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## 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	-	4

### Optional courses

*Choose one option from the following :*

#### Fundamental 1 Option

SSTG0016-1	<i>Training sessions and personal work</i> - COLLÉGIALITÉ	15	45	-	6
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Choose, with the approval of the Physics Board of Studies, courses totalling 24 credits, from :

PHYS0932-1	<i>Cold atoms and atomic clocks</i> - Thierry BASTIN	20	-	-	4
PHYS2027-2	<i>Ultracold atoms and Bose-Einstein condensates</i> - Peter SCHLAGHECK	25	-	-	4
PHYS0094-1	<i>Multiphase flows and dynamic interfaces</i> - Hervé CAPS	20	10	-	4
AESS0241-1	<i>Introduction to physic didactics</i> - Maryse HOEBEKE	20	-	-	4
SPAT0012-2	<i>General relativity, Part : Introduction</i> - Yves DE ROP	20	-	-	4
PHYS0934-1	<i>Coherent Optics and laser applications</i> - Serge HABRAKEN	15	20	-	4
PHYS0124-1	<i>Instrumental Optics I</i> - Serge HABRAKEN	20	15	-	4
PHYS0969-1	<i>Introduction to biophotonics</i> - Laurent DREESEN	20	10	-	4
PHYS0937-1	<i>Physical functional materials (english language)</i> - Philippe GHOSEZ - Suppl : Julien VARIGNON	20	10	-	4
PHYS0938-1	<i>Physics and cultural heritage</i> - David STRIVAY	15	5	-	4
PHYS0939-2	<i>Physics of non-linearities, chaos and fractals</i> - Nicolas VANDEWALLE	15	15	-	4
PHYS2012-1	<i>Relativistic quantum mechanics and relativistic statistics</i> - Peter SCHLAGHECK	20	5	-	4
PHYS0250-2	<i>Experimental statistical physics</i> - Stéphane DORBOLO	10	20	-	4
PHYS0941-2	<i>Theoretical physics : Nuclei and particles</i> - JeanRené CUDELL	30	-	-	4
PHYS0942-3	<i>Ionising radiations and imaging</i> - Alain SERET	20	5	-	4
PHYS0943-1	<i>Electronic paramagnetic resonance</i> - Maryse HOEBEKE	15	5	-	4
PHYS3012-2	<i>Electronic and vibrational spectroscopies (english language)</i> - Matthieu VERSTRAETE	15	15	-	4
PHYS0095-1	<i>The physics of accelerators and vacuum technologies</i> - David STRIVAY	10	10	-	4
CHIM0202-2	<i>Physical chemistry</i> - Christian DAMBLON, Bernard LEYH	30	-	-	4
SPAT0012-3	<i>General relativity, Part : Complement</i> - Yves DE ROP	40	-	-	4
PHYS0945-1	<i>Complex fluids</i> - Nicolas VANDEWALLE	20	10	-	4
PHYS0235-2	<i>Introduction to quantum optics</i> - John MARTIN	25	-	-	4
PHYS0949-1	<i>Atomic structures modelling</i> - Pascal QUINET	10	10	-	4
PHYS0950-1	<i>Nanoparticles and low-dimensional systems (english language)</i> - JeanYves RATY	20	10	-	4
PHYS0125-3	<i>Instrumental Optics II</i> - Serge HABRAKEN	25	30	-	4
PHYS3017-1	<i>Physical science in an historical perspective</i> - Martine JAMINON - [1d Vis.]	30	-	[+]	4
PHYS3013-1	<i>Physical characterization of materials and interfaces</i> - Ngoc Duy NGUYEN	15	15	-	4
PHYS0970-1	<i>Physics of superconductors</i> - Alejandro SILHANEK	30	-	-	4
PHYS3019-1	<i>Techniques of experimental physics</i> - Geoffroy LUMAY	20	20	-	4
PHYS3020-1	<i>Digital tools of soft matter</i> - François LUDEWIG, Geoffroy LUMAY	15	15	-	4
PHYS3021-1	<i>Advanced quantum mechanics</i> - Thierry BASTIN, John MARTIN, Peter SCHLAGHECK	30	-	-	4
PHYS3022-1	<i>Theory of magnetism (english language)</i> - Eric BOUSQUET	20	-	-	4
[...]	Up to 8 ECTS can be chosen in another study path or in another institution				

#### Option Medical Physics 1

PHYS0952-3	<i>Fundamental problems in physics related to radiology, radiotherapy and nuclear medicine</i>				6
	- part : radiobiology - Christophe CHAMPION	10	-	-	

	- part : dosimetry - MarieThérèse HOORNAERT	20	-	-	
	- part : medical imaging - Alain SERET	25	5	-	
RADP0141-1	<i>Radioprotection</i>				<b>5</b>
	- 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, 1st year</i> - Roland HUSTINX	15	-	-	<b>2</b>
BIOL0007-1	<i>Tissue biology</i> - Marc THIRY	15	25	-	<b>4</b>
PHYL0644-1	<i>Human Anatomy and Physiology</i> - Pierre BONNET	30	-	-	<b>3</b>
ANAT0222-1	<i>Elements of Radiology</i> - N...	10	5	-	<b>2</b>
STAT0722-1	<i>Introduction to medical statistics</i> - Christophe PHILLIPS	10	5	-	<b>2</b>
CHIM0620-1	<i>Radiopharmaceutical Chemistry</i> - André LUXEN	20	10	-	<b>3</b>
PHYS0128-1	<i>Magnetic Resonance Imaging - the Basics</i> (english language) - Evelyne BALTEAU - [3d FW]	15	-	[+]	<b>3</b>

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 16 ECTS from the following :

PHYS0932-1	<i>Cold atoms and atomic clocks</i> - Thierry BASTIN	20	-	-	<b>4</b>
PHYS2027-2	<i>Ultracold atoms and Bose-Einstein condensates</i> - Peter SCHLAGHECK	25	-	-	<b>4</b>
PHYS0094-1	<i>Multiphase flows and dynamic interfaces</i> - Hervé CAPS	20	10	-	<b>4</b>
AESS0241-1	<i>Introduction to physic didactics</i> - Maryse HOEBEKE	20	-	-	<b>4</b>
SPAT0012-2	<i>General relativity, Part : Introduction</i> - Yves DE ROP	20	-	-	<b>4</b>
PHYS0934-1	<i>Coherent Optics and laser applications</i> - Serge HABRAKEN	15	20	-	<b>4</b>
PHYS0124-1	<i>Instrumental Optics I</i> - Serge HABRAKEN	20	15	-	<b>4</b>
PHYS0969-1	<i>Introduction to biophotonics</i> - Laurent DREESEN	20	10	-	<b>4</b>
PHYS0937-1	<i>Physical functional materials</i> (english language) - Philippe GHOSEZ - Suppl : Julien VARIGNON	20	10	-	<b>4</b>
PHYS0938-1	<i>Physics and cultural heritage</i> - David STRIVAY	15	5	-	<b>4</b>
PHYS0939-2	<i>Physics of non-linearities, chaos and fractals</i> - Nicolas VANDEWALLE	15	15	-	<b>4</b>
PHYS2012-1	<i>Relativistic quantum mechanics and relativistic statistics</i> - Peter SCHLAGHECK	20	5	-	<b>4</b>
PHYS0250-2	<i>Experimental statistical physics</i> - Stéphane DORBOLO	10	20	-	<b>4</b>
PHYS0941-2	<i>Theoretical physics : Nuclei and particles</i> - JeanRené CUDELL	30	-	-	<b>4</b>
PHYS0942-3	<i>Ionising radiations and imaging</i> - Alain SERET	20	5	-	<b>4</b>
PHYS0943-1	<i>Electronic paramagnetic resonance</i> - Maryse HOEBEKE	15	5	-	<b>4</b>
PHYS3012-2	<i>Electronic and vibrational spectroscopies</i> (english language) - Matthieu VERSTRAETE	15	15	-	<b>4</b>
PHYS0095-1	<i>The physics of accelerators and vacuum technologies</i> - David STRIVAY	10	10	-	<b>4</b>
CHIM0202-2	<i>Physical chemistry</i> - Christian DAMBLON, Bernard LEYH	30	-	-	<b>4</b>
SPAT0012-3	<i>General relativity, Part : Complement</i> - Yves DE ROP	40	-	-	<b>4</b>
PHYS0945-1	<i>Complex fluids</i> - Nicolas VANDEWALLE	20	10	-	<b>4</b>
PHYS0235-2	<i>Introduction to quantum optics</i> - John MARTIN	25	-	-	<b>4</b>
PHYS0949-1	<i>Atomic structures modelling</i> - Pascal QUINET	10	10	-	<b>4</b>
PHYS0950-1	<i>Nanoparticles and low-dimensional systems</i> (english language) - JeanYves RATY	20	10	-	<b>4</b>
PHYS0125-3	<i>Instrumental Optics II</i> - Serge HABRAKEN	25	30	-	<b>4</b>
PHYS3017-1	<i>Physical science in an historical perspective</i> - Martine JAMINON - [1d Vis.]	30	-	[+]	<b>4</b>
PHYS3013-1	<i>Physical characterization of materials and interfaces</i> - Ngoc Duy NGUYEN	15	15	-	<b>4</b>
PHYS0970-1	<i>Physics of superconductors</i> - Alejandro SILHANEK	30	-	-	<b>4</b>
PHYS3019-1	<i>Techniques of experimental physics</i> - Geoffroy LUMAY	20	20	-	<b>4</b>
PHYS3020-1	<i>Digital tools of soft matter</i> - François LUDEWIG, Geoffroy LUMAY	15	15	-	<b>4</b>
PHYS3021-1	<i>Advanced quantum mechanics</i> - Thierry BASTIN, John MARTIN, Peter SCHLAGHECK	30	-	-	<b>4</b>
PHYS3022-1	<i>Theory of magnetism</i> (english language) - Eric BOUSQUET	20	-	-	<b>4</b>

### Option Medical Physics 2

Requisite

"Option physique médicale 1"

SSTG0041-1	<i>Placement in medical radiophysics</i> - Claire BERNARD, MarieThérèse HOORNAERT,	2	-	[+]	<b>16</b>
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Alain SERET - [12d Internship]

## Second Year

### Compulsory course

SMEM0028-1 *Final thesis* - COLLÉGIALITÉ - - - **18**

### Optional courses

*Choose one option from the following :*

#### Fundamental 3 Option

Prerequisite "Option fondamentale 2"

Choose, in agreement with the Physics Board of Studies, courses not taken in the 1st year, totalling 12 ECTS from the following :

PHYS0932-1	<i>Cold atoms and atomic clocks</i> - Thierry BASTIN	20	-	-	<b>4</b>
PHYS2027-2	<i>Ultracold atoms and Bose-Einstein condensates</i> - Peter SCHLAGHECK	25	-	-	<b>4</b>
PHYS0094-1	<i>Multiphase flows and dynamic interfaces</i> - Hervé CAPS	20	10	-	<b>4</b>
AESS0241-1	<i>Introduction to physic didactics</i> - Maryse HOEBEKE	20	-	-	<b>4</b>
SPAT0012-2	<i>General relativity, Part : Introduction</i> - Yves DE ROP	20	-	-	<b>4</b>
PHYS0934-1	<i>Coherent Optics and laser applications</i> - Serge HABRAKEN	15	20	-	<b>4</b>
PHYS0124-1	<i>Instrumental Optics I</i> - Serge HABRAKEN	20	15	-	<b>4</b>
PHYS0969-1	<i>Introduction to biophotonics</i> - Laurent DREESSEN	20	10	-	<b>4</b>
PHYS0937-1	<i>Physical functional materials (english language)</i> - Philippe GHOSEZ - Suppl : Julien VARIGNON	20	10	-	<b>4</b>
PHYS0938-1	<i>Physics and cultural heritage</i> - David STRIVAY	15	5	-	<b>4</b>
PHYS0939-2	<i>Physics of non-linearities, chaos and fractals</i> - Nicolas VANDEWALLE	15	15	-	<b>4</b>
PHYS2012-1	<i>Relativistic quantum mechanics and relativistic statistics</i> - Peter SCHLAGHECK	20	5	-	<b>4</b>
PHYS0250-2	<i>Experimental statistical physics</i> - Stéphane DORBOLO	10	20	-	<b>4</b>
PHYS0941-2	<i>Theoretical physics : Nuclei and particles</i> - JeanRené CUDELL	30	-	-	<b>4</b>
PHYS0942-3	<i>Ionising radiations and imaging</i> - Alain SERET	20	5	-	<b>4</b>
PHYS0943-1	<i>Electronic paramagnetic resonance</i> - Maryse HOEBEKE	15	5	-	<b>4</b>
PHYS3012-2	<i>Electronic and vibrational spectroscopies (english language)</i> - Matthieu VERSTRAETE	15	15	-	<b>4</b>
PHYS0095-1	<i>The physics of accelerators and vacuum technologies</i> - David STRIVAY	10	10	-	<b>4</b>
CHIM0202-2	<i>Physical chemistry</i> - Christian DAMBLON, Bernard LEYH	30	-	-	<b>4</b>
SPAT0012-3	<i>General relativity, Part : Complement</i> - Yves DE ROP	40	-	-	<b>4</b>
PHYS0945-1	<i>Complex fluids</i> - Nicolas VANDEWALLE	20	10	-	<b>4</b>
PHYS0235-2	<i>Introduction to quantum optics</i> - John MARTIN	25	-	-	<b>4</b>
PHYS0948-1	<i>Microgravity</i> - Hervé CAPS, Nicolas VANDEWALLE - [3d FW]	10	20	[+]	<b>4</b>
PHYS0949-1	<i>Atomic structures modelling</i> - Pascal QUINET	10	10	-	<b>4</b>
PHYS0950-1	<i>Nanoparticles and low-dimensional systems (english language)</i> - JeanYves RATY	20	10	-	<b>4</b>
PHYS0125-3	<i>Instrumental Optics II</i> - Serge HABRAKEN	25	30	-	<b>4</b>
PHYS3017-1	<i>Physical science in an historical perspective</i> - Martine JAMINON - [1d Vis.]	30	-	[+]	<b>4</b>
PHYS3013-1	<i>Physical characterization of materials and interfaces</i> - Ngoc Duy NGUYEN	15	15	-	<b>4</b>
PHYS0970-1	<i>Physics of superconductors</i> - Alejandro SILHANEK	30	-	-	<b>4</b>
PHYS3019-1	<i>Techniques of experimental physics</i> - Geoffroy LUMAY	20	20	-	<b>4</b>
PHYS3020-1	<i>Digital tools of soft matter</i> - François LUDEWIG, Geoffroy LUMAY	15	15	-	<b>4</b>
PHYS3021-1	<i>Advanced quantum mechanics</i> - Thierry BASTIN, John MARTIN, Peter SCHLAGHECK	30	-	-	<b>4</b>
PHYS3022-1	<i>Theory of magnetism (english language)</i> - Eric BOUSQUET	20	-	-	<b>4</b>

#### Option: Medical Physics 3

Prerequisite "Option Physique médicale 2"

QUAL0722-1	<i>Safety and quality assurance</i> - Eric LENAERTS	5	10	-	<b>2</b>
RADL0442-1	<i>Radiobiology and radiopathologie elements</i> - Chantal HUMBLET, Philippe MARTINIVE	40	20	-	<b>6</b>

PHYS2024-1	<i>Transfer and co-registration of medical images</i> - Mohamed Ali BAHRI	15	-	-	<b>2</b>
CHIM0621-2	<i>Production and application of radioelements</i> - André LUXEN - [3d FW]	15	-	[+]	<b>2</b>

#### Compulsory courses

STRA0030-1	<i>Final thesis complement</i> - COLLÉGIALITÉ	-	-	-	<b>11</b>
PHYS0963-1	<i>Seminars</i> - COLLÉGIALITÉ	-	-	-	<b>3</b>

#### Optional courses

[...] In agreement with the Physical Studies Council (Conseil des Etudes de Physique), choose from the ULg course programme complementary courses which have not yet been followed, for a total of 16 credits, a maximum of 12 of which must be outside the subject.