

## First Year

### Compulsory courses

GBIO0009-1	<i>Bioinformatics</i> (english language) - Kristel VAN STEEN	30	30	-	5
GBIO0010-1	<i>Bioinstrumentation</i> - Jacques DESTINÉ	30	30	-	5
GBIO0012-2	<i>Biomechanics</i> (english language) - Liesbet GERIS - [1d FW]	30	30	[+]	5
GBIO0008-1	<i>Medical imaging</i> (english language) - Christophe PHILLIPS	30	30	-	5
GBIO0011-1	<i>Biological systems modeling</i> - Pierre DAUBY, Rodolphe SEPULCHRE	30	30	-	5
GBIO0013-1	<i>Transport phenomena in biology</i> - Dominique TOYE	30	30	-	5

### Optional courses

#### General technical training

Choose courses totalling 15 ECTS out of the following :

SYST0003-1	<i>Linear control systems</i> (english language) - Eric BULLINGER	30	30	-	5
MATH0461-1	<i>Introduction to numerical optimization</i> (english language) - Quentin LOUVEAUX	30	30	-	5
MATH0462-1	<i>Discrete optimization</i> - Quentin LOUVEAUX	30	30	-	5
ELEN0060-1	<i>Information and Coding Theory</i> - Louis WEHENKEL	30	30	-	5
MECA0036-1	<i>Finite Element Method</i> (english language) - JeanPhilippe PONTHOT	30	30	-	5
MECA0023-1	<i>Inelastic behavior of solids</i> - JeanPhilippe PONTHOT	30	30	-	5
PHYS0069-1	<i>Introduction to statistical physics</i> - Nicolas VANDEWALLE	30	30	-	5
INFO0942-1	<i>High performance scientific computing</i> (english language) - Christophe GEUZAINÉ	30	30	-	5
[...]	Through agreement with an academic mentor and the President of the Jury, one course from this list may be replaced by another from the Civil Engineering Masters.				

#### Specialized technical training

Choose courses totalling 15 ECTS out of the following :

##### B List

INFO0064-1	<i>Embedded Systems</i> - Bernard BOIGELOT	30	30	-	5
ELEN0074-1	<i>Sensors, microsensors and instrumentation</i> - Philippe VANDERBEMDEN	30	30	-	5
ELEN0037-1	<i>Microelectronics. Analysis and CAD of integrated circuits</i> - Jacques DESTINÉ	30	30	-	5
INFO0009-1	<i>Introduction to Data Bases</i> - Pierre WOLPER	30	30	-	5

##### B List

MECA0031-2	<i>Kinematics and Dynamics of Mechanisms</i> - Olivier BRULS	30	30	-	5
MECA0446-1	<i>Continuum Mechanics</i> - JeanPhilippe PONTHOT	30	30	-	5
CHIM0024-1	<i>Applied Physical Chemistry</i> - Cédric GOMMES, JeanPaul PIRARD	30	45	-	6
MECA0025-1	<i>Fluid Mechanics</i> - Eric DELHEZ	30	30	-	5
CHIM0675-1	<i>Macromolecular chemistry</i> - AnneSophie DUWEZ	20	20	-	3
[...]	Through agreement with an academic mentor and the President of the Jury, one course from this list may be replaced by another from the Civil Engineering Masters.				

### Compulsory courses

GBIO0001-1	<i>Biophysics</i> (english language) - Liesbet GERIS	30	30	-	5
BIOC0002-1	<i>Biochemistry</i> - Paulette CHARLIER	30	30	-	5
GBIO0002-1	<i>Genetics and molecular biology</i> - Michel GEORGES, N... - Suppl : Marc MULLER	30	30	-	5
GBIO0005-1	<i>Introduction to neurosciences</i> - Shibeshih BELACHEW, Pierre MAQUET - Suppl : Pierre LEPRINCE, Gilles VANDEWALLE	30	30	-	5
GBIO0020-1	<i>Physiology</i> - Philippe KOLH, Olivier PEULEN	30	30	-	10

## Second Year

### Compulsory courses

ATFE0016-1	<i>Final Work (including an introduction to methodology and research)</i> - COLLÉGIALITÉ	-	-	-	25
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### Optional courses

Choose one course from the ULg courses' programme or from the list below. In any case, this course must have the approval

of the cycle's Jury President

LANG1957-1	<i>Dutch Engineering</i> (dutch language) - Claudine COLIN	60	-	-	5
LANG1958-1	<i>German Engineering</i> (german language) - Françoise CARL	60	-	-	5
[...]	One course of the University				

## Research Focus

### Optional courses

Choose courses totaling 30 credits from the following list.

The choice of a course not included in this list must be approved by the President of the cycle's Jury.

#### Imagery and bioinstrumentation

MATH0049-1	<i>Morphological Characterization of Unordered Systems</i> - Silvia BLACHER	30	30	-	5
ELEN0016-1	<i>Digital Image Processing</i> - Marc VAN DROOGENBROECK	30	30	-	5
ELEN0071-1	<i>Digital Signal Processing</i> - Jacques VERLY	30	30	-	5
ELEN0072-1	<i>Statistical Signal Processing</i> - Jacques VERLY	30	30	-	5
ELEN0035-1	<i>CAD in (Analogue and Digital) On-Demand Microelectronics</i> - Jacques DESTINÉ	30	30	-	5
ELEN0038-1	<i>Microsystems</i> - Jacques DESTINÉ	30	30	-	5
ELEN0069-1	<i>Nanoelectronics / Optoelectronics</i> - Benoît VANDERHEYDEN	30	30	-	5
ELEC0017-1	<i>Indirect Effects of Electromagnetic Fields</i> - Véronique BEAUVOIS, JeanLouis LILIEN	30	30	-	5
ELEC0041-1	<i>Modeling and design of electromagnetic systems</i> - Patrick DULAR, Christophe GEUZAINÉ	30	30	-	5
ELEC0054-1	<i>Application of Electrical Measuring Systems</i> - Philippe VANDERBEMDEN	30	30	-	5
ELEN0019-1	<i>Treatment of the audio signals : principles and experiments</i> - JeanJacques EMBRECHTS	30	30	-	5

#### Bioinformatics and Modeling

ELEN0062-1	<i>Applied Inductive Learning</i> - Pierre GEURTS, Louis WEHENKEL	30	30	-	5
SYST0017-1	<i>Non linear systems</i> - Rodolphe SEPULCHRE	30	30	-	5
GBIO0015-1	<i>A tour in genetic epidemiology</i> (english language) - Kristel VAN STEEN	15	15	-	3
BIOC0718-2	<i>Structure-function of biomolecules</i> - Mireille DUMOULIN	15	25	-	4
GENE0436-1	<i>Statistic Genetic</i> - N...	10	10	-	2
CHIM0625-1	<i>Molecular mechanics and molecular dynamics</i> - Dominique DEHARENG	10	10	-	2
GENE0434-1	<i>Experimental genomic techniques</i> - N...	10	10	-	2
GBIO0007-1	<i>Gene sequencing and protein analysis : part a</i> - Bernard JORIS	10	10	-	2
MATH0462-1	<i>Discrete optimization</i> - Quentin LOUVEAUX	30	30	-	5

#### Biomechanics

PROT0430-2	<i>Biomedical robotics and active prostheses</i> - Olivier BRULS	30	30	-	5
MECA0058-1	<i>Fracture mechanics, damage and fatigue</i> (english language) - Ludovic NOELS	30	30	-	5
MECA0097-1	<i>Digital Methods in Fluid Dynamics</i> - Jean André ESSERS	15	15	-	3
MECA0446-1	<i>Continuum Mechanics</i> - JeanPhilippe PONTHOT	30	30	-	5
MECA0464-1	<i>Large deformation of solids</i> (english language) - JeanPhilippe PONTHOT	30	30	-	5
MECA0008-1	<i>Microfluidics</i> (english language) - Tristan GILET	30	30	-	5

#### Chemistry and Material Sciences

CHIM0072-1	<i>Engineering of nanomaterials and divided materials</i> - Benoît HEINRICHS, Stéphanie LAMBERT	15	15	-	3
PHYS0038-1	<i>Physics of polymer materials, including plasturgy</i> - N... - Suppl : Eric MARTIN	20	20	-	4
CHIM0667-2	<i>Transport phenomena in complex media (Transport in membranes)</i> - Dominique TOYE	15	15	-	3
MATH0049-1	<i>Morphological Characterization of Unordered Systems</i> - Silvia BLACHER	30	30	-	5
CHIM0069-1	<i>Porous Material Physical Chemistry</i> - JeanPaul PIRARD	15	-	-	2
BIOL0114-3	<i>Electronic microscopies</i> - Philippe COMPÈRE	45	15	-	5
MECA0462-2	<i>Materials selection</i> (english language) - Jacqueline LECOMTEBECKERS - [1d FW]	30	30	[+]	5
CHIM0668-1	<i>Stirring and mixing</i> - Dominique TOYE	15	15	-	3
CHIM0067-1	<i>Biochemical Reactors II</i> - Michel CRINE	15	-	-	2
MECA0473-1	<i>Metallic materials Engineering</i> - Jacqueline LECOMTEBECKERS	30	30	-	5

#### Biomedical Engineering

GBIO0016-1	<i>Introduction to systems and synthetic biology</i> (english language) - Eric BULLINGER, Bernard JORIS	30	30	-	5
GBIO0017-1	<i>Identification of biological processes and networks</i> - Dominique TOYE	10	10	-	2
GBIO0018-1	<i>Introduction to tissue engineering</i> (english language) - Liesbet GERIS	30	30	-	5

BIOC0430-1	<i>Interaction of living material</i> - Christian GRANDFILS	25	-	-	<b>3</b>
GBIO0022-1	<i>Biomimetism (english language)</i> - Liesbet GERIS, Tristan GILET	30	30	-	<b>5</b>
GBIO0014-2	<i>Modeling of physiological systems and clinical applications</i> - Thomas DESAIVE	30	30	-	<b>5</b>
ASTG0024-1	<i>Placement</i> - COLLÉGIALITÉ	-	-	-	<b>10</b>