

## Plan d'études

### Physique 2023-24

#### Projet de Master

Cours		PDM Automne	PDM Printemps	Session Examen	Examen	Crédits
lang. ens.	Code	Sections	Enseignants	Spécialisation	Examen	Crédits
	<b>Projet de master en physique</b>					
	PHYS-599(b)	PH	Profs divers		Oral	30
				900h	900h	Eté Hiv

#### Groupe II

Cours		Master 1	Master 2	Session Examen	Examen	Crédits
lang. ens.	Code	Sections	Enseignants	Spécialisation	Examen	Crédits
	<b>Travail de spécialisation pour master en physique</b>					
	PHYS-597	PH	Profs divers		Pendant le semestre	30
				680h	Hiv	

#### Options SPH

Cours		Master 1	Master 2	Session Examen	Examen	Crédits
lang. ens.	Code	Sections	Enseignants	Spécialisation	Examen	Crédits
	<b>Astrophysics IV : stellar and galactic dynamics</b>					
E	PHYS-401	PH	Revaz		Oral	4
				2h 2h	Eté	
	<b>Astrophysics V : observational cosmology</b>					
E	PHYS-402	PH	Kneib		Oral	4
				2h 2h	Eté	
	<b>Computational quantum physics</b>					
E	PHYS-463	PH	Carleo		Oral	4
				2h 2h	Eté	
	<b>Electron microscopy: advanced methods</b>					
E	MSE-450	MX	Alexander		Pendant le semestre	3
				2h 1h	Eté	
	<b>Fundamentals of biomedical imaging</b>					
E	PHYS-438	PH	Gruetter		Ecrit	4
				2h 2h	Eté	
	<b>Introduction to astroparticle physics</b>					
E	PHYS-439	PH	Neronov Perrina Savchenko		Oral	4
				2h 2h	Eté	
	<b>Magnetism in materials</b>					
E	PHYS-491	PH	Zivkovic		Oral	4
				2h 2h	Eté	
	<b>Modeling and design of experiments</b>					
E	PHYS-442	PH	Fuerbringer		Oral	4
				2h 2h	Eté	
	<b>Nonlinear dynamics, chaos and complex systems</b>					
E	PHYS-460	PH	Février		Oral	6
				3h 2h	Eté	
	<b>Particle physics: the flavour frontiers</b>					
E	PHYS-471	PH	Marchevski		Oral	4
				2h 2h	Eté	
	<b>Particle physics II</b>					
E	PHYS-416	PH	Shchutska		Oral	4
				2h 2h	Eté	
	<b>Physics of life</b>					
E	PHYS-468	PH	Stahlberg		Ecrit	4
				2h 2h	Eté	
	<b>Physics of photonic semiconductor devices</b>					
E	PHYS-434	PH	Grandjean		Oral	4
				2h 2h	Eté	
	<b>Plasma II</b>					
E	PHYS-424	PH	Reimerdes		Oral	6
				2h 2h	Eté	
	<b>Quantum field theory II</b>					
E	PHYS-432	PH	Bellazzini		Oral	6
				3h 2h	Eté	
	<b>Quantum information theory</b>					
E	PHYS-550	PH	Holmes		Ecrit	4
				2h 2h	Eté	
	<b>Quantum physics IV</b>					
E	PHYS-426	PH	Augusto Penedones Fernandes		Ecrit	6
				2h 2h	Eté	
	<b>Quantum transport in mesoscopic systems</b>					
E	PHYS-462	PH	Banerjee		Oral	4
				2h 2h	Eté	

E	<b>Relativity and cosmology II</b> PHYS-428 PH	Horbenko	2h 2h	Eté	Ecrit	6
E	<b>Selected topics in nuclear and particle physics</b> PHYS-400 PH	Blanc	2h 2h	Eté	Oral	4
E	<b>Solid state physics IV</b> PHYS-420 PH	Carbone	2h 2h	Eté	Oral	4
E	<b>Solid state systems for quantum information</b> PHYS-464 PH	Scarlino	2h 2h	Eté	Oral	4
E	<b>Statistical physics IV</b> PHYS-436 PH	Kippenberg	2h 2h	Eté	Ecrit	6
E	<b>Topics in biophysics and physical biology</b> PHYS-466 PH	Manley	2h 1h	Eté	Pendant le 3 semestre	3
E	<b>Advanced radiation sources</b> PHYS-761 EDPY	Carbone Invited professor(s) Puppin	2h 2h	Hiv	Oral	4
E	<b>Astrophysics III : galaxy formation and evolution</b> PHYS-465 PH	Hirschmann	2h 2h	Hiv	Oral	4
E	<b>Biophysics : physics of biological systems</b> PHYS-302 PH	Rahi	2h 2h	Hiv	Pendant le 4 semestre	4
E	<b>Computer simulation of physical systems I</b> PHYS-403 PH	Pasquarello	2h 2h	Hiv	Oral	4
E	<b>Experimental methods in physics</b> PHYS-405 PH	Cantoni Dwir	2h 1h	Hiv	Oral	3
E	<b>Frontiers in nanosciences</b> PHYS-407 PH	Kern Pivetta Rusponi	2h 1h	Hiv	Oral	3
E	<b>Interacting quantum matter</b> PHYS-502 PH		3h 1h	Hiv	Oral	4
E	<b>Introduction to particle accelerators</b> PHYS-448 PH	Seidel	2h 2h	Hiv	Ecrit	4
E	<b>Lasers: theory and modern applications</b> MICRO-422 MT	Kippenberg Moser	3h 1h	Hiv	Ecrit	4
E	<b>Machine learning for physicists</b> PHYS-467 PH	Zdeborová	2h 2h	Hiv	Ecrit	4
E	<b>Neutron and X-ray Scattering of Quantum Materials</b> PHYS-640 EDPY	Fogh Rønnow Schmitt	2h 2h	Hiv	Oral	4
E	<b>Nonlinear optics for quantum technologies</b> PHYS-470 PH		2h 2h	Hiv	Oral	4
E	<b>Nuclear fusion and plasma physics</b> PHYS-445 PH	Fasoli	2h 2h	Hiv	Oral	4
E	<b>Nuclear interaction : from reactors to stars</b> PHYS-461 PH	Rochman	2h 2h	Hiv	Ecrit	4
E	<b>Particle detection</b> PHYS-440 PH	Haefeli	2h 2h	Hiv	Pendant le 4 semestre	4
E	<b>Particle physics I</b> PHYS-415 PH	Marchevski	2h 2h	Hiv	Oral	4
E	<b>Physics of materials</b> PHYS-307 PH	La Grange	2h 2h	Hiv	Oral	4
E	<b>Plasma I</b> PHYS-423 PH	Theiler	2h 3h	Hiv	Oral	6
E	<b>Quantum Computing</b> PHYS-641 EDPY	Savona	2h 2h	Hiv	Oral	4
E	<b>Quantum electrodynamics and quantum optics</b> PHYS-453 PH	Kippenberg	2h 2h	Hiv	Ecrit	6
E	<b>Quantum field theory I</b> PHYS-431 PH	Riva	3h 2h	Hiv	Oral	6
E	<b>Quantum physics III</b> PHYS-425 PH	Yazyev	2h 3h	Hiv	Oral	6

E	<b>Radiation biology, protection and applications</b>							
	PHYS-450	PH	Damet Grilj Pakari	2h 1h		Hiv	Ecrit	4
E	<b>Radiation detection</b>							
	PHYS-452	PH	Lamirand	2h 1h		Hiv	Oral	3
E	<b>Relativity and cosmology I</b>							
	PHYS-427	PH	Augusto Penedones Fernandes	2h 2h		Hiv	Ecrit	6
E	<b>Semiconductor physics and light-matter interaction</b>							
	PHYS-433	PH	Butté	2h 2h		Hiv	Ecrit	4
E	<b>Solid state physics III</b>							
	PHYS-419	PH	Läuchli Herzig	3h 2h		Hiv	Oral	6
E	<b>Statistical physics III</b>							
	PHYS-435	PH	Wyart	2h 2h		Hiv	Ecrit	6
E	<b>Statistical physics of biomacromolecules</b>							
	PHYS-441	PH	De Los Rios	2h 2h		Hiv	Oral	4
E	<b>Statistical physics of computation</b>							
	PHYS-512	PH	Krzakala Zdeborová	2h 2h		Hiv	Ecrit	4

### Bloc "Projets et SHS"

Cours			Master 1	Master 2	Session Examen	Examen	Crédits
lang. ens.	Code	Sections	Enseignants	Spécialisation			
	<b>Projet de Physique I</b>						
	PHYS-421	PH	Profs divers		8h	Hiv	Pendant le 8 semestre
	<b>SHS : Introduction au projet</b>						
		SHS				Hiv	3