

One-year master program

Compulsory courses

PHYS0240-2	<i>Biophysics</i> - Maryse HOEBEKE	30	15	-	5
PHYS0930-1	<i>Atomic Physics</i> - Thierry BASTIN	30	15	-	5
PHYS0931-1	<i>Data processing</i> - Pierre MAGAIN	15	30	-	5
SMEM0027-1	<i>Final thesis</i> - COLLÉGIALITÉ	-	-	-	15

Optional courses

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

PHYS0932-1	<i>Cold atoms and atomic clocks</i> - Thierry BASTIN	20	-	-	3
PHYS2027-1	<i>Ultracold atoms and Bose-Einstein condensates</i> - Peter SCHLAGHECK	30	-	-	3
AESS0241-1	<i>Introduction to physic didactics</i> - Maryse HOEBEKE	20	-	-	3
SPAT0012-2	<i>General relativity I, Part : Introduction</i> - Yves DE ROP	20	-	-	3
PHYS0933-1	<i>Magnetism and nanomagnetism (english language)</i> - Raphaël HERMANN	15	10	-	3
PHYS0934-1	<i>Coherent Optics and laser applications</i> - Serge HABRAKEN	15	20	-	3
PHYS0124-1	<i>Instrumental Optics I</i> - Serge HABRAKEN	20	15	-	3
PHYS0969-1	<i>Introduction to biophotonics</i> - Laurent DREESEN	20	10	-	3
PHYS0937-1	<i>Physical functional materials (english language)</i> - Philippe GHOSEZ	20	10	-	3
PHYS0938-1	<i>Physics and cultural heritage</i> - David STRIVAY	15	5	-	3
PHYS0939-2	<i>Physics of non-linearities, chaos and fractals</i> - Nicolas VANDEWALLE	15	15	-	3
PHYS2012-1	<i>Relativistic quantum mechanics and relativistic statistics</i> - Peter SCHLAGHECK	20	5	-	3
PHYS0250-2	<i>Experimental statistical physics</i> - Stéphane DORBOLO	10	20	-	3
PHYS0941-2	<i>Nuclei and particles</i> - Jean-René CUDELL	30	-	-	3
PHYS0942-1	<i>Ionising radiations and imaging</i> - Alain SERET	15	5	-	3
PHYS0943-1	<i>Electronic paramagnetic resonance</i> - Maryse HOEBEKE	15	5	-	3
PHYS3012-2	<i>Electronic and vibrational spectroscopies</i> - Matthieu VERSTRAETE	15	15	-	3
PHYS0944-1	<i>Vacuum techniques</i> - David STRIVAY	10	10	-	3
CHIM0202-2	<i>Physical chemistry</i> - Christian DAMBLON, Bernard LEYH	30	-	-	3
SPAT0012-3	<i>General relativity I, Part : Complement</i> - Yves DE ROP	40	-	-	3
SPAT0047-1	<i>Quantum field theory</i> - Jean-René CUDELL	30	-	-	3
PHYS0945-1	<i>Complex fluids</i> - Nicolas VANDEWALLE	20	10	-	3
PHYS0235-1	<i>Introduction to quantum optics</i> - John MARTIN	30	-	-	3
PHYS0947-1	<i>Large Scale Facilities in Condensed Matter Physics (english language) - Jean-Pierre GASPARD - [2d Vis.]</i>	10	10	[+]	3
PHYS0948-1	<i>Microgravity</i> - Hervé CAPS, Nicolas VANDEWALLE - [3d FW]	10	20	[+]	6
PHYS0949-1	<i>Atomic structures modeling</i> - Pascal QUINET	10	10	-	3
PHYS0950-1	<i>Nanoparticles and low-dimensional systems (english language)</i> - Jean-Yves RATY	20	10	-	3
PHYS0125-3	<i>Instrumental Optics II</i> - Serge HABRAKEN	25	30	-	6
PHYS3017-1	<i>Physical science in an historical perspective</i> - Martine JAMINON - [1d Vis.]	30	-	[+]	3
PHYS3013-1	<i>Physical characterization of materials and interfaces</i> - Ngoc Duy NGUYEN	15	15	-	3
[...]	Up to 9 credits can also be chosen in another study path or in another institution (if not chosen in the first year)				

Two-year master program

First Year

Compulsory courses

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

Optional courses

Choose one option from the following :

Fundamental 1 Option

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

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

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

Option Medical Physics 1

PHYS0952-1	<i>Fundamental problems in physics related to radiology, radiotherapy and nuclear medicine</i>				6
	- part : radiobiology - Christophe CHAMPION	10	-	-	
	- part : dosimetry - Marie-Thérèse HOORNAERT	20	-	-	
	- part : medical imaging - Alain SERET	20	5	-	
RADP0141-1	<i>Radioprotection</i>				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	<i>Radioprotection : Hygiene problems - Roland HUSTINX</i>	15	-	-	2
BIOL0802-1	<i>Cell and Tissue Biology - Marc THIRY</i>	40	45	-	7
PHYL0644-1	<i>Human Anatomy and Physiology - Pierre BONNET</i>	30	-	-	3
ANAT0222-1	<i>Elements of Radiology - Paul MAGOTTEAUX, Paul MEUNIER, Mladen MILICEVIC, Bernard OTTO, Paolo SIMONI, Luaba TSHIBANDA</i>	10	5	-	2
STAT0722-1	<i>Introduction to medical statistics - Christophe PHILLIPS</i>	10	5	-	2
CHIM0620-1	<i>Radiopharmaceutical Chemisry - André LUXEN</i>	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	<i>Cold atoms and atomic clocks</i> - Thierry BASTIN	20	-	-	3
PHYS2027-1	<i>Ultracold atoms and Bose-Einstein condensates</i> - Peter SCHLAGHECK	30	-	-	3
AESS0241-1	<i>Introduction to physic didactics</i> - Maryse HOEBEKE	20	-	-	3
SPAT0012-2	<i>General relativity I, Part : Introduction</i> - Yves DE ROP	20	-	-	3
PHYS0933-1	<i>Magnetism and nanomagnetism</i> (english language) - Raphaël HERMANN	15	10	-	3
PHYS0934-1	<i>Coherent Optics and laser applications</i> - Serge HABRAKEN	15	20	-	3
PHYS0124-1	<i>Instrumental Optics I</i> - Serge HABRAKEN	20	15	-	3
PHYS0969-1	<i>Introduction to biophotonics</i> - Laurent DREESEN	20	10	-	3
PHYS0937-1	<i>Physical functional materials</i> (english language) - Philippe GHOSEZ	20	10	-	3
PHYS0938-1	<i>Physics and cultural heritage</i> - David STRIVAY	15	5	-	3
PHYS0939-2	<i>Physics of non-linearities, chaos and fractals</i> - Nicolas VANDEWALLE	15	15	-	3
PHYS2012-1	<i>Relativistic quantum mechanics and relativistic statistics</i> - Peter SCHLAGHECK	20	5	-	3
PHYS0250-2	<i>Experimental statistical physics</i> - Stéphane DORBOLO	10	20	-	3
PHYS0941-2	<i>Nuclei and particles</i> - Jean-René CUDELL	30	-	-	3
PHYS0942-1	<i>Ionising radiations and imaging</i> - Alain SERET	15	5	-	3
PHYS0943-1	<i>Electronic paramagnetic resonance</i> - Maryse HOEBEKE	15	5	-	3
PHYS3012-2	<i>Electronic and vibrational spectroscopies</i> - Matthieu VERSTRAETE	15	15	-	3
PHYS0944-1	<i>Vacuum techniques</i> - David STRIVAY	10	10	-	3
CHIM0202-2	<i>Physical chemistry</i> - Christian DAMBLON, Bernard LEYH	30	-	-	3
SPAT0012-3	<i>General relativity I, Part : Complement</i> - Yves DE ROP	40	-	-	3
SPAT0047-1	<i>Quantum field theory</i> - Jean-René CUDELL	30	-	-	3
PHYS0945-1	<i>Complex fluids</i> - Nicolas VANDEWALLE	20	10	-	3
PHYS0235-1	<i>Introduction to quantum optics</i> - John MARTIN	30	-	-	3
PHYS0947-1	<i>Large Scale Facilities in Condensed Matter Physics</i> (english language) - Jean-Pierre GASPARD - [2d Vis.]	10	10	[+]	3
PHYS0948-1	<i>Microgravity</i> - Hervé CAPS, Nicolas VANDEWALLE - [3d FW]	10	20	[+]	6
PHYS0949-1	<i>Atomic structures modeling</i> - Pascal QUINET	10	10	-	3
PHYS0950-1	<i>Nanoparticles and low-dimensional systems</i> (english language) - Jean-Yves RATY	20	10	-	3
PHYS0125-3	<i>Instrumental Optics II</i> - Serge HABRAKEN	25	30	-	6
PHYS3017-1	<i>Physical science in an historical perspective</i> - Martine JAMINON - [1d Vis.]	30	-	[+]	3
PHYS3013-1	<i>Physical characterization of materials and interfaces</i> - 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	<i>Training in nuclear medicine</i> - Claire BERNARD, Alain SERET - [1w Internship]	-	-	[+]	4
SSTG0018-2	<i>Training in radiology</i> - Françoise MALCHAIR - [1w Internship]	-	-	[+]	4
SSTG0019-2	<i>Training in radiotherapy</i> - Marie-Thérèse HOORNAERT - [1w Internship]	-	-	[+]	4
PHYS0128-1	<i>Magnetic Resonance Imaging - the Basics</i> (english language) - Evelyne BALTEAU - [3d FW]	15	-	[+]	3

Second year

Compulsory course

SMEM0028-1	<i>Final thesis</i> - 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	<i>Cold atoms and atomic clocks</i> - Thierry BASTIN	20	-	-	3
------------	--	----	---	---	---

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

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

Choose one of the following focus :

Research Focus

Compulsory courses

STRA0030-1	<i>Complement of final thesis</i> - COLLÉGIALITÉ	-	-	-	12
PHYS0963-1	<i>Seminars</i> - 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	<i>Special didactics in physics (part I)</i> - Course and exercises - Hervé CAPS, Maryse HOEBEKE	40	-	-	6
------------	---	----	---	---	---

	- <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	-	5	-	
AESS0233-1	<i>Special didactics in physics (part II)</i>				9
	- <i>Course and exercises</i> - Hervé CAPS, Maryse HOEBEKE	35	-	-	
	- <i>Teaching placements</i> - Hervé CAPS, Maryse HOEBEKE - [20h Internship]	-	-	[+]	
	- <i>Reflexive practical work</i> - Hervé CAPS, Maryse HOEBEKE	-	5	-	
	- <i>School practical outside lectures</i> - Hervé CAPS, Maryse HOEBEKE	-	10	-	
AESS0202-1	<i>General didactics: course and exercises ; observation placements ; reflexive practices</i> - Annick FAGNANT - [10h Internship]	30	10	[+]	4
AESS0246-1	<i>Analysis of scholastic institutions and key-players, educational policies</i> - Jacqueline BECKERS	15	-	-	1
AESS0004-1	<i>Media education</i> - Geneviève VAN CAUWENBERGE	15	-	-	1
AESS0248-1	<i>Elements of sociology of education</i> - Jean-François GUILLAUME	10	-	-	1
AESS0247-1	<i>Views on cultural diversity</i> - Jérôme JAMIN	10	-	-	1
AESS0140-1	<i>Professional ethics and training to neutrality and citizenship</i> - Véronique DORTU	25	-	-	2
AESS0143-1	<i>Educational Psychology of adolescents and young adults</i> - Annick FAGNANT	15	-	-	2
AESS0249-1	<i>Interdisciplinary seminar</i> - Annick FAGNANT	15	-	-	1
AESS0142-1	<i>Seminar on prevention and management of difficult school situations</i> - Jocelyne ROBERT	15	-	-	2

Professional Focus in Medical Radiological Physics

Compulsory courses

PHYS0954-2	<i>Fundamental problems in physics related to radiology, radiotherapy and nuclear medicine</i>				12
	- <i>Special applications and techniques in radiotherapy</i> - Marie-Thérèse HOORNAERT	35	-	-	
	- <i>Special applications and techniques in radiodiagnostics</i> - Hilde BOSMANS	15	-	-	
	- <i>Special applications and techniques in nuclear medicine</i> - Claire BERNARD, Roland HUSTINX, Alain SERET	20	-	-	
	- <i>Computerized dosimetry in radiotherapy</i> - Eric LENAERTS	15	-	-	
SSTG0015-2	<i>Training</i> - COLLÉGIALITÉ - [3mois Internship]	-	-	[+]	18