

Block view of the study programme

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Block 1

Notice : The FAMEais Masters replaces the FAME+ Master within the same consortium: ULiège will host students from the first FAMEais cohort from the 2023;2024 academic year, while the last FAME+ students will graduate at the end of the 2022;2023 academic year. Within the FAMEais Masters, the course programme offered by ULiège is aimed at students who have acquired the first 60 credits within a partner university.

Compulsory courses

PHYS0974-1	<i>Materials physics and biophysics</i> - Maryse HOEBEKE, Alejandro SILHANEK	Q1	30	-	-	5
PHYS0930-1	<i>Atomic physics</i> - Thierry BASTIN, Peter SCHLAGHECK	Q1	30	-	-	5
PHYS0975-1	<i>Introduction to soft matter and complex systems</i> - Nicolas VANDEWALLE	Q1	30	-	-	5

Optional courses

In agreement with the Jury, choose a subject among :

Basic course

SSTG0016-1	<i>Training sessions and personal work</i> (english language) - COLLÉGIALITÉ, ISLV	Q2	15	45	-	5
PHYS0983-1	<i>Seminars in advanced physics I</i> (english language) - <i>Materials physics and biophysics</i> - COLLÉGIALITÉ - <i>Atomic physics</i> - COLLÉGIALITÉ - <i>Physics of soft matter and complex systems</i> - COLLÉGIALITÉ	TA				4
			10	-	-	
			10	-	-	
			10	-	-	

Choisir en accord avec le Jury des cours pour un total de 36 crédits parmi :

Atomic and nuclear

PHYS0932-1	<i>Cold atoms and atomic clocks</i> - Thierry BASTIN Corequisite : PHYS0930-1 - Physique atomique	Q2	20	10	-	4
PHYS2027-2	<i>Ultracold atoms and Bose-Einstein condensates</i> - Peter SCHLAGHECK Corequisite : PHYS3021-1 - Mécanique quantique avancée PHYS0930-1 - Physique atomique	Q2	25	-	-	4
PHYS0235-2	<i>Quantum optics</i> - John MARTIN Corequisite : PHYS3021-1 - Mécanique quantique avancée PHYS0930-1 - Physique atomique	Q2	20	10	-	4
PHYS0949-1	<i>Atomic structures modelling</i> - Pascal QUINET Corequisite : PHYS0930-1 - Physique atomique	Q2	10	10	-	4
PHYS0941-2	<i>Theoretical physics : Nuclei and particles</i> - JeanRené CUDELL	Q1	30	-	-	4
PHYS3021-1	<i>Advanced quantum mechanics</i> - Thierry BASTIN, John MARTIN, Peter SCHLAGHECK	Q1	30	-	-	4
PHYS0997-1	<i>Quantum information and computation</i> (english language) - François DAMANET	Q1	30	-	-	4

Soft Materials / Statistical Physics

PHYS0969-1	<i>Introduction to biophotonics</i> - Laurent DREESEN	Q2	20	10	-	4
PHYS0939-2	<i>Physics of non-linearities, chaos and fractals</i> - Nicolas VANDEWALLE Corequisite : PHYS0975-1 - Introduction à la matière molle et aux systèmes complexes	Q2	15	15	-	4
PHYS3020-1	<i>Discrete element method and soft materials</i> - Eric OPSOMER	Q2	15	15	-	4

Materials / Solid State

PHYS3003-1	<i>Physics of functional oxides</i> (english language) - Philippe GHOSEZ Corequisite : PHYS0974-1 - Physique des matériaux et biophysique	Q1	20	10	-	4
PHYS0980-1	(pas organisé en 2023-2024) <i>Spectroscopy of materials</i> (english language) Corequisite : PHYS0974-1 - Physique des matériaux et biophysique	Q1	20	10	-	4
PHYS3004-1	<i>Physics of nanomaterials</i> (english language) - JeanYves RATY Corequisite : PHYS0974-1 - Physique des matériaux et biophysique	Q1	20	10	-	4
PHYS0982-1	<i>Physics of semiconductors</i> (english language) - Ngoc Duy NGUYEN Corequisite : PHYS0974-1 - Physique des matériaux et biophysique	Q1	15	-	-	2
PHYS3023-1	<i>Physics of magnetic materials</i> (english language) - Eric BOUSQUET Corequisite : PHYS0974-1 - Physique des matériaux et biophysique	Q2	20	10	-	4
PHYS0981-1	<i>Quantum modelling of materials properties</i> (english language) - Philippe GHOSEZ, Matthieu VERSTRAETE Corequisite : PHYS0974-1 - Physique des matériaux et biophysique	Q1	20	10	-	4
CHIM0202-2	<i>Physical Chemistry</i> - Christian DAMBLON, Bernard LEYH	Q2	30	-	-	4
PHYS0987-1	<i>Physics of materials for energy</i> (english language) - Philippe GHOSEZ, Ngoc Duy NGUYEN	Q1	30	-	-	4
PHYS0988-1	<i>Intrinsic and induced topological properties of matter</i> (english language) - Bertrand DUPÉ	Q2	20	10	-	4
PHYS0998-1	<i>Physics of superconductors</i> (english language) - Alejandro SILHANEK	Q2	15	-	-	2

Quantum Physics and Relativity

PHYS2012-1	<i>Relativistic quantum mechanics and relativistic statistics</i> - Peter SCHLAGHECK	Q1	20	5	-	4
SPAT0012-1	<i>General relativity</i> (english language) - Guillaume MAHLER	Q1	30	10	-	4

Experimental Physics

PHYS0250-2	<i>Experimental statistical physics</i> - Stéphane DORBOLO Corequisite : PHYS0975-1 - Introduction à la matière molle et aux systèmes complexes	Q2	10	20	-	4
PHYS3019-1	<i>Techniques of experimental physics</i> - Geoffroy LUMAY	Q2	20	20	-	4
PHYS0943-1	<i>Spectroscopy of electronic paramagnetic resonance</i> - Maryse HOEBEKE Corequisite : PHYS0974-1 - Physique des matériaux et biophysique	Q2	15	15	-	4
PHYS0095-1	<i>The physics of accelerators and vacuum technologies</i> - David STRIVAY	Q2	10	10	-	4
PHYS0968-1	<i>Signal processing</i> - Alejandro SILHANEK	Q2	25	20	-	4
PHYS3037-1	<i>Nanofabrication : principles and techniques</i> (english language) - Ngoc Duy NGUYEN, Alejandro SILHANEK Corequisite : PHYS0974-1 - Physique des matériaux et biophysique	Q2	25	15	-	4

Optics and Imaging

PHYS0942-3	<i>Ionising radiations and imaging</i> - Alain SERET	Q1	20	5	-	4
PHYS0938-1	<i>Physics and cultural heritage</i> - David STRIVAY	Q1	15	5	-	4
PHYS0048-2	<i>Coherent and incoherent optics</i> (english language)	Q1				4

	- <i>Coherent optics and lasers applications</i> - Serge HABRAKEN	10	15	-	
	- <i>Laser physics</i> - Serge HABRAKEN	5	5	-	
PHYS0048-3	<i>Coherent and incoherent optics, Instrumental optics I</i> (english language) - Serge HABRAKEN	Q1	20	15	- 4
PHYS0128-1	<i>Magnetic Resonance Imaging - the Basics</i> (english language) - Laurent LAMALLE - [3d FW]	Q1	15	-	[+] 2
Applied physics					
INFO0939-1	<i>High performance scientific computing</i> (english language) - Christophe GEUZAINÉ - [20h Proj.]	Q1	30	15	[+] 5
MECA0470-1	<i>New methods in computational mechanics and physics</i> (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	Q2	20	-	[+] 5
ELEN0062-1	<i>Introduction to machine learning</i> (english language) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.]	Q1	30	5	[+] 6
Didactics					
PHYS0979-1	<i>Conceptual approach to basic physics</i> - Hervé CAPS, Maryse HOEBEKE	Q1	30	-	- 4
AESS0241-1	<i>Introduction to physics didactics</i> - Maryse HOEBEKE	Q1	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					
PHYS0952-3	<i>Imaging through ionising radiation</i> - Alain SERET Corequisite : PHYS0931-1 - Traitement des données PHYS0989-1 - Radiobiology PHYS0990-1 - Dosimétrie	Q1	25	5	- 4
PHYS0989-1	<i>Radiobiology</i> (english language) - Olivier VAN HOEY Corequisite : PHYS0952-3 - Imagerie par radiations ionisantes PHYS0990-1 - Dosimétrie	Q2	10	-	- 2
PHYS0990-1	<i>Dosimetry</i> - Véronique BAART, Luca PELLEGRINI Corequisite : PHYS0952-3 - Imagerie par radiations ionisantes PHYS0989-1 - Radiobiology	Q2	20	-	- 3
RADI2001-1	<i>Radioprotection: hygiene problems</i> - Nadia WITHOFS Corequisite : PHYS0952-3 - Imagerie par radiations ionisantes BIOL0007-1 - Biologie tissulaire RADP0141-1 - Radioprotection PHYS0989-1 - Radiobiology PHYS0990-1 - Dosimétrie	Q1	15	-	- 2
BIOL0007-1	<i>Tissue biology</i> - Marc THIRY	Q1	15	25	- 4
PHYL0644-1	<i>Human Anatomy and Physiology</i> - Pierre BONNET	Q2	30	-	- 3
ANAT0222-1	<i>Elements of Radiology</i> - Paul MEUNIER, Luaba TSHIBANDA, Christophe VALKENBORGH	Q1	10	5	- 2
CHIM0620-1	<i>Radiopharmaceutical Chemistry</i> - Thibault GENDRON	Q1	20	10	- 3
PHYS0128-1	<i>Magnetic Resonance Imaging - the Basics</i> (english language) - Laurent LAMALLE - [3d FW] Corequisite : PHYS0930-1 - Physique atomique	Q1	15	-	[+] 2
RADP0141-1	<i>Radioprotection</i> - Part a) <i>Radioprotection techniques and complements</i> - Véra PIRLET	Q2	30	15	- 6

	- Part b) Legislation on radioprotection and the organisation of a radiotherapy, radiodiagnostic and nuclear medicine department - Véra PIRLET	10	-	-	
SSTG0041-1	Placement in medical radiophysics - Véronique BAART, Alain SERET - [12d Internship] Corequisite : PHYS0952-3 - Imagerie par radiations ionisantes PHYS0989-1 - Radiobiology PHYS0990-1 - Dosimétrie	Q2	2	-	[+] 7
STAT0420-1	Biostatistics 2 - AnneFrançoise DONNEAU	Q1	15	15	- 3
PHYS0968-1	Signal processing - Alejandro SILHANEK	Q2	25	20	- 4

Block 2

Compulsory course

SMEM0028-1	Final thesis - COLLÉGIALITÉ	TA	-	-	- 18
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Optional courses

In agreement with the Jury, choose a subject among :

Basic course

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	TA			4
			10	-	-
			10	-	-
			10	-	-

Choisir en accord avec le Jury des cours non déjà choisis pour un total de 8 crédits parmi :

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-Einstein condensates - Peter SCHLAGHECK Corequisite : PHYS3021-1 - Mécanique quantique avancée PHYS0930-1 - Physique atomique	Q2	25	-	- 4
PHYS0235-2	Quantum optics - John MARTIN Corequisite : PHYS3021-1 - Mécanique quantique avancée PHYS0930-1 - Physique atomique	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

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 :	Q2	15	15	- 4

	PHYS0975-1 - Introduction à la matière molle et aux systèmes complexes						
PHYS3020-1	<i>Discrete element method and soft materials</i> - Eric OPSOMER	Q2	15	15	-	4	
PHYS0948-1	<i>Microgravity</i> - Nicolas VANDEWALLE - [3d FW]	Q2	10	20	[+]	4	
	Corequisite : PHYS0975-1 - Introduction à la matière molle et aux systèmes complexes						
Materials / Solid State							
PHYS3003-1	<i>Physics of functional oxides (english language)</i> - Philippe GHOSEZ	Q1	20	10	-	4	
	Corequisite : PHYS0974-1 - Physique des matériaux et biophysique						
PHYS0980-1	(pas organisé en 2023-2024) <i>Spectroscopy of materials (english language)</i>	Q1	20	10	-	4	
	Corequisite : PHYS0974-1 - Physique des matériaux et biophysique						
PHYS3004-1	<i>Physics of nanomaterials (english language)</i> - JeanYves RATY	Q1	20	10	-	4	
	Corequisite : PHYS0974-1 - Physique des matériaux et biophysique						
PHYS0982-1	<i>Physics of semiconductors (english language)</i> - Ngoc Duy NGUYEN	Q1	15	-	-	2	
	Corequisite : PHYS0974-1 - Physique des matériaux et biophysique						
PHYS3023-1	<i>Physics of magnetic materials (english language)</i> - Eric BOUSQUET	Q2	20	10	-	4	
	Corequisite : PHYS0974-1 - Physique des matériaux et biophysique						
PHYS0981-1	<i>Quantum modelling of materials properties (english language)</i> - Philippe GHOSEZ, Matthieu VERSTRAETE	Q1	20	10	-	4	
	Corequisite : PHYS0974-1 - Physique des matériaux et biophysique						
CHIM0202-2	<i>Physical Chemistry</i> - Christian DAMBLON, Bernard LEYH	Q2	30	-	-	4	
PHYS0987-1	<i>Physics of materials for energy (english language)</i> - Philippe GHOSEZ, Ngoc Duy NGUYEN	Q1	30	-	-	4	
PHYS0988-1	<i>Intrinsic and induced topological properties of matter (english language)</i> - Bertrand DUPÉ	Q2	20	10	-	4	
PHYS0998-1	<i>Physics of superconductors (english language)</i> - Alejandro SILHANEK	Q2	15	-	-	2	
Quantum Physics and Relativity							
PHYS2012-1	<i>Relativistic quantum mechanics and relativistic statistics</i> - Peter SCHLAGHECK	Q1	20	5	-	4	
SPAT0012-1	<i>General relativity (english language)</i> - Guillaume MAHLER	Q1	30	10	-	4	
Experimental Physics							
PHYS0250-2	<i>Experimental statistical physics</i> - Stéphane DORBOLO	Q2	10	20	-	4	
	Corequisite : PHYS0975-1 - Introduction à la matière molle et aux systèmes complexes						
PHYS3019-1	<i>Techniques of experimental physics</i> - Geoffroy LUMAY	Q2	20	20	-	4	
PHYS0943-1	<i>Spectroscopy of electronic paramagnetic resonance</i> - Maryse HOEBEKE	Q2	15	15	-	4	
	Corequisite : PHYS0974-1 - Physique des matériaux et biophysique						
PHYS0095-1	<i>The physics of accelerators and vacuum technologies</i> - David STRIVAY	Q2	10	10	-	4	
PHYS0968-1	<i>Signal processing</i> - Alejandro SILHANEK	Q2	25	20	-	4	
PHYS3037-1	<i>Nanofabrication : principles and techniques (english language)</i> - Ngoc Duy NGUYEN, Alejandro SILHANEK	Q2	25	15	-	4	
	Corequisite :						

PHYS0974-1 - Physique des matériaux et biophysique

Optics and Imaging

PHYS0942-3	<i>Ionising radiations and imaging</i> - Alain SERET	Q1	20	5	-	4	
PHYS0938-1	<i>Physics and cultural heritage</i> - David STRIVAY	Q1	15	5	-	4	
PHYS0048-2	<i>Coherent and incoherent optics</i> (english language) - <i>Coherent optics and lasers applications</i> - Serge HABRAKEN - <i>Laser physics</i> - Serge HABRAKEN	Q1		10 5	15 5	- -	4
PHYS0048-3	<i>Coherent and incoherent optics, Instrumental optics I</i> (english language) - Serge HABRAKEN	Q1	20	15	-	4	
PHYS0128-1	<i>Magnetic Resonance Imaging - the Basics</i> (english language) - Laurent LAMALLE - [3d FW]	Q1	15	-	[+]	2	
PHYS0125-3	<i>Instrumental optics II</i> (english language) - Serge HABRAKEN Prerequisite : PHYS0048-3 - Coherent and incoherent optics	Q2	25	15	-	4	

Applied physics

INFO0939-1	<i>High performance scientific computing</i> (english language) - Christophe GEUZAINÉ - [20h Proj.]	Q1	30	15	[+]	5
MECA0470-1	<i>New methods in computational mechanics and physics</i> (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	Q2	20	-	[+]	5
ELEN0062-1	<i>Introduction to machine learning</i> (english language) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.]	Q1	30	5	[+]	6

Didactics

PHYS0979-1	<i>Conceptual approach to basic physics</i> - Hervé CAPS, Maryse HOEBEKE	Q1	30	-	-	4
AESS0241-1	<i>Introduction to physics didactics</i> - Maryse HOEBEKE	Q1	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

QUAL0722-1	<i>Safety and quality assurance</i> (english language) - Edmond STERPIN Prerequisite : SSTG0041-1 - Stages en radiophysique médicale	Q2	5	10	-	2
RADL0442-1	<i>Radiobiology and radiopathology elements</i> - Chantal HUMBLET, Philippe MARTINIVE Prerequisite : ANAT0222-1 - Eléments d'anatomie radiologique PHYL0644-1 - Anatomie et physiologie humaines BIOL0007-1 - Biologie tissulaire	Q1	40	20	-	6
PHYS2024-1	<i>Transfer and co-registration of medical images</i> - Mohamed Ali BAHRI	Q1	15	-	-	2
CHIM0621-2	<i>Production and application of radioelements</i> - Thibault GENDRON - [3d FW]	Q2	15	-	[+]	2

Focus to be choosen

Research Focus

STRA0030-1	<i>Final thesis complement</i> - COLLÉGIALITÉ	TA	-	-	-	14
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[...] With the jury's agreement, choose from the Uliège programme complementary courses which have not already been chosen for a total of 16 credits, with a maximum of 20 credits outside the course over the two blocks.

Teaching focus

AESS1222-1	<i>Special didactics in physics : course and exercises (1st part)</i> -	Q1	40	-	-	3
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	APS, Maryse HOEBEKE					
	Corequisite : PHYS0979-1 - Approche conceptuelle de la physique de base					
AESS1223-1	<i>Special didactics in physics : placements (1st part)</i> - <i>Observation placements</i> - Hervé CAPS, Maryse HOEBEKE - [10h Internship] - <i>Teaching placements</i> - Hervé CAPS, Maryse HOEBEKE - [20h Internship] - <i>Reflexive practical work</i> - Hervé CAPS, Maryse HOEBEKE	Q1	-	-	[+]	3
	Corequisite : PHYS0979-1 - Approche conceptuelle de la physique de base					
AESS2222-1	<i>Special didactics in physics : course and exercises (2nd part)</i> - Hervé CAPS, Maryse HOEBEKE	Q2	35	-	-	4
AESS2223-1	<i>Special didactics in physics : placements (2nd part)</i> - <i>Teaching placements</i> - Hervé CAPS, Maryse HOEBEKE - [20h Internship] - <i>Reflexive practical work</i> - Hervé CAPS, Maryse HOEBEKE - <i>Extra-scholar teaching activities</i> - Hervé CAPS, Maryse HOEBEKE	Q2	-	-	[+]	5
			-	5	-	
			-	10	-	
AESS0202-1	<i>General didactics: course and exercises ; observation placements ; reflexive practices</i> - Annick FAGNANT - [10h Internship]	TA	30	10	[+]	4
AESS0246-1	<i>Analysis of scholastic institutions and educational policies</i> - Annelise VOISIN	Q2	15	-	-	1
AESS0004-1	<i>Media education</i> - Jeremy HAMERS	Q1	15	-	-	1
AESS0248-1	<i>Elements of sociology of education</i> - JeanFrançois GUILLAUME	Q2	10	-	-	1
AESS0140-1	<i>Professional ethics and training to neutrality and citizenship</i> - Anne HERLA	Q2	25	-	-	2
AESS0143-1	<i>Educational Psychology of adolescents and young adults</i> - Annick FAGNANT	Q1	15	-	-	2
AESS0249-1	<i>Interdisciplinary seminar</i> - Annick FAGNANT	Q2	15	-	-	1
AESS0339-1	<i>Understand and manage the diversity of public schools</i> - Ariane BAYE	TA	10	15	-	3
Professional Focus in Medical Radiological Physics						
PHYS0991-1	<i>Special applications and techniques in radiotherapy</i> - Véronique BAART, Luca PELLEGRINI Prerequisite : PHYS0989-1 - Radiobiology PHYS0990-1 - Dosimétrie	Q1	35	-	-	4
PHYS0992-1	<i>Special applications and techniques in radiodiagnostic (english language)</i> - Hilde BOSMANS Prerequisite : PHYS0952-3 - Imagerie par radiations ionisantes PHYS0989-1 - Radiobiology	Q1	15	-	-	2
PHYS0993-1	<i>Special applications and techniques in nuclear medicine</i> - Claire BERNARD, Roland HUSTINX, Alain SERET Prerequisite : PHYS0952-3 - Imagerie par radiations ionisantes PHYS0989-1 - Radiobiology	Q1	20	-	-	3
PHYS0994-1	<i>Internal dosimetry of radiopharmaceutical compounds</i> - Claire BERNARD, Christophe MERCIER, Alain SERET Prerequisite : PHYS0952-3 - Imagerie par radiations ionisantes PHYS0989-1 - Radiobiology	Q1	8	4	-	2
PHYS0995-1	<i>Computerized dosimetry specialized in radiotherapy (english language)</i> - Edmond STERPIN	Q1	15	-	-	2

	Prerequisite : PHYS0989-1 - Radiobiology PHYS0990-1 - Dosimétrie					
PHYS0996-1	<i>2D & 3D tomographical reconstruction</i> - Alain SERET	Q1	10	-	-	1
	Prerequisite : PHYS0931-1 - Traitement des données PHYS0952-3 - Imagerie par radiations ionisantes					
SSTG0015-2	<i>Training</i> - COLLÉGIALITÉ - [3mois Internship]	TA	-	-	[+]	16
	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 PHYS0996-1 - Reconstruction tomographique 2D & 3D					

Bloc d'aménagement du programme de l'année

Additional ECTS (max 15-60) Master in physics (120 ECTS)

Optional courses

The update course, worth a maximum of 60 credits, will be determined based on students' prior training.

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