Study programmes 2009-2010

Faculty of Sciences

Master in Physics

One-year master program

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**
SMEM0027-1	*Thesis* - COLLÉGIALITÉ	-	-	-	**15**

Optional courses

Choose, in agreement with the Physics Board of Studies, courses totalling 30 credits, amongst :

PHYS0932-1	*Cold atoms and atomic clocks* - Thierry BASTIN	20	-	-	**3**
PHYS2027-1	*Ultracold atoms and Bose-Enstein condensates* - Peter SCHLAGHECK	30	-	-	**3**
PHYS0204-2	*Quantum Physics II* - Jean-Pierre GASPARD	15	5	-	**3**
AESS0241-1	*Introduction to physic didactics* - Maryse HOEBEKE	20	-	-	**3**
SPAT0012-2	*General relativity I, Partim : Introduction* - Yves DE ROP	20	-	-	**3**
PHYS0933-1	*Magnetism and nanomagnetism (English)* - 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)* - Philippe GHOSEZ	20	10	-	**3**
PHYS0938-1	*Physics and cultural heritage* - David STRIVAY	15	5	-	**3**
PHYS0939-1	*Physics of non-linearities, chaos and fractals* - Nicolas VANDEWALLE	15	25	-	**3**
PHYS2012-2	*Relativistic quantum mechanics and relativistic statistics* - Joseph CUGNON	15	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**
PHYS0944-1	*Vacuum tehniques* - David STRIVAY	10	10	-	**3**
CHIM0202-2	*Physical chemistry* - Christian DAMBLON, Bernard LEYH	30	-	-	**3**
SPAT0012-3	*General relativity I, Partim : Compléments* - 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	*Quantum optics* - Thierry BASTIN	30	-	-	**3**
PHYS0947-1	*Large Scale Facilities in Condensed Matter Physics (en)* - 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)* - Jean-Yves RATY	20	10	-	**3**
PHYS0125-3	*Instrumental Optics II* - Serge HABRAKEN	25	30	-	**6**
PHYS3012-1	*Electronic and vibrational spectroscopies* - Matthieu VERSTRAETE	30	-	-	**3**
[...]	Up to 9 credits can also be choosen in another study path or in another institution (if not choosen in the first year)				

Two-year master program

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* - Hervé CAPS	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**
PHYS0204-2	*Quantum Physics II* - Jean-Pierre GASPARD	15	5	-	**3**
AESS0241-1	*Introduction to physic didactics* - Maryse HOEBEKE	20	-	-	**3**
SPAT0012-2	*General relativity I, Partim : Introduction* - Yves DE ROP	20	-	-	**3**
PHYS0933-1	*Magnetism and nanomagnetism (English)* - 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)* - Philippe GHOSEZ	20	10	-	**3**
PHYS0938-1	*Physics and cultural heritage* - David STRIVAY	15	5	-	**3**
PHYS0939-1	*Physics of non-linearities, chaos and fractals* - Nicolas VANDEWALLE	15	25	-	**3**
PHYS2012-2	*Relativistic quantum mechanics and relativistic statistics* - Joseph CUGNON	15	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**
PHYS0944-1	*Vacuum tehniques* - David STRIVAY	10	10	-	**3**
CHIM0202-2	*Physical chemistry* - Christian DAMBLON, Bernard LEYH	30	-	-	**3**
SPAT0012-3	*General relativity I, Partim : Compléments* - 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	*Quantum optics* - Thierry BASTIN	30	-	-	**3**
PHYS0947-1	*Large Scale Facilities in Condensed Matter Physics (en)* - 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)* - Jean-Yves RATY	20	10	-	**3**
PHYS0125-3	*Instrumental Optics II* - Serge HABRAKEN	25	30	-	**6**
PHYS3012-1	*Electronic and vibrational spectroscopies* - Matthieu VERSTRAETE	30	-	-	**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**
	- *partim radiobiologie* - Christophe CHAMPION	10	-	-	
	- *partim dosimétrie* - Marie-Thérèse HOORNAERT	20	-	-	
	- *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, radiodiagnostic and nuclear medicine department* - Véra PIRLET	10	-	-	
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* - N... - Suppl : Pierre BONNET, Alain CARLIER, Philippe GILLET, Marc RADERMECKER, Jean SCHOENEN	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**
PHYS0204-2	*Quantum Physics II* - Jean-Pierre GASPARD	15	5	-	**3**
AESS0241-1	*Introduction to physic didactics* - Maryse HOEBEKE	20	-	-	**3**
SPAT0012-2	*General relativity I, Partim : Introduction* - Yves DE ROP	20	-	-	**3**
PHYS0933-1	*Magnetism and nanomagnetism (English)* - 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)* - Philippe GHOSEZ	20	10	-	**3**
PHYS0938-1	*Physics and cultural heritage* - David STRIVAY	15	5	-	**3**
PHYS0939-1	*Physics of non-linearities, chaos and fractals* - Nicolas VANDEWALLE	15	25	-	**3**
PHYS2012-2	*Relativistic quantum mechanics and relativistic statistics* - Joseph CUGNON	15	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**
PHYS0944-1	*Vacuum tehniques* - David STRIVAY	10	10	-	**3**
CHIM0202-2	*Physical chemistry* - Christian DAMBLON, Bernard LEYH	30	-	-	**3**
SPAT0012-3	*General relativity I, Partim : Compléments* - 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	*Quantum optics* - Thierry BASTIN	30	-	-	**3**
PHYS0947-1	*Large Scale Facilities in Condensed Matter Physics (en)* - 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)* - Jean-Yves RATY	20	10	-	**3**
PHYS0125-3	*Instrumental Optics II* - Serge HABRAKEN	25	30	-	**6**
PHYS3012-1	*Electronic and vibrational spectroscopies* - Matthieu VERSTRAETE	30	-	-	**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"				
SSTG0017-1	*Training in nuclear medicine* - Claire BERNARD, Alain SERET	-	-	-	**4**
SSTG0018-1	*Training in radiology* - Françoise MALCHAIR	-	-	-	**4**
SSTG0019-1	*Training in radiotherapy* - Marie-Thérèse HOORNAERT	-	-	-	**4**
PHYS0128-1	*Magnetic Resonance Imaging - the Basics* - Evelyne BALTEAU - [3d FW]	15	-	[+]	**3**

Second year

Compulsory courses

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**
PHYS0204-2	*Quantum Physics II* - Jean-Pierre GASPARD	15	5	-	**3**
AESS0241-1	*Introduction to physic didactics* - Maryse HOEBEKE	20	-	-	**3**

SPAT0012-2	*General relativity I, Partim : Introduction* - Yves DE ROP	20	-	-	**3**
PHYS0933-1	*Magnetism and nanomagnetism (English)* - 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)* - Philippe GHOSEZ	20	10	-	**3**
PHYS0938-1	*Physics and cultural heritage* - David STRIVAY	15	5	-	**3**
PHYS0939-1	*Physics of non-linearities, chaos and fractals* - Nicolas VANDEWALLE	15	25	-	**3**
PHYS2012-2	*Relativistic quantum mechanics and relativistic statistics* - Joseph CUGNON	15	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**
PHYS0944-1	*Vacuum tehniques* - David STRIVAY	10	10	-	**3**
CHIM0202-2	*Physical chemistry* - Christian DAMBLON, Bernard LEYH	30	-	-	**3**
SPAT0012-3	*General relativity I, Partim : Compléments* - 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	*Quantum optics* - Thierry BASTIN	30	-	-	**3**
PHYS0947-1	*Large Scale Facilities in Condensed Matter Physics (en)* - Jean-Pierre GASPARD - [2d Vis.]	10	10	[+]	**3**
PHYS0948-1	*Micrograviy* - 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)* - Jean-Yves RATY	20	10	-	**3**
PHYS0125-3	*Instrumental Optics II* - Serge HABRAKEN	25	30	-	**6**
PHYS3012-1	*Electronic and vibrational spectroscopies* - Matthieu VERSTRAETE	30	-	-	**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* - Philippe DELVENNE	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)* - Klaus BACHER	15	-	-	**2**
PHYS0128-1	*Magnetic Resonance Imaging - the Basics* - Evelyne BALTEAU - [3d FW]	15	-	[+]	**3**

Choose one of the following focus :

Research Focus

Compulsory courses

STRA0030-1	*Complement of final thesis* - COLLÉGIALITÉ	-	-	-	**12**
PHYS0963-1	*Seminars* - COLLÉGIALITÉ	-	-	-	**3**

Optional courses

[...]	With the approval of the Board of Studies in Physics, choose from the courses programme of the ULg additional courses, not previously followed, totaling 15 credits				

Teaching focus

Compulsory courses

AESS0215-1	*Special didactics in physics (part I)*				**6**
	- *Course and exercises* - Hervé CAPS, Maryse HOEBEKE	40	-	-	
	- *Observation placements* - Hervé CAPS, Maryse HOEBEKE - [10h Internship]	-	-	[+]	
	- *Teaching placements* - Hervé CAPS, Maryse HOEBEKE - [20h Internship]	-	-	[+]	
	- *Reflexive practical work* - Hervé CAPS, Maryse HOEBEKE	-	5	-	
AESS0233-1	*Special didactics in physics (part II)*				**9**
	- *Course and exercises* - Maryse HOEBEKE	35	-	-	

	- *Teaching placements* - Maryse HOEBEKE - [20h Internship]	-	-	[+]	
	- *Reflexive practical work* - Maryse HOEBEKE	-	5	-	
	- *School practical outside lectures* - Maryse HOEBEKE	-	10	-	
AESS0202-1	*General didactics: courses and exercises; observation placements; reflexive practices* - Annick FAGNANT - [10h Internship]	30	10	[+]	**4**
AESS0246-1	*Analysis of scolastic institutions and key-players, educational policies* - Jacqueline BECKERS	15	-	-	**1**
AESS0004-1	*Media education* - Geneviève VAN CAUWENBERGE	15	-	-	**1**
AESS0248-1	*Elements of sociology of education* - Jean-François GUILLAUME	10	-	-	**1**
AESS0247-1	*Views on cultural diversity* - Jérôme JAMIN	10	-	-	**1**
AESS0140-1	*Professional ethics and training to neutrality and citizenship* - Véronique DORTU	25	-	-	**2**
AESS0143-1	*Educational Psychology of adolescents and young adults* - Dieudonné LECLERCQ	15	-	-	**2**
AESS0249-1	*Interdisciplinary seminar* - Nicolas LECLERCQ	15	-	-	**1**
AESS0142-1	*Seminar on prevention and management of difficult scholastic situations* - Jocelyne ROBERT	15	-	-	**2**

Professional Focus in Medical Radiological Physics

Compulsory courses

PHYS0954-2	*Fundamental problems in physics related to radiology, radiotherapy and nuclear medicine*				**12**
	- *Applications et techniques spéciales en radiothérapie* - Marie-Thérèse HOORNAERT	35	-	-	
	- *Applications et techniques spéciales en radiodiagnostic* - Hilde BOSMANS	15	-	-	
	- *Special applications and techniques in nuclear medicine* - Claire BERNARD, Roland HUSTINX, Alain SERET	20	-	-	
	- *Dosimétrie informatisée en radiothérapie* - Eric LENAERTS	15	-	-	
SSTG0015-1	*Training* - COLLÉGIALITÉ	-	-	-	**18**