Cycle view of the study programme

		Bl	Or	Th	Pr	Au	Cr
Core curriculum compulsory courses (B1 : 15Cr, B2 : 18Cr)							
PHYS0974-1	*Materials physics and biophysics* - Maryse HOEBEKE, Alejandro SILHANEK - Suppl : Bertrand DUPÉ	B1	Q1	30	-	-	**5**
PHYS0930-1	*Atomic physics* - Thierry BASTIN, François DAMANET, Peter SCHLAGHECK	B1	Q1	30	-	-	**5**
PHYS0975-1	*Introduction to soft matter and complex systems* - Nicolas VANDEWALLE	B1	Q1	30	-	-	**5**
SMEM0028-1	*Final thesis* - COLLÉGIALITÉ	B2	TA	-	-	-	**18**
Common core courses (B1 : 45Cr, B2 : 12Cr)							
In agreement with the Jury, choose a subject among : (B1 : 45Cr, B2 : 12Cr)							
Basic course (B1 : 45Cr, B2 : 12Cr)							
SSTG0016-1	*Training sessions and personal work* (english language) - COLLÉGIALITÉ, ISLV	B1	Q2	15	45	-	**5**
PHYS0983-1	*Seminars in advanced physics I* (english language) - *Materials physics and biophysics* - COLLÉGIALITÉ - *Atomic physics* - COLLÉGIALITÉ - *Physics of soft matter and complex systems* - COLLÉGIALITÉ	B1	TA 10 10 10	 - - -	 - - -		**4**
PHYS0984-1	*Seminars in advanced physics II* (english language) - *Materials physics and biophysics* - COLLÉGIALITÉ - *Atomic physics* - COLLÉGIALITÉ - *Physics of soft matter and complex systems* - COLLÉGIALITÉ **Prerequisite :** PHYS0983-1 - Séminaires de Physique avancée I	B2	TA 10 10 10	 - - -	 - - -		**4**
Choose courses in agreement with the jury for a total of 44 credits from among: (B1 : 36Cr, B2 : 8Cr)							
Atomic and nuclear							
PHYS0932-1	*Cold atoms and atomic clocks* - Thierry BASTIN **Corequisite :** PHYS0930-1 - Physique atomique	-	Q2	20	10	-	**4**
PHYS2027-2	*Ultracold atoms and Bose-Enstein condensates* - Peter SCHLAGHECK **Corequisite :** PHYS0930-1 - Physique atomique PHYS3021-1 - Mécanique quantique avancée	-	Q2	25	-	-	**4**
PHYS0235-2	(pas organisé en 2026-2027) *Quantum optics* - John MARTIN **Corequisite :** PHYS0930-1 - Physique atomique PHYS3021-1 - Mécanique quantique avancée	-	Q2	20	10	-	**4**
PHYS0949-1	*Atomic structures modelling* - Pascal QUINET **Corequisite :** PHYS0930-1 - Physique atomique	-	Q2	10	10	-	**4**
PHYS0941-2	*Theoretical physics : Nuclei and particles* - JeanRené CUDELL	-	Q1	30	-	-	**4**
PHYS3021-1	*Advanced quantum mechanics* - Thierry BASTIN, John MARTIN, Peter SCHLAGHECK	-	Q1	30	-	-	**4**
PHYS0997-1	*Quantum information and computation* (english language) - François DAMANET	-	Q1	30	-	-	**4**
PHYS3136-1	*Open quantum systems* (english language) - François DAMANET, John MARTIN - [10h Proj.] **Corequisite :**	-	Q2	20	-	[+]	**4**

	PHYS3021-1 - Mécanique quantique avancée PHYS0235-2 - Optique quantique						
PHYS3138-1	*Nuclear physics: energy and materials* - David STRIVAY - [1d Vis.]	-	Q2	25	4	[+]	**4**
Soft Materials / Statistical Physics							
PHYS0969-1	*Introduction to biophotonics* - Laurent DREESEN	-	Q2	20	10	-	**4**
PHYS0939-2	*Physics of non-linearities, chaos and fractals* - Nicolas VANDEWALLE **Corequisite :** PHYS0975-1 - Introduction à la matière molle et aux systèmes complexes	-	Q2	15	15	-	**4**
PHYS3020-1	*Discrete element method and soft materials* - Eric OPSOMER - [15h Proj.]	-	Q2	20	-	[+]	**4**
PHYS1987-1	*Matière active* - Eric OPSOMER, Nicolas VANDEWALLE	-	Q2	30	-	-	**4**
PHYS0948-1	*Microgravity* - Nicolas VANDEWALLE - [3d FW] **Corequisite :** PHYS0975-1 - Introduction à la matière molle et aux systèmes complexes	B2	Q2	10	20	[+]	**4**
Materials / Solid State							
PHYS3003-1	*Physics of functional oxides* (english language) - Philippe GHOSEZ **Corequisite :** PHYS0974-1 - Physique des matériaux et biophysique	-	Q1	20	10	-	**4**
PHYS3023-1	*Physics of magnetic materials* (english language) - Eric BOUSQUET **Corequisite :** PHYS0974-1 - Physique des matériaux et biophysique	-	Q2	20	10	-	**4**
PHYS0981-1	*Quantum modelling of materials properties* (english language) - Philippe GHOSEZ **Corequisite :** PHYS0974-1 - Physique des matériaux et biophysique	-	Q1	20	10	-	**4**
PHYS0987-1	*Physics of materials for energy* (english language) - Ngoc Duy NGUYEN - [15h Proj.]	-	Q1	20	-	[+]	**4**
PHYS0988-1	*Intrinsic and induced topological properties of matter* (english language) - Bertrand DUPÉ	-	Q2	20	10	-	**4**
Quantum Physics and Relativity							
PHYS2012-1	*Relativistic quantum mechanics and relativistic statistics* - Peter SCHLAGHECK	-	Q1	20	5	-	**4**
SPAT0012-1	*General relativity* (english language) - Guillaume MAHLER	-	Q1	30	10	-	**4**
Experimental Physics							
PHYS0250-2	*Experimental statistical physics* - Stéphane DORBOLO **Corequisite :** PHYS0975-1 - Introduction à la matière molle et aux systèmes complexes	-	Q2	10	20	-	**4**
PHYS3019-1	*Techniques of experimental physics* - Geoffroy LUMAY	-	Q2	20	20	-	**4**
PHYS0943-1	*Spectroscopy of electronic paramagnetic resonance* - Maryse HOEBEKE **Corequisite :** PHYS0974-1 - Physique des matériaux et biophysique	-	Q2	15	15	-	**4**
PHYS0968-1	*Signal processing* - Alejandro SILHANEK - Suppl : Peter SCHLAGHECK	-	Q2	25	20	-	**4**
PHYS3037-1	*Nanofabrication : principles and techniques* (english language) - Ngoc Duy NGUYEN, Alejandro SILHANEK **Corequisite :**	-	Q2	25	20	-	**5**

	PHYS0974-1 - Physique des matériaux et biophysique						
PHYS0999-1	*Digital creation in sciences* - Roland BILLEN, Valentin FISCHER, JeanChristophe MONBALIU, Eric PARMENTIER, Michel RIGO, Nicolas VANDEWALLE - [30h Proj.]	-	TA	10	-	[+]	**5**
Optics and Imaging							
PHYS0942-3	*Ionising radiations and imaging* - Alain SERET	-	Q1	20	5	-	**4**
PHYS0938-1	*Physics and cultural heritage* - David STRIVAY	-	Q1	20	12	-	**4**
PHYS0048-2	*Coherent and incoherent optics* (english language) - *Coherent optics and lasers applications* - Serge HABRAKEN - *Laser physics* - Serge HABRAKEN	-	Q1 10 5	 15 5	 - -		**4**
PHYS0048-3	*Coherent and incoherent optics, Instrumental optics I* (english language) - Serge HABRAKEN	-	Q1	20	15	-	**4**
PHYS0128-1	*Magnetic Resonance Imaging - the Basics* (english language) - Laurent LAMALLE - [3d FW]	-	Q2	15	-	[+]	**2**
PHYS0125-3	*Instrumental optics II* (english language) - Serge HABRAKEN **Prerequisite :** PHYS0048-3 - Coherent and incoherent optics	B2	Q2	25	15	-	**4**
Applied physics							
INFO0939-1	*High performance scientific computing* (english language) - Christophe GEUZAINE - [20h Proj.]	-	Q1	30	15	[+]	**5**
MECA0470-1	*New methods in computational mechanics and physics* (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	-	Q2	20	-	[+]	**5**
ELEN0062-1	*Introduction to machine learning* (english language) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.]	-	Q1	30	5	[+]	**6**
Didactics							
PHYS0979-1	*Conceptual approach to basic physics* - Hervé CAPS, Maryse HOEBEKE	-	Q1	30	-	-	**4**
AESS0241-1	*Introduction to physics didactics* - Maryse HOEBEKE	-	Q1	20	-	-	**4**
PHYS1988-1	*Projet de médiation scientifique* - Hervé CAPS	-	Q1	10	20	-	**4**
[...]	Up to 20 credits (or more, in agreement with the Jury) in the two blocks may also be chosen in another study field or institution						

Course Medical Physics (B1 : 45Cr, B2 : 12Cr)

PHYS0952-3	*Imaging through ionising radiation* - Alain SERET **Corequisite :** PHYS0990-1 - Dosimétrie PHYS0989-1 - Radiobiology	B1	Q1	25	5	-	**4**
PHYS0989-1	*Radiobiology* (english language) **Corequisite :** PHYS0990-1 - Dosimétrie PHYS0952-3 - Imagerie par radiations ionisantes	B1	Q2	10	-	-	**2**
PHYS0990-1	*Dosimetry* - Véronique BAART, N... **Corequisite :** PHYS0989-1 - Radiobiology PHYS0952-3 - Imagerie par radiations ionisantes	B1	Q2	20	-	-	**3**
RADI2001-1	*Radioprotection: hygiene problems* - Nadia WITHOFS **Corequisite :** PHYS0990-1 - Dosimétrie PHYS0989-1 - Radiobiology RADP0141-1 - Radioprotection	B1	Q1	15	-	-	**2**

	BIOL0007-1 - Biologie tissulaire PHYS0952-3 - Imagerie par radiations ionisantes						
BIOL0007-1	*Tissue biology* - N...	B1	Q1	15	25	-	**4**
PHYL0644-1	*Human Anatomy and Physiology* - Valérie DEFAWEUX	B1	Q2	30	-	-	**3**
ANAT0222-1	*Elements of Radiology* - Luaba TSHIBANDA, Christophe VALKENBORGH	B1	Q2	10	5	-	**2**
CHIM0620-1	*Radiopharmaceutical Chemistry* - Thibault GENDRON	B1	Q1	20	10	-	**3**
PHYS0128-1	*Magnetic Resonance Imaging - the Basics* (english language) - Laurent LAMALLE - [3d FW] **Corequisite :** PHYS0930-1 - Physique atomique	B1	Q2	15	-	[+]	**2**
RADP0141-1	*Radioprotection* *- Part a) Radioprotection techniques and complements* - Véra PIRLET *- Part b) Legislation on radioprotection and the organisation of a radiotherapy, radiodiagnostic and nuclear medicine department* - Véra PIRLET	B1	Q2 30 10	 15 -	 - -		**6**
SSTG0041-1	*Placement in medical radiophysics* - Véronique BAART, Claire BERNARD, Alain SERET - [12d Internship] **Corequisite :** PHYS0990-1 - Dosimétrie PHYS0989-1 - Radiobiology PHYS0952-3 - Imagerie par radiations ionisantes	B1	Q2	2	-	[+]	**7**
STAT0420-1	*Biostatistics 2* - AnneFrançoise DONNEAU **Corequisite :** PHYS0128-1 - Magnetic Resonance Imaging - the Basics	B1	Q1	15	15	-	**3**
PHYS0968-1	*Signal processing* - Alejandro SILHANEK - Suppl : Peter SCHLAGHECK	B1	Q2	25	20	-	**4**
QUAL0722-1	*Safety and quality assurance* (english language) - Edmond STERPIN **Prerequisite :** SSTG0041-1 - Stages en radiophysique médicale	B2	Q2	5	10	-	**2**
RADL0442-1	*Radiobiology and radiopathology elements* - Chantal HUMBLET **Prerequisite :** BIOL0007-1 - Biologie tissulaire PHYL0644-1 - Anatomie et physiologie humaines ANAT0222-1 - Eléments d'anatomie radiologique	B2	Q1	40	20	-	**6**
PHYS3139-1	*Digital methods applied to medical physics* *- Part A: 2D and 3D tomographical reconstruction* - Alain SERET *- Part B: Transfer and coregistration of medical images* - Mohamed Ali BAHRI **Prerequisite :** PHYS0968-1 - Traitement du signal PHYS0952-3 - Imagerie par radiations ionisantes	B2	Q1 10 15	 - -	 - -		**2**
CHIM0621-2	*Production and application of radioelements* - Thibault GENDRON - [3d FW]	B2	Q2	15	-	[+]	**2**

Focus compulsory courses (B2 : 30Cr)

PHYS0991-1	*Special applications and techniques in radiotherapy* - Véronique BAART, N... **Prerequisite :** PHYS0989-1 - Radiobiology PHYS0990-1 - Dosimétrie	B2	Q1	35	-	-	**4**
PHYS0992-1	*Special applications and techniques in radiodiagnostic* (english language) - Hilde BOSMANS	B2	Q1	15	-	-	**2**

	Prerequisite : PHYS0952-3 - Imagerie par radiations ionisantes PHYS0989-1 - Radiobiology						
PHYS0993-1	*Special applications and techniques in nuclear medicine* - Claire BERNARD, Roland HUSTINX, Alain SERET **Prerequisite :** PHYS0952-3 - Imagerie par radiations ionisantes PHYS0989-1 - Radiobiology	B2	Q1	20	-	-	**3**
PHYS0994-1	*Internal dosimetry of radiopharmaceutical compounds* - Claire BERNARD, Christophe MERCIER, Alain SERET **Prerequisite :** PHYS0952-3 - Imagerie par radiations ionisantes PHYS0989-1 - Radiobiology	B2	Q1	8	4	-	**2**
PHYS0995-1	*Computerized dosimetry specialized in radiotherapy* (english language) - Edmond STERPIN **Prerequisite :** PHYS0989-1 - Radiobiology PHYS0990-1 - Dosimétrie	B2	Q1	15	-	-	**2**
SSTG0015-2	*Training* - COLLÉGIALITÉ - [3mois Internship] **Prerequisite :** PHYS0952-3 - Imagerie par radiations ionisantes PHYS0989-1 - Radiobiology PHYS0990-1 - Dosimétrie **Corequisite :** PHYS0991-1 - Applications et techniques spéciales en radiothérapie PHYS0992-1 - Applications et techniques spéciales en radiodiagnostic PHYS0993-1 - Applications et techniques spéciales en médecine nucléaire PHYS0994-1 - Dosimétrie interne des composés radiopharmaceutiques PHYS0995-1 - Computerized dosimetry specialized in radiotherapy PHYS3139-1 - Méthodes numériques appliquées à la physique médicale	B2	TA	-	-	[+]	**17**

Bridging courses (max 15-60 credits) Master in physics (120 credits)

Optional courses (B0 : 60Cr)

The update course, worth a maximum of 60 credits, will be determined based on students¿ prior training. (B0 : 60Cr)

[...] Between 15 and 60 ECTS of courses from "Bachelier en sciences physiques"