Study programmes 2010-2011

Faculty of Sciences

Master in Physical Sciences, specialized approach

First Year

Compulsory courses

PHYS0240-2	*Biophysics* - Maryse HOEBEKE	30	15	-	**5**
PHYS0930-1	*Atomic Physics* - Thierry BASTIN	30	15	-	**5**
PHYS0931-1	*Data processing* - Pierre MAGAIN	15	30	-	**5**

Optional courses

Choose one option from the following :

Fundamental 1 Option

SSTG0016-1	*Training course and personnal homework* - COLLÉGIALITÉ	15	45	-	**6**

Choose, with the approval of the Physics Board of Studies, courses totalling 24 credits, from :

PHYS0932-1	*Cold atoms and atomic clocks* - Thierry BASTIN	20	-	-	**3**
PHYS2027-1	*Ultracold atoms and Bose-Enstein condensates* - Peter SCHLAGHECK	30	-	-	**3**
AESS0241-1	*Introduction to physic didactics* - Maryse HOEBEKE	20	-	-	**3**
SPAT0012-2	*General relativity I, Part : Introduction* - Yves DE ROP	20	-	-	**3**
PHYS0933-1	*Magnetism and nanomagnetism* (english language) - Raphaël HERMANN	15	10	-	**3**
PHYS0934-1	*Coherent Optics and laser applications* - Serge HABRAKEN	15	20	-	**3**
PHYS0124-1	*Instrumental Optics I* - Serge HABRAKEN	20	15	-	**3**
PHYS0969-1	*Introduction to biophotonics* - Laurent DREESEN	20	10	-	**3**
PHYS0937-1	*Physical functional materials* (english language) - Philippe GHOSEZ	20	10	-	**3**
PHYS0938-1	*Physics and cultural heritage* - David STRIVAY	15	5	-	**3**
PHYS0939-2	*Physics of non-linearities, chaos and fractals* - Nicolas VANDEWALLE	15	15	-	**3**
PHYS2012-1	*Relativistic quantum mechanics and relativistic statistics* - Peter SCHLAGHECK	20	5	-	**3**
PHYS0250-2	*Experimental statistical physics* - Stéphane DORBOLO	10	20	-	**3**
PHYS0941-2	*Nuclei and particles* - Jean-René CUDELL	30	-	-	**3**
PHYS0942-1	*Ionising radiations and imaging* - Alain SERET	15	5	-	**3**
PHYS0943-1	*Electronic paramagnetic resonance* - Maryse HOEBEKE	15	5	-	**3**
PHYS3012-2	*Electronic and vibrational spectroscopies* - Matthieu VERSTRAETE	15	15	-	**3**
PHYS0944-1	*Vacuum tehniques* - David STRIVAY	10	10	-	**3**
CHIM0202-2	*Physical chemistry* - Christian DAMBLON, Bernard LEYH	30	-	-	**3**
SPAT0012-3	*General relativity I, Part : Complement* - Yves DE ROP	40	-	-	**3**
SPAT0047-1	*Quantum field theory* - Jean-René CUDELL	30	-	-	**3**
PHYS0945-1	*Complex fluids* - Nicolas VANDEWALLE	20	10	-	**3**
PHYS0235-1	*Introduction to quantum optics* - John MARTIN	30	-	-	**3**
PHYS0947-1	*Large Scale Facilities in Condensed Matter Physics* (english language) - Jean-Pierre GASPARD - [2d Vis.]	10	10	[+]	**3**
PHYS0948-1	*Microgravity* - Hervé CAPS, Nicolas VANDEWALLE - [3d FW]	10	20	[+]	**6**
PHYS0949-1	*Atomic structures modeling* - Pascal QUINET	10	10	-	**3**
PHYS0950-1	*Nanoparticles and low-dimensional systems* (english language) - Jean-Yves RATY	20	10	-	**3**
PHYS0125-3	*Instrumental Optics II* - Serge HABRAKEN	25	30	-	**6**
PHYS3017-1	*Physical science in an historical perspective* - Martine JAMINON - [1d Vis.]	30	-	[+]	**3**
PHYS3013-1	*Physical characterization of materials and interfaces* - Ngoc Duy NGUYEN	15	15	-	**3**
[...]	Up to 15 credits can be chosen in another study path or in another institution				

Option Medical Physics 1

PHYS0952-1	*Fundamental problems in physics related to radiology, radiotherapy and nuclear medicine*				**6**
	- *part : radiobiology* - Christophe CHAMPION	10	-	-	
	- *part : dosimetry* - Marie-Thérèse HOORNAERT	20	-	-	
	- *part : medical imaging* - Alain SERET	20	5	-	
RADP0141-1	*Radioprotection*				**5**
	- *Part a) Radioprotection techniques and complements* - Véra PIRLET	30	15	-	
	- *Part b) Legislation on radioprotection and the organisation of a radiotherapy,*	10	-	-	

	radiodiagnostic and nuclear medicine department - Véra PIRLET				
RADI2001-1	*Radioprotection : Hygiene problems* - Roland HUSTINX	15	-	-	**2**
BIOL0802-1	*Cell and Tissue Biology* - Marc THIRY	40	45	-	**7**
PHYL0644-1	*Human Anatomy and Physiology* - Pierre BONNET	30	-	-	**3**
ANAT0222-1	*Elements of Radiology* - Paul MAGOTTEAUX, Paul MEUNIER, Mladen MILICEVIC, Bernard OTTO, Paolo SIMONI, Luaba TSHIBANDA	10	5	-	**2**
STAT0722-1	*Introduction to medical statistics* - Christophe PHILLIPS	10	5	-	**2**
CHIM0620-1	*Radiopharmaceutical Chemisry* - André LUXEN	20	10	-	**3**

Choose a 2nd option among the following

Fundamental 2 Option

Requisite "Option fondamentale 1"

Choose, in agreement with the Physics Board of Studies, courses totalling 15 credits

PHYS0932-1	*Cold atoms and atomic clocks* - Thierry BASTIN	20	-	-	**3**
PHYS2027-1	*Ultracold atoms and Bose-Enstein condensates* - Peter SCHLAGHECK	30	-	-	**3**
AESS0241-1	*Introduction to physic didactics* - Maryse HOEBEKE	20	-	-	**3**
SPAT0012-2	*General relativity I, Part : Introduction* - Yves DE ROP	20	-	-	**3**
PHYS0933-1	*Magnetism and nanomagnetism* (english language) - Raphaël HERMANN	15	10	-	**3**
PHYS0934-1	*Coherent Optics and laser applications* - Serge HABRAKEN	15	20	-	**3**
PHYS0124-1	*Instrumental Optics I* - Serge HABRAKEN	20	15	-	**3**
PHYS0969-1	*Introduction to biophotonics* - Laurent DREESEN	20	10	-	**3**
PHYS0937-1	*Physical functional materials* (english language) - Philippe GHOSEZ	20	10	-	**3**
PHYS0938-1	*Physics and cultural heritage* - David STRIVAY	15	5	-	**3**
PHYS0939-2	*Physics of non-linearities, chaos and fractals* - Nicolas VANDEWALLE	15	15	-	**3**
PHYS2012-1	*Relativistic quantum mechanics and relativistic statistics* - Peter SCHLAGHECK	20	5	-	**3**
PHYS0250-2	*Experimental statistical physics* - Stéphane DORBOLO	10	20	-	**3**
PHYS0941-2	*Nuclei and particles* - Jean-René CUDELL	30	-	-	**3**
PHYS0942-1	*Ionising radiations and imaging* - Alain SERET	15	5	-	**3**
PHYS0943-1	*Electronic paramagnetic resonance* - Maryse HOEBEKE	15	5	-	**3**
PHYS3012-2	*Electronic and vibrational spectroscopies* - Matthieu VERSTRAETE	15	15	-	**3**
PHYS0944-1	*Vacuum tehniques* - David STRIVAY	10	10	-	**3**
CHIM0202-2	*Physical chemistry* - Christian DAMBLON, Bernard LEYH	30	-	-	**3**
SPAT0012-3	*General relativity I, Part : Complement* - Yves DE ROP	40	-	-	**3**
SPAT0047-1	*Quantum field theory* - Jean-René CUDELL	30	-	-	**3**
PHYS0945-1	*Complex fluids* - Nicolas VANDEWALLE	20	10	-	**3**
PHYS0235-1	*Introduction to quantum optics* - John MARTIN	30	-	-	**3**
PHYS0947-1	*Large Scale Facilities in Condensed Matter Physics* (english language) - Jean-Pierre GASPARD - [2d Vis.]	10	10	[+]	**3**
PHYS0948-1	*Microgravity* - Hervé CAPS, Nicolas VANDEWALLE - [3d FW]	10	20	[+]	**6**
PHYS0949-1	*Atomic structures modeling* - Pascal QUINET	10	10	-	**3**
PHYS0950-1	*Nanoparticles and low-dimensional systems* (english language) - Jean-Yves RATY	20	10	-	**3**
PHYS0125-3	*Instrumental Optics II* - Serge HABRAKEN	25	30	-	**6**
PHYS3017-1	*Physical science in an historical perspective* - Martine JAMINON - [1d Vis.]	30	-	[+]	**3**
PHYS3013-1	*Physical characterization of materials and interfaces* - Ngoc Duy NGUYEN	15	15	-	**3**
[...]	Up to 15 credits can be chosen in another study path or in another institution				

Option Medical Physics 2

Requisite "Option physique médicale 1"

SSTG0017-2	*Training in nuclear medicine* - Claire BERNARD, Alain SERET - [1w Internship]	-	-	[+]	**4**
SSTG0018-2	*Training in radiology* - Françoise MALCHAIR - [1w Internship]	-	-	[+]	**4**
SSTG0019-2	*Training in radiotherapy* - Marie-Thérèse HOORNAERT - [1w Internship]	-	-	[+]	**4**
PHYS0128-1	*Magnetic Resonance Imaging - the Basics* (english language) - Evelyne BALTEAU - [3d FW]	15	-	[+]	**3**

Second Year

Compulsory course

SMEM0028-1	*Final thesis* - COLLÉGIALITÉ	-	-	-	**15**

Optional courses

Choose one option from the following :

Fundamental 3 Option

Prerequisite "Option fondamentale 2"

With the approval of the Board of Studies in Physics, choose courses not chosen in the 1st year totaling 15 credits :

PHYS0932-1	*Cold atoms and atomic clocks* - Thierry BASTIN	20	-	-	**3**
PHYS2027-1	*Ultracold atoms and Bose-Enstein condensates* - Peter SCHLAGHECK	30	-	-	**3**
AESS0241-1	*Introduction to physic didactics* - Maryse HOEBEKE	20	-	-	**3**
SPAT0012-2	*General relativity I, Part : Introduction* - Yves DE ROP	20	-	-	**3**
PHYS0933-1	*Magnetism and nanomagnetism* (english language) - Raphaël HERMANN	15	10	-	**3**
PHYS0934-1	*Coherent Optics and laser applications* - Serge HABRAKEN	15	20	-	**3**
PHYS0124-1	*Instrumental Optics I* - Serge HABRAKEN	20	15	-	**3**
PHYS0969-1	*Introduction to biophotonics* - Laurent DREESEN	20	10	-	**3**
PHYS0937-1	*Physical functional materials* (english language) - Philippe GHOSEZ	20	10	-	**3**
PHYS0938-1	*Physics and cultural heritage* - David STRIVAY	15	5	-	**3**
PHYS0939-2	*Physics of non-linearities, chaos and fractals* - Nicolas VANDEWALLE	15	15	-	**3**
PHYS2012-1	*Relativistic quantum mechanics and relativistic statistics* - Peter SCHLAGHECK	20	5	-	**3**
PHYS0250-2	*Experimental statistical physics* - Stéphane DORBOLO	10	20	-	**3**
PHYS0941-2	*Nuclei and particles* - Jean-René CUDELL	30	-	-	**3**
PHYS0942-1	*Ionising radiations and imaging* - Alain SERET	15	5	-	**3**
PHYS0943-1	*Electronic paramagnetic resonance* - Maryse HOEBEKE	15	5	-	**3**
PHYS3012-2	*Electronic and vibrational spectroscopies* - Matthieu VERSTRAETE	15	15	-	**3**
PHYS0944-1	*Vacuum tehniques* - David STRIVAY	10	10	-	**3**
CHIM0202-2	*Physical chemistry* - Christian DAMBLON, Bernard LEYH	30	-	-	**3**
SPAT0012-3	*General relativity I, Part : Complement* - Yves DE ROP	40	-	-	**3**
SPAT0047-1	*Quantum field theory* - Jean-René CUDELL	30	-	-	**3**
PHYS0945-1	*Complex fluids* - Nicolas VANDEWALLE	20	10	-	**3**
PHYS0235-1	*Introduction to quantum optics* - John MARTIN	30	-	-	**3**
PHYS0947-1	*Large Scale Facilities in Condensed Matter Physics* (english language) - Jean-Pierre GASPARD - [2d Vis.]	10	10	[+]	**3**
PHYS0948-1	*Microgravity* - Hervé CAPS, Nicolas VANDEWALLE - [3d FW]	10	20	[+]	**6**
PHYS0949-1	*Atomic structures modeling* - Pascal QUINET	10	10	-	**3**
PHYS0950-1	*Nanoparticles and low-dimensional systems* (english language) - Jean-Yves RATY	20	10	-	**3**
PHYS0125-3	*Instrumental Optics II* - Serge HABRAKEN	25	30	-	**6**
PHYS3017-1	*Physical science in an historical perspective* - Martine JAMINON - [1d Vis.]	30	-	[+]	**3**
PHYS3013-1	*Physical characterization of materials and interfaces* - Ngoc Duy NGUYEN	15	15	-	**3**
[...]	Up to 15 credits can be chosen in another study path or in another institution.				

Option: Medical Physics 3

Prerequisite "Option Physique médicale 2"

QUAL0722-1	*Safety and quality assurance* - Eric LENAERTS	5	10	-	**2**
RADL0442-1	*Radiobiology and radiopathologie elements* - Chantal HUMBLET, Philippe MARTINIVE	40	20	-	**6**
PHYS2024-1	*Transfer and co-registration of medical images* - Mohamed Ali BAHRI	15	-	-	**2**
PHYS2025-1	*Fundamental problems of physics relating to medical radiodiagnostics, radiotherapy and nuclear medicine : internal dosimetry of radiopharmaceutical compounds* (english language) - Klaus BACHER	15	-	-	**2**
CHIM0621-2	*Production and application of radioelements* - André LUXEN - [3d FW]	15	-	[+]	**3**

Compulsory courses

PHYS0954-2	*Fundamental problems in physics related to radiology, radiotherapy and nuclear medicine*				**12**
	- *Special applications and techniques in radiotherapy* - Marie-Thérèse HOORNAERT	35	-	-	
	- *Special applications and techniques in radiodiagnostics* - Hilde BOSMANS	15	-	-	
	- *Special applications and techniques in nuclear medicine* - Claire BERNARD,	20	-	-	

	HUSTINX, Alain SERET - *Computerized dosimetry in radiotherapy* - Eric LENAERTS	15	-	-	
SSTG0015-2	*Training* - COLLÉGIALITÉ - [3mois Internship]	-	-	[+]	**18**