

## One-year master program (60 ECTS)

### Compulsory courses

MATH0483-2	<i>History of mathematics</i> - Georges HANSOUL - [20h Mon. WS]	20	-	[+]	4
SMEM0011-1	<i>Final thesis</i> - COLLÉGIALITÉ	-	-	-	16

### Optional courses

With the agreement of the council of studies in mathematical sciences choose course for 40 credits in the two lists below and, possibly, in the program of other Master's degrees :

#### First list

[...] At least 32 credits from from "Première liste"

MATH0463-1	<i>Functional Analysis I</i> - Jean-Pierre SCHNEIDERS - [20h Mon. WS]	30	10	[+]	8
MATH0209-3	<i>Measure Theory</i> - Samuel NICOLAY - [20h Mon. WS]	30	10	[+]	8
INFO0213-2	<i>Automata and formal languages theory</i> - Michel RIGO - [20h Mon. WS]	30	10	[+]	8
MATH0220-2	<i>Functions of complex variables</i> - Jean-Pierre SCHNEIDERS - [20h Mon. WS]	30	10	[+]	8
MATH0464-1	<i>Differential geometry II</i> - Pierre LECOMTE - [20h Mon. WS]	30	10	[+]	8
MATH0017-3	<i>Mathematical Logic and Set Theory</i> - Georges HANSOUL - [20h Mon. WS]	30	10	[+]	8
MATH0465-1	<i>Algebraic Topology</i> - Jean-Pierre SCHNEIDERS - [20h Mon. WS]	30	10	[+]	8

#### The second list

[...] At the most 8 credits of courses from "Deuxième liste"

STAT0723-2	<i>Statistical linear models</i> - Paul GÉRARD - [20h Mon. WS]	30	10	[+]	8
MATH0221-3	<i>Analysis of time series</i> - Paul GÉRARD - [20h Mon. WS]	30	10	[+]	8
STAT0201-3	<i>Multivariate statistics</i> - Adelin ALBERT - Suppl : Gentiane HAESBROECK - [20h Mon. WS]	30	10	[+]	8
INFO0902-1	<i>Data structures and algorithms</i> - N... - Suppl : Sébastien COLLETTE	30	30	-	8
INFO0054-1	<i>Functional programming</i> - Pascal GRIBOMONT	30	30	-	8
ASTR0201-3	<i>Astronomy</i> - Marc-Antoine DUPRET - [20h Mon. WS]	30	10	[+]	8
PHYS0243-2	<i>Quantum Physics I</i> - Thierry BASTIN - [20h Mon. WS]	30	10	[+]	8
PHYS0203-2	<i>Statistical physics</i> - Nicolas VANDEWALLE - [20h Mon. WS]	30	10	[+]	8
SPAT0012-1	<i>General relativity I</i> - - Suppl : Yves DE ROP	60	-	-	8
SPAT0044-1	<i>Stellar Structure and evolution I</i> - Marc-Antoine DUPRET	20	20	-	4
SPAT0045-1	<i>Stellar structure and evolution II</i> - Marc-Antoine DUPRET	20	20	-	4
MECA0203-3	<i>Continuum Mechanics</i> - Pierre DAUBY - [20h Mon. WS]	30	10	[+]	8

#### The programme of courses for other Masters :

[...] At the most 8 credits of courses

## Two-Year Master Program (120 ECTS)

### First Year

#### Compulsory course

MATH0483-2	<i>History of mathematics</i> - Georges HANSOUL - [20h Mon. WS]	20	-	[+]	4
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#### Optional courses

With the approval of the Board of Studies in mathematics, choose courses totaling 56 credits from the two lists below, and possibly in the courses programme of other masters :

#### First list

[...] At least 32 credits from from "Première liste"

MATH0463-1	<i>Functional Analysis I</i> - Jean-Pierre SCHNEIDERS - [20h Mon. WS]	30	10	[+]	8
MATH0209-3	<i>Measure Theory</i> - Samuel NICOLAY - [20h Mon. WS]	30	10	[+]	8
INFO0213-2	<i>Automata and formal languages theory</i> - Michel RIGO - [20h Mon. WS]	30	10	[+]	8
MATH0220-2	<i>Functions of complex variables</i> - Jean-Pierre SCHNEIDERS - [20h Mon. WS]	30	10	[+]	8
MATH0464-1	<i>Differential geometry II</i> - Pierre LECOMTE - [20h Mon. WS]	30	10	[+]	8
MATH0017-3	<i>Mathematical Logic and Set Theory</i> - Georges HANSOUL - [20h Mon. WS]	30	10	[+]	8

MATH0465-1	<i>Algebraic Topology</i> - Jean-Pierre SCHNEIDERS - [20h Mon. WS]	30	10	[+]	8
<b>The second list</b>					
[...]	At most 24 credits of courses from "Deuxième liste"				
STAT0723-2	<i>Statistical linear models</i> - Paul GÉRARD - [20h Mon. WS]	30	10	[+]	8
MATH0221-3	<i>Analysis of time series</i> - Paul GÉRARD - [20h Mon. WS]	30	10	[+]	8
STAT0201-3	<i>Multivariate statistics</i> - Adelin ALBERT - Suppl : Gentiane HAESBROECK - [20h Mon. WS]	30	10	[+]	8
INFO0902-1	<i>Data structures and algorithms</i> - N... - Suppl : Sébastien COLLETTE	30	30	-	8
INFO0054-1	<i>Functional programming</i> - Pascal GRIBOMONT	30	30	-	8
ASTR0201-3	<i>Astronomy</i> - Marc-Antoine DUPRET - [20h Mon. WS]	30	10	[+]	8
PHYS0243-2	<i>Quantum Physics I</i> - Thierry BASTIN - [20h Mon. WS]	30	10	[+]	8
PHYS0203-2	<i>Statistical physics</i> - Nicolas VANDEWALLE - [20h Mon. WS]	30	10	[+]	8
SPAT0012-1	<i>General relativity I</i> - - Suppl : Yves DE ROP	60	-	-	8
SPAT0044-1	<i>Stellar Structure and evolution I</i> - Marc-Antoine DUPRET	20	20	-	4
SPAT0045-1	<i>Stellar structure and evolution II</i> - Marc-Antoine DUPRET	20	20	-	4
MECA0203-3	<i>Continuum Mechanics</i> - Pierre DAUBY - [20h Mon. WS]	30	10	[+]	8
PHYS0204-3	<i>Quantum Physics II</i> - Thierry BASTIN - [20h Mon. WS]	30	10	[+]	8
PHYS0205-2	<i>Further Physical Statistics</i> - Nicolas VANDEWALLE - [20h Mon. WS]	30	10	[+]	8
<b>Programme of courses for other masters degrees</b>					
[...]	At the most 8 credits of courses of the University of Liege				

#### Optional free course

AESS0252-1	<i>Introduction to mathematics didactics</i> - Marguerite GILOT	10	10	-	2
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#### Second year

##### Compulsory course

SMEM0012-1	<i>Final thesis</i> - COLLÉGIALITÉ	-	-	-	22
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##### Optional courses

With the approval of the Board of Studies in mathematics, choose course(s) totaling 8 credits from :

[...]	the remaining courses not selected in the first list				
MATH0463-1	<i>Functional Analysis I</i> - Jean-Pierre SCHNEIDERS - [20h Mon. WS]	30	10	[+]	8
MATH0209-3	<i>Measure Theory</i> - Samuel NICOLAY - [20h Mon. WS]	30	10	[+]	8
INFO0213-2	<i>Automata and formal languages theory</i> - Michel RIGO - [20h Mon. WS]	30	10	[+]	8
MATH0220-2	<i>Functions of complex variables</i> - Jean-Pierre SCHNEIDERS - [20h Mon. WS]	30	10	[+]	8
MATH0464-1	<i>Differential geometry II</i> - Pierre LECOMTE - [20h Mon. WS]	30	10	[+]	8
MATH0017-3	<i>Mathematical Logic and Set Theory</i> - Georges HANSOUL - [20h Mon. WS]	30	10	[+]	8
MATH0465-1	<i>Algebraic Topology</i> - Jean-Pierre SCHNEIDERS - [20h Mon. WS]	30	10	[+]	8
[...]	the remaining courses not taken on the second list				
STAT0723-2	<i>Statistical linear models</i> - Paul GÉRARD - [20h Mon. WS]	30	10	[+]	8
MATH0221-3	<i>Analysis of time series</i> - Paul GÉRARD - [20h Mon. WS]	30	10	[+]	8
STAT0201-3	<i>Multivariate statistics</i> - Adelin ALBERT - Suppl : Gentiane HAESBROECK - [20h Mon. WS]	30	10	[+]	8
INFO0902-1	<i>Data structures and algorithms</i> - N... - Suppl : Sébastien COLLETTE	30	30	-	8
INFO0054-1	<i>Functional programming</i> - Pascal GRIBOMONT	30	30	-	8
ASTR0201-3	<i>Astronomy</i> - Marc-Antoine DUPRET - [20h Mon. WS]	30	10	[+]	8
PHYS0243-2	<i>Quantum Physics I</i> - Thierry BASTIN - [20h Mon. WS]	30	10	[+]	8
PHYS0203-2	<i>Statistical physics</i> - Nicolas VANDEWALLE - [20h Mon. WS]	30	10	[+]	8
SPAT0012-1	<i>General relativity I</i> - - Suppl : Yves DE ROP	60	-	-	8
SPAT0044-1	<i>Stellar Structure and evolution I</i> - Marc-Antoine DUPRET	20	20	-	4
SPAT0045-1	<i>Stellar structure and evolution II</i> - Marc-Antoine DUPRET	20	20	-	4
MECA0203-3	<i>Continuum Mechanics</i> - Pierre DAUBY - [20h Mon. WS]	30	10	[+]	8
PHYS0204-3	<i>Quantum Physics II</i> - Thierry BASTIN - [20h Mon. WS]	30	10	[+]	8
PHYS0205-2	<i>Further Physical Statistics</i> - Nicolas VANDEWALLE - [20h Mon. WS]	30	10	[+]	8
[...]	The programme of courses for other Masters.				

#### Choose one of the following focus :

##### Research Focus

**Compulsory courses**

MATH0466-1	<i>Seminars</i> - COLLÉGIALITÉ - [75h SEM]	-	-	[+]	<b>12</b>
SMEM0037-1	<i>Final thesis complement</i> - COLLÉGIALITÉ	-	-	-	<b>8</b>

**Optional courses**

With the agreement of the council of studies, choose 1 among the following :

MATH0467-1	<i>Functional Analysis II</i> - Françoise BASTIN - [20h Mon. WS]	30	10	[+]	<b>10</b>
MATH0468-1	<i>Algebraic Analysis</i> - Jean-Pierre SCHNEIDERS - [20h Mon. WS]	30	10	[+]	<b>10</b>
MATH0469-1	<i>Differential geometry III</i> - Pierre LECOMTE - [20h Mon. WS]	30	10	[+]	<b>10</b>
MATH0234-2	<i>Boolean Topology and Boolean Algebra</i> - Georges HANSOUL - [20h Mon. WS]	30	10	[+]	<b>10</b>
MATH0470-1	<i>Combinatorics on words</i> - Michel RIGO - [20h Mon. WS]	30	10	[+]	<b>10</b>

**Teaching focus**

**Compulsory courses**

AESS0246-1	<i>Analysis of scholastic institutions and key-players, educational policies</i> - Jacqueline BECKERS	15	-	-	<b>1</b>
AESS0247-1	<i>Views on cultural diversity</i> - Jérôme JAMIN	10	-	-	<b>1</b>
AESS0248-1	<i>Elements of sociology of education</i> - Jean-François GUILLAUME	10	-	-	<b>1</b>
AESS0140-1	<i>Professional ethics and training to neutrality and citizenship</i> - Véronique DORTU	25	-	-	<b>2</b>
AESS0202-1	<i>General didactics: course and exercises ; observation placements ; reflexive practices</i> - Annick FAGNANT - [10h Internship]	30	10	[+]	<b>4</b>
AESS0004-1	<i>Media education</i> - Geneviève VAN CAUWENBERGE	15	-	-	<b>1</b>
AESS0249-1	<i>Interdisciplinary seminar</i> - Annick FAGNANT	15	-	-	<b>1</b>
AESS0143-1	<i>Educational Psychology of adolescents and young adults</i> - Annick FAGNANT	15	-	-	<b>2</b>
AESS0142-1	<i>Seminar on prevention and management of difficult school situations</i> - Jocelyne ROBERT	15	-	-	<b>2</b>
AESS0214-1	<i>Special didactics in mathematics (part I)</i>				<b>6</b>
	- <i>Course and exercises</i> - Marguerite GILOT	40	-	-	
	- <i>Observation placements</i> - Marguerite GILOT - [10h Internship]	-	-	[+]	
	- <i>Teaching placements</i> - Marguerite GILOT - [20h Internship]	-	-	[+]	
	- <i>Reflexive practical work</i> - Marguerite GILOT	-	5	-	
AESS0232-1	<i>Special didactics in mathematics (part II)</i>				<b>9</b>
	- <i>Course and exercises</i> - Marguerite GILOT	35	-	-	
	- <i>Teaching placements</i> - Marguerite GILOT - [20h Internship]	-	-	[+]	
	- <i>Reflexive practical work</i> - Marguerite GILOT	-	5	-	
	- <i>School practical outside lectures</i> - Marguerite GILOT	-	10	-	

**Professional focus in management**

**Compulsory courses**

GEST3001-1	<i>People management and organisation</i> - Jocelyne ROBERT	24	24	-	<b>4</b>
GEST3002-1	<i>Human Resources</i> - Jocelyne ROBERT	24	-	-	<b>2</b>
GEST3003-1	<i>Competitive strategy in the marketplace</i> - Michael GHILISSEN	16	16	-	<b>3</b>
GEST3004-1	<i>Marketing (operations and management)</i> - Michael GHILISSEN	16	16	-	<b>3</b>
GEST3005-2	<i>Accountancy and Finance</i> - Jacques BERWART	24	24	-	<b>4</b>
GEST3006-1	<i>Operations and supply chain management I</i> - Yasemin ARDA - Suppl : Robert NONDONFAZ	16	16	-	<b>3</b>
GSTG3001-1	<i>Business plan</i> - COLLÉGIALITÉ	-	30	-	<b>4</b>
GSTG0017-1	<i>Functional analysis of a company</i> - COLLÉGIALITÉ - [30h Internship]	-	-	[+]	<b>4</b>

**Optional courses**

With the agreement of the council of studies choose a course among the following :

GEST3010-1	<i>Operations and supply chain management II</i> - Sabine LIMBOURG	16	16	-	<b>3</b>
GEST3011-2	<i>ICT for Business</i> - Alain DUBOIS	16	16	-	<b>3</b>
GEST3012-1	<i>Financial and actuarial modelling</i> - Louis ESCH	16	16	-	<b>3</b>

**Professional focus in computer**

**Compulsory courses**

INFO0062-1	<i>Object-Oriented Programming</i> - Bernard BOIGELOT	30	30	-	<b>6</b>
INFO0009-1	<i>Introduction to Data Bases</i> - Pierre WOLPER	30	30	-	<b>6</b>
INFO0045-2	<i>Cryptography and Computer Security</i> - Xavier BOYEN	30	30	-	<b>6</b>

**Optional courses**

Choose two courses out of the following :

The courses INFO0902-1 and INFO0054-1 must be taken first.

INFO0902-1	<i>Data structures and algorithms</i> - N... - Suppl : Sébastien COLLETTE	30	30	-	<b>6</b>
INFO0054-1	<i>Functional programming</i> - Pascal GRIBOMONT	30	30	-	<b>6</b>

If the INFO0902-1 and/or INFO0054-1 courses have already been followed, choose, with the approval of the Board of Studies, 1 or 2 courses from the following :

INFO0012-1	<i>Computation Structures</i> - Pierre WOLPER	30	30	-	<b>6</b>
ELEN0040-1	<i>Digital Electronics</i> - Jacques DESTINÉ	30	30	-	<b>6</b>
INFO0085-1	<i>Compilers</i> - Xavier BOYEN	30	30	-	<b>6</b>
INFO0027-1	<i>Programming techniques</i> - Xavier BOYEN	30	50	-	<b>6</b>
MATH0461-1	<i>Introduction to numerical optimization</i> (english language) - Quentin LOUVEAUX	30	30	-	<b>6</b>
SYST0002-1	<i>Linear systems</i> - Rodolphe SEPULCHRE	30	30	-	<b>6</b>
INFO0049-1	<i>Knowledge Representation</i> - Pascal GRIBOMONT	30	30	-	<b>6</b>