Study programmes 2012-2013
Faculty of Sciences
Master in Bio-informatics and Modelling

Access conditions to the Master (http://www.ulg.ac.be/cms/c_46099/master-en-bioinformatique-et-modelisation)
This master is organized in collaboration with the Faculty of applied sciences

First Year

Compulsory courses

SYST0002-1	*Linear systems* - Rodolphe SEPULCHRE	30	30	-	**6**
ELEN0062-1	*Applied Inductive Learning* - Pierre GEURTS, Louis WEHENKEL	30	30	-	**6**
GBIO0009-1	*Bioinformatics* (english language) - Kristel VAN STEEN	30	30	-	**6**

Optional courses

Choose one module among the following, according to the student's former training and in agreement of the Council of studies :

Module for the Bachelors in Computer Science

Upgrading course

BIOL0203-1	*Introduction to cell biology* - Marc THIRY	20	-	-	**2**
CHIM0632-1	*Chemistry* - André LUXEN	30	30	-	**6**
BIOC0002-2	*Biochemistry* - Paulette CHARLIER	30	40	-	**7**
CHIM0623-1	*Physical chemistry applied to biochemistry* - Edwin DE PAUW	10	10	-	**2**
GENE0210-3	*Genetics and molecular biology* - Marc MULLER	30	40	-	**7**

Specialisation courses

INFO0004-1	*Object-oriented programming projects II* (english language) - Laurent MATHY	8	30	-	**6**
INFO0063-1	*Object-Oriented Software Engineering* - Bernard BOIGELOT	30	30	-	**6**
INFO0016-1	*Introduction to the theory of computation* (english language) - Pierre WOLPER	30	30	-	**6**

Module for the Bachelors in Chemical Sciences

Upgrading course

INFO0062-1	*Object-Oriented Programming* - Bernard BOIGELOT	30	30	-	**6**
INFO0902-1	*Data structures and algorithms* - Pierre GEURTS	30	30	-	**6**
INFO0009-1	*Introduction to Data Bases* - Pierre WOLPER	30	30	-	**6**
INFO0016-1	*Introduction to the theory of computation* (english language) - Pierre WOLPER	30	30	-	**6**

Specialisation courses

BIOC0719-2	*Enzymology* - André MATAGNE	15	25	-	**5**
BIOC0712-1	*Interactions in biological macromolecules* - Moreno GALLENI	20	20	-	**5**
GENE0001-5	*Genetic engineering* - Jacques DOMMES	20	-	-	**3**
GENE0210-4	*Genetics and molecular biology* - Marc MULLER	20	20	-	**5**

Module for the Bachelors in Biological Sciences

Upgrading course

INFO0062-1	*Object-Oriented Programming* - Bernard BOIGELOT	30	30	-	**6**
INFO0902-1	*Data structures and algorithms* - Pierre GEURTS	30	30	-	**6**
INFO0009-1	*Introduction to Data Bases* - Pierre WOLPER	30	30	-	**6**
MATH0232-2	*Complement of General Mathematics (calculus 2)* - Françoise BASTIN	25	20	-	**6**

Specialisation courses

BIOC0719-2	*Enzymology* - André MATAGNE	15	25	-	**5**
BIOC0712-1	*Interactions in biological macromolecules* - Moreno GALLENI	20	20	-	**5**
GENE0001-5	*Genetic engineering* - Jacques DOMMES	20	-	-	**3**
GENE0446-2	*Population genetics* - Johan MICHAUX, Claire REMACLE	25	15	-	**5**

In accordance with the Board of studies, any course already taken by students as part of curriculum will be replaced by an equivalent course.

Second year

Compulsory courses

STAT0750-1	*Multivariate statistical analysis* - Adelin ALBERT	10	10	-	**2**

CHIM0624-1	*Structure of biological macromolecules (general experimental aspects) : part a* - Paulette CHARLIER, Christian DAMBLON, Edwin DE PAUW	20	10	-	**3**
GBIO0015-1	*A tour in genetic epidemiology* (english language) - Kristel VAN STEEN	15	15	-	**3**
GBIO0017-1	*Identification of biological processes and networks* - Dominique TOYE	10	10	-	**2**
SMEM0023-1	*Final thesis* - COLLÉGIALITÉ	-	-	-	**20**

Research Focus

Compulsory courses

CHIM0625-1	*Molecular mechanics and molecular dynamics* - Dominique DEHARENG	10	10	-	**2**
GENE0442-1	*Genomics* - Michel GEORGES	10	10	-	**2**
GBIO0007-1	*Gene sequencing and protein analysis : part a* - Bernard JORIS	10	10	-	**2**
INFO0114-1	*Programming project* - N...	-	50	-	**5**
STRA0014-1	*Documentation and seminars* - Dominique DEHARENG, Louis WEHENKEL	-	-	-	**3**

Optional courses

Choose one module from :

Structural Biology Module

CHIM0627-1	*Structure of biological macromolecules (experimental aspects) : part b1 (RX, NMR)* - Paulette CHARLIER, Christian DAMBLON	15	10	-	**3**
CHIM0628-1	*Structure of biological macromolecules (experimental aspects) part b2 (mass spectrometry)* - Edwin DE PAUW	15	10	-	**3**
CHIM0629-1	*Structure of biological macromolecules (experimental aspects) : part b3 (AFM)* - AnneSophie DUWEZ	10	10	-	**2**

Choose courses totalling 8 ECTS from the following :

[...]	the courses of the Systemic Biology module
[...]	the courses on the Modelisation of macroscopic ensembles module
[...]	List of complementary courses
[...]	One course of maximum 5 credits, chosen in accordance with the Board of Studies in the courses' programme of the Sciences Faculty, Applied Sciences Faculty, Medicine Faculty or of the Veterinary Faculty of the ULg, or in the courses' programme of the 2nd year of the Master in bioinformatics and modelling organised in another university of French-speaking Community of Belgium (FUNDP, UCL, ULB)

Systemic Biology Module

GBIO0019-1	*Introduction to synthetic biology* (english language) - Eric BULLINGER, Bernard JORIS	10	20	-	**3**
GBIO0016-1	*Introduction to systems and synthetic biology* (english language) - Eric BULLINGER, Bernard JORIS	30	30	-	**5**

Choose courses totalling 8 ECTS from the following :

[...]	the courses of the Structural Biology module.
[...]	the courses on the Modelisation of macroscopic ensembles module
[...]	List of complementary courses
[...]	One course of maximum 5 credits, chosen in accordance with the Board of Studies in the courses' programme of the Sciences Faculty, Applied Sciences Faculty, Medicine Faculty or of the Veterinary Faculty of the ULg, or in the courses' programme of the 2nd year of the Master in bioinformatics and modelling organised in another university of French-speaking Community of Belgium (FUNDP, UCL, ULB)

Modelling of Macroscopic Systems Module

SYST0019-1	*Modelling of (bio)chemical systems* - Dominique TOYE	10	10	-	**2**
MECA0055-6	*Numerical methods applied to the environment* - JeanMarie BECKERS	10	10	-	**2**
GENE0446-2	*Population genetics* - Johan MICHAUX, Claire REMACLE	25	15	-	**4**

Choose courses totalling 8 ECTS from the following :

[...]	the courses of the Structural Biology module.
[...]	the courses of the Systemic Biology module
[...]	List of complementary courses
[...]	One course of maximum 5 credits, chosen in accordance with the Board of Studies in the courses' programme of the Sciences Faculty, Applied Sciences Faculty, Medicine Faculty or of the Veterinary Faculty of the ULg, or in the courses' programme of the 2nd year of the Master in bioinformatics and modelling organised in another university of French-speaking Community of Belgium (FUNDP, UCL, ULB)

Complementary courses

CHIM0630-1	*Proteomics* - Edwin DE PAUW	10	10	-	**2**
GBIO0011-1	*Biological systems modeling* - Pierre DAUBY, Rodolphe SEPULCHRE	30	30	-	**5**
BIOC0714-1	*Production of recombinant proteins in eukaryotic systems* - Jacques DOMMES	15	-	-	**2**
CHIM0631-1	*Quantum chemistry and molecular models* - Dominique DEHARENG	10	10	-	**2**
SYST0017-1	*Non linear systems* - Rodolphe SEPULCHRE	30	30	-	**4**

In accordance with the Board of studies, any course already taken by students as part of curriculum will be replaced by an equivalent course.