

## Studies Plan

### Physique 2023-24

#### Block "Projects & SHS"

Courses			Master 1	Master 2	Exam Session	Exam	Credit
Language Code	Section	Teacher	Specialization	p	l	e	p
	<b>HSS : Project</b>						
	SHS				Sum		3
	<b>Physics project II</b>						
PHYS-422	PH	Profs divers		8h	Sum	During the semester	8
	<b>Physics project I</b>						
PHYS-421	PH	Profs divers		8h	Win	During the semester	8
	<b>HSS : Introduction to project</b>						
	SHS				Win		3

#### Group II

Courses			Master 1	Master 2	Exam Session	Exam	Credit
Language Code	Section	Teacher	Specialization	p	l	e	p
	<b>Specialisation semester</b>						
PHYS-597	PH	Profs divers		680h	Sum Win	During the semester	30

#### Master project

Courses			MP Autumn	MP Spring	Exam Session	Exam	Credit
Language Code	Section	Teacher	Specialization	p	l	e	p
	<b>Master project in Physics</b>						
PHYS-599(b)	PH	Profs divers		900h	Sum Win	Oral	30

#### Options SPH

Courses			Master 1	Master 2	Exam Session	Exam	Credit
Language Code	Section	Teacher	Specialization	p	l	e	p
	<b>Astrophysics IV : stellar and galactic dynamics</b>						
E	PHYS-401	PH Revaz		2h 2h	Sum	Oral	4
	<b>Astrophysics V : observational cosmology</b>						
E	PHYS-402	PH Kneib		2h 2h	Sum	Oral	4
	<b>Computational quantum physics</b>						
E	PHYS-463	PH Carleo		2h 2h	Sum	Oral	4
	<b>Electron microscopy: advanced methods</b>						
E	MSE-450	MX Alexander		2h 1h	Sum	Oral	3
	<b>Fundamentals of biomedical imaging</b>						
E	PHYS-438	PH Gruetter		2h 2h	Sum	Written	4
	<b>Introduction to astroparticle physics</b>						
E	PHYS-439	PH Neronov Perrina Savchenko		2h 2h	Sum	Oral	4
	<b>Magnetism in materials</b>						
E	PHYS-491	PH Zivkovic		2h 2h	Sum	Oral	4
	<b>Modeling and design of experiments</b>						
E	PHYS-442	PH Fuerbringer		2h 2h	Sum	Oral	4
	<b>Nonlinear dynamics, chaos and complex systems</b>						
E	PHYS-460	PH Février		3h 2h	Sum	Oral	6
	<b>Particle physics: the flavour frontiers</b>						
E	PHYS-471	PH Marchevski		2h 2h	Sum	Oral	4
	<b>Particle physics II</b>						
E	PHYS-416	PH Shchutka		2h 2h	Sum	Oral	4
	<b>Physics of life</b>						
E	PHYS-468	PH Stahlberg		2h 2h	Sum	Written	4

	<b>Physics of photonic semiconductor devices</b>					
E	PHYS-434	PH	Grandjean	2h 2h	Sum	Oral 4
	<b>Plasma II</b>					
E	PHYS-424	PH	Reimerdes	2h 2h	Sum	Oral 6
	<b>Quantum field theory II</b>					
E	PHYS-432	PH	Bellazzini	3h 2h	Sum	Oral 6
	<b>Quantum information theory</b>					
E	PHYS-550	PH	Holmes	2h 2h	Sum	Written 4
	<b>Quantum optics and quantum information</b>					
E	PHYS-454	PH	Brantut	2h 2h	Sum	Written 6
	<b>Quantum physics IV</b>					
E	PHYS-426	PH	Penedones	2h 2h	Sum	Written 6
	<b>Quantum transport in mesoscopic systems</b>					
E	PHYS-462	PH	Banerjee	2h 2h	Sum	Oral 4
	<b>Relativity and cosmology II</b>					
E	PHYS-428	PH	Gorbenko	2h 2h	Sum	Written 6
	<b>Selected topics in nuclear and particle physics</b>					
E	PHYS-400	PH	Blanc	2h 2h	Sum	Oral 4
	<b>Solid state physics IV</b>					
E	PHYS-420	PH	Carbone	2h 2h	Sum	Oral 4
	<b>Solid state systems for quantum information</b>					
E	PHYS-464	PH	Scarlino	2h 2h	Sum	Oral 4
	<b>Statistical physics IV</b>					
E	PHYS-436	PH	Kippenberg	2h 2h	Sum	Written 6
	<b>Topics in biophysics and physical biology</b>					
E	PHYS-466	PH	Manley	2h 1h	Sum	During the 3 semester
	<b>Astrophysics III : galaxy formation and evolution</b>					
E	PHYS-465	PH	Hirschmann	2h 2h	Win	Oral 4
	<b>Attosecond radiation sources</b>					
E	PHYS-761	EDPY	Carbone Invited professor(s) Puppin	2h 2h	Win	Oral 4
	<b>Biophysics : physics of biological systems</b>					
E	PHYS-302	PH	Rahi	2h 2h	Win	During the 4 semester
	<b>Computer simulation of physical systems I</b>					
E	PHYS-403	PH	Pasquarello	2h 2h	Win	Oral 4
	<b>Experimental methods in physics</b>					
E	PHYS-405	PH	Cantoni Dwir	2h 1h	Win	Oral 3
	<b>Frontiers in nanosciences</b>					
E	PHYS-407	PH	Kern Pivetta Rusponi	2h 1h	Win	Oral 3
	<b>Interacting quantum matter</b>					
E	PHYS-502	PH		3h 1h	Win	Oral 4
	<b>Introduction to particle accelerators</b>					
E	PHYS-448	PH	Seidel	2h 2h	Win	Written 4
	<b>Lasers: theory and modern applications</b>					
E	MICRO-422	MT	Kippenberg Moser	3h 1h	Win	Written 4
	<b>Machine learning for physicists</b>					
E	PHYS-467	PH	Zdeborová	2h 2h	Win	Written 4
	<b>Neutron and X-ray Scattering of Quantum Materials</b>					
E	PHYS-640	EDPY	Fogh Rønnow Schmitt	2h 2h	Win	Oral 4
	<b>Nonlinear optics for quantum technologies</b>					
E	PHYS-470	PH		2h 2h	Win	Oral 4
	<b>Nuclear fusion and plasma physics</b>					
E	PHYS-445	PH	Fasoli	2h 2h	Win	Oral 4
	<b>Nuclear interaction : from reactors to stars</b>					
E	PHYS-461	PH	Rochman	2h 2h	Win	Written 4
	<b>Particle detection</b>					
E	PHYS-440	PH	Haefeli	2h 2h	Win	During the 4 semester
	<b>Particle physics I</b>					
E	PHYS-415	PH	Marchevski	2h 2h	Win	Oral 4

E	<b>Physics of materials</b> PHYS-307	PH	La Grange	2h 2h	Win	Oral	4
E	<b>Plasma I</b> PHYS-423	PH	Theiler	2h 3h	Win	Oral	6
E	<b>Quantum Computing</b> PHYS-641	EDPY	Savona	2h 2h	Win	Oral	4
E	<b>Quantum electrodynamics and quantum optics</b> PHYS-453	PH	Kippenberg	2h 2h	Win	Written	6
E	<b>Quantum field theory I</b> PHYS-431	PH	Riva	3h 2h	Win	Oral	6
E	<b>Quantum physics III</b> PHYS-425	PH	Yazyev	2h 3h	Win	Oral	6
E	<b>Radiation biology, protection and applications</b> PHYS-450	PH	Damet Grilj Pakari	2h 1h	Win	Written	4
E	<b>Radiation detection</b> PHYS-452	PH	Lamirand	2h 1h	Win	Oral	3
E	<b>Relativity and cosmology I</b> PHYS-427	PH	Penedones	2h 2h	Win	Written	6
E	<b>Semiconductor physics and light-matter interaction</b> PHYS-433	PH	Butté	2h 2h	Win	Written	4
E	<b>Solid state physics III</b> PHYS-419	PH	Läuchli Herzig	3h 2h	Win	Oral	6
E	<b>Statistical physics III</b> PHYS-435	PH	Wyart	2h 2h	Win	Written	6
E	<b>Statistical physics of biomacromolecules</b> PHYS-441	PH	De Los Rios	2h 2h	Win	Oral	4
E	<b>Statistical physics of computation</b> PHYS-512	PH	Krzakala Zdeborová	2h 2h	Win	Written	4