Universe	6	Kuijken
Particle Physics and the Early Universe	6	Boyarsky
Large scale structure and galaxy formation	6	Brinchmann
Theory of General Relativity	6	Achúcarro
<b>At least one (*) of:</b>		
Quantum Theory	9	Denteneer
Stellar Structure and Evolution	6	Schaye
<b>At least three (**) of:</b>		
Effective Field Theory	3	Schalm
Observational Cosmology	3	Hoekstra
Black Holes and Gravitational Waves	3	TBD
Theoretical Cosmology	3	Achúcarro
Computational Astrophysics	3	Portegies Zwart
Databases and Data Mining	3	Brinchmann
<b>General courses from the Astronomy and Physics MSc</b>	remainder	
<b>RESEARCH PROJECTS (***):</b>		
<b>Research Project 1</b>	24	
<b>Research Project 2</b>	36	

(\*) The course Quantum Theory is compulsory for the MSc in Physics, the course Stellar Structure and Evolution is compulsory for the MSc in Astronomy.

(\*\*) Some of these courses are not offered every year. The choice of electives is made by each student subject to approval by the Programme Coordinator and the appropriate study advisor.

(\*\*\*) The research projects have to be sufficiently different in scope and techniques, such that at the end of the MSc Programme the student can show competence in theory, numerical simulation and data handling.

For further information, contact cosmology "at" lorentz.leidenuniv.nl