

## Block view of the study programme

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### Block 1

Depending on your track record or your professional/research focus, some prerequisites/corequisites of your first year program might appear in bloc 2. You are therefore invited to go through the list of courses suggested in bloc 2 even if you enroll for the first time in this master program.

#### Compulsory Courses

INFO0085-1	<i>Compilers</i> (english language) - Pierre GEURTS - [75h Proj.] <b>Corequisite :</b> INFO0016-1 - Introduction to the theory of computation INFO2050-1 - Programmation avancée INFO0012-2 - Computation structures INFO0940-1 - Operating systems	Q2	25	-	[+]	<b>5</b>
INFO0051-1	<i>Logic</i> (english language) - Pascal GRIBOMONT - [10h Proj.]	Q1	30	25	[+]	<b>5</b>
INFO0016-1	<i>Introduction to the theory of computation</i> (english language) - Pierre WOLPER	Q1	30	30	-	<b>5</b>
MATH0462-1	<i>Discrete optimization</i> (english language) - Quentin LOUVEAUX - [25h Proj.] <b>Corequisite :</b> MATH0500-1 - Introduction à l'algorithmique numérique	Q1	30	20	[+]	<b>5</b>
PROJ0010-1	<i>Integrated software project, including fundamentals in project management</i> (english language) - JeanLouis BINOT, Bernard BOIGELOT, Benoît DONNET, Guy LEDUC, Laurent MATHY - [290h Proj.] <b>Corequisite :</b> INFO0010-4 - Introduction to computer networking INFO0063-1 - Object-oriented software engineering	TA	10	-	[+]	<b>10</b>

#### Optional courses

Choose one focus among the three below

##### Professional focus on "Computer systems and networks"

Students choosing this focus shall select, in addition to 10 credits of compulsory courses, 50 credits of elective courses inside or outside the focus. However, for his/her whole master program (block 1 and block 2), a total of 20 credits of options must be taken inside the focus. The regulation allows students to choose elective courses during the block of their choice, in accordance with the prerequisites and co-requisites. Students must also be attentive to schedule constraints.

##### Compulsory Courses

INFO0031-1	<i>Computer network architectures and multimedia</i> (english language) - Guy LEDUC - [10h Labo., 25h Proj.] <b>Corequisite :</b> INFO0010-4 - Introduction to computer networking	Q1	35	-	[+]	<b>5</b>
INFO0045-3	<i>Introduction to computer security</i> (english language) - Benoît DONNET - [8h Labo., 30h Proj.]	Q2	30	10	[+]	<b>5</b>

Choose 20 credits in the following list :

INFO0064-2	<i>Embedded systems</i> (english language) - Bernard BOIGELOT	Q1	25	20	-	<b>3</b>
INFO2055-1	<i>Embedded systems project</i> (english language) - Bernard BOIGELOT - [60h Proj.] <b>Corequisite :</b> INFO0064-2 - Embedded systems	Q2	-	-	[+]	<b>2</b>
INFO0941-1	<i>Network measurement and monitoring</i> (english language) - Benoît DONNET - [60h Proj.] <b>Corequisite :</b> INFO0031-1 - Computer network architectures and multimedia	Q2	20	-	[+]	<b>5</b>

# Study programmes 2016-2017

## Faculty of Applied Sciences

### Master in computer science (120 ECTS)

INFO2051-1	<i>Object-oriented programming on mobile devices</i> (english language) - Laurent MATHY - [90h Proj.]	Q2	15	10	[+]	5
INFO0056-1	<i>Managing and securing computer networks</i> (english language) - Guy LEDUC - [12h Labo., 55h Proj.] <b>Corequisite :</b> INFO0045-3 - Introduction to computer security	Q2	30	-	[+]	5
ELEN0002-2	<i>Introduction to audio and video techniques</i> (english language) - JeanJacques EMBRECHTS - [8h Labo.]	Q1	30	22	[+]	5
INFO0939-1	<i>High performance scientific computing</i> (english language) - Christophe GEUZAIN - [20h Proj.]	Q1	30	15	[+]	5

#### Professional focus on "Intelligent Systems"

Students choosing this focus shall select, in addition to 5 credits of compulsory courses, 55 credits of elective courses inside or outside the focus. However, for his/her whole master program (block 1 and block 2), a total of 25 credits of options must be taken inside the focus. The regulation allows students to choose elective courses during the block of their choice, in accordance with the prerequisites and co-requisites. Students must also be attentive to schedule constraints.

#### Compulsory Courses

ELEN0062-1	<i>Introduction to machine learning</i> (english language) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.] <b>Corequisite :</b> MATH0462-1 - Discrete optimization	Q1	30	5	[+]	5
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Choose 25 credits in the following list :

ELEN0016-2	<i>Computer vision</i> (english language) - Marc VAN DROOGENBROECK - [50h Proj.]	Q1	30	10	[+]	5
INFO0948-2	<i>Introduction to intelligent robotics</i> (english language) - Renaud DETRY, Louis WEHENKEL - [80h Proj.] <b>Corequisite :</b> ELEN0062-1 - Introduction to machine learning ELEN0016-2 - Computer vision	Q2	30	4	[+]	5
INFO0049-1	<i>Knowledge representation</i> (english language) - Pascal GRIBOMONT - [50h Proj.] <b>Corequisite :</b> INFO0051-1 - Logic	Q2	30	25	[+]	5
INFO2049-1	<i>Web and Text Analytics</i> (english language) - Ashwin ITTOO <b>Corequisite :</b> ELEN0062-1 - Introduction to machine learning	Q1	30	-	-	5
INFO2046-2	<i>Computational geometry</i> (english language) - Eric BÉCHET - [95h Proj.]	Q1	25	-	[+]	5
GBIO0002-1	<i>Genetics and bioinformatics</i> (english language) - Franck DEQUIEDT, Kristel VAN STEEN - [15h Proj.]	Q1	30	15	[+]	5

#### Professional focus on "Management"

Students choosing this focus shall select, in addition to 27 credits of compulsory courses, 38 credits of elective courses inside or outside the focus. One of the 3 language courses belonging to the focus must necessarily be chosen as an option in either block 1 or block 2, for 3 credits. The regulation allows students to choose elective courses during the block of their choice, in accordance with the prerequisites and co-requisites. Students must also be attentive to schedule constraints.

FINA0001-1	<i>Financial statement analysis and financing an enterprise</i> - Jacques BERWART	Q2	45	-	-	5
ECON2259-1	<i>Microeconomics and industrial economy</i> - Axel GAUTIER, Bernard THIRY	Q2	40	15	-	5
LOGI0010-1	<i>Supply Chain Management</i> (english language) - Yasemin ARDA	Q2	45	-	-	5

ERAS0011-1	<i>Business Simulation</i> (english language) - Anne CHANTEUX - [50h Mon. WS]	Q1	-	-	[+]	2
GRHO0001-4	<i>Strategic Human Resources Management</i> - François PICHAULT - Suppl : Frédéric NAEDENOEN	Q1	45	-	-	5
DROI0174-2	<i>Commercial law</i> - Frédéric DAERDEN, Laurent STAS DE RICHELLE	Q2	45	-	-	5
Choose one of the three following courses :						
LANG1936-1	<i>Elementary Dutch 1</i> - Doris DE LAET	TA	30	-	-	3
LANG1933-1	<i>Elementary German 1</i> - Marie MAWHIN	Q2	30	-	-	3
LANG1934-1	<i>Elementary Spanish 1</i> - Alexis ALVAREZ BARBOSA	Q2	30	-	-	3

### Research focus

Aimed at students who have taken this focus in 2015-2016.

### Block 2

Depending on your track record or your professional/research focus, some prerequisites/corequisites of your first year program might appear in bloc 2. You are therefore invited to go through the list of courses suggested in bloc 2 even if you enroll for the first time in this master program.

### Compulsory Courses

ATFE0002-1	<i>Master thesis</i> (english language) - COLLÉGIALITÉ, Laurent MATHY - [750h Proj.]	TA	-	-	[+]	25
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### Optional courses

Choose remaining credits in the lists below :

**The following courses are corequisite to some compulsory courses of the master program. They must be taken as a priority, unless they were already taken as part of the bachelor in computer science, or unless the corresponding knowledge and skills have been acquired previously (Are involved in these courses bachelors in "Informatique de gestion" and "Informatique et systèmes who must take these courses during the block 1").**

MATH0500-1	<i>Introduction to numerical algorithmic</i> - Quentin LOUVEAUX - [6h Labo., 45h Proj.]	Q1	24	14	[+]	5
INFO2050-1	<i>Advanced computer programming</i> - Pierre GEURTS - [40h Proj.]	Q1	25	20	[+]	5
INFO0010-4	<i>Introduction to computer networking</i> (english language) - Guy LEDUC - [12h Labo., 40h Proj.]	Q2	35	2	[+]	5
INFO0012-2	<i>Computation structures</i> (english language) - Pierre WOLPER - [40h Proj.]	Q1	30	25	[+]	5
INFO0940-1	<i>Operating systems</i> (english language) - Laurent MATHY - [80h Proj.]	Q2	30	6	[+]	5
INFO0063-1	<i>Object-oriented software engineering</i> (english language) - Bernard BOIGELOT - [30h Proj.]	Q1	30	24	[+]	5

[...] With the agreement of the jury, choose 5 credits in any course programme of the University :

### Computer systems and networks

INFO0031-1	<i>Computer network architectures and multimedia</i> (english language) - Guy LEDUC - [10h Labo., 25h Proj.]	Q1	35	-	[+]	5
INFO0045-3	<i>Introduction to computer security</i> (english language) - Benoît DONNET - [8h Labo., 30h Proj.]	Q2	30	10	[+]	5
INFO0941-1	<i>Network measurement and monitoring</i> (english language) - Benoît DONNET - [60h Proj.]	Q2	20	-	[+]	5
<b>Corequisite :</b> INFO0031-1 - Computer network architectures and multimedia						
INFO2051-1	<i>Object-oriented programming on mobile devices</i> (english language) - Laurent MATHY - [90h Proj.]	Q2	15	10	[+]	5

# Study programmes 2016-2017

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### Master in computer science (120 ECTS)

INFO0056-1	<i>Managing and securing computer networks</i> (english language) - Guy LEDUC - [12h Labo., 55h Proj.] <b>Corequisite :</b> INFO0045-3 - Introduction to computer security	Q2	30	-	[+]	5
ELEN0002-2	<i>Introduction to audio and video techniques</i> (english language) - JeanJacques EMBRECHTS - [8h Labo.]	Q1	30	22	[+]	5
INFO0939-1	<i>High performance scientific computing</i> (english language) - Christophe GEUZAIN - [20h Proj.]	Q1	30	15	[+]	5
<b>Intelligent Systems</b>						
ELEN0062-1	<i>Introduction to machine learning</i> (english language) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.] <b>Corequisite :</b> MATH0462-1 - Discrete optimization	Q1	30	5	[+]	5
ELEN0016-2	<i>Computer vision</i> (english language) - Marc VAN DROOGENBROECK - [50h Proj.]	Q1	30	10	[+]	5
INFO0948-2	<i>Introduction to intelligent robotics</i> (english language) - Renaud DETRY, Louis WEHENKEL - [80h Proj.] <b>Corequisite :</b> ELEN0062-1 - Introduction to machine learning ELEN0016-2 - Computer vision	Q2	30	4	[+]	5
INFO0049-1	<i>Knowledge representation</i> (english language) - Pascal GRIBOMONT - [50h Proj.] <b>Corequisite :</b> INFO0051-1 - Logic	Q2	30	25	[+]	5
INFO2046-2	<i>Computational geometry</i> (english language) - Eric BÉCHET - [95h Proj.]	Q1	25	-	[+]	5
INFO2049-1	<i>Web and Text Analytics</i> (english language) - Ashwin ITTOO <b>Corequisite :</b> ELEN0062-1 - Introduction to machine learning	Q1	30	-	-	5
GBIO0002-1	<i>Genetics and bioinformatics</i> (english language) - Franck DEQUIEDT, Kristel VAN STEEN - [15h Proj.]	Q1	30	15	[+]	5
<b>Other optional courses</b>						
INFO0064-2	<i>Embedded systems</i> (english language) - Bernard BOIGELOT	Q1	25	20	-	3
INFO2055-1	<i>Embedded systems project</i> (english language) - Bernard BOIGELOT - [60h Proj.] <b>Corequisite :</b> INFO0064-2 - Embedded systems	Q2	-	-	[+]	2
INFO0050-1	<i>Constraint programming projects</i> (english language) - Pascal GRIBOMONT - [80h Proj.] <b>Corequisite :</b> INFO0049-1 - Knowledge representation	TA	15	10	[+]	5
INFO0060-1	<i>Concurrent system verification and temporal logic</i> (english language) - Bernard BOIGELOT, Pascal GRIBOMONT, Pierre WOLPER - [20h Proj.] <b>Prerequisite :</b> INFO0016-1 - Introduction to the theory of computation INFO0051-1 - Logic	Q2	30	10	[+]	5
INFO0026-3	<i>Computer graphics</i> (english language) - Eric BÉCHET - [45h Proj.]	Q2	24	24	[+]	5
GBIO0009-1	<i>Topics in bioinformatics</i> (english language) - Kristel VAN STEEN - [35h Proj.] <b>Prerequisite :</b> GBIO0002-1 - Genetics and bioinformatics	Q1	25	15	[+]	5
ELEN0019-2	<i>Audio signal processing : principles and experiments</i> (english language) - JeanJacques EMBRECHTS - [24h Labo., 30h Proj.]	Q1	5	-	[+]	5

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MATH0461-2	<i>Introduction to numerical optimization</i> (english language) - Quentin LOUVEAUX - [25h Proj.]	Q1	30	20	[+]	5
GBIO0030-1	<i>Computational approaches to statistical generics</i> (english language) - Kristel VAN STEEN - [35h Proj.] <b>Prerequisite :</b> GBIO0002-1 - Genetics and bioinformatics	Q2	25	15	[+]	5
GBIO0031-1	<i>Learning from genomic data</i> (english language) - Kristel VAN STEEN - [150h Proj.] <b>Prerequisite :</b> GBIO0002-1 - Genetics and bioinformatics	Q2	-	-	[+]	5
INGE0012-1	<i>Scientific research in engineering and its impact on innovation</i> (english language) - Rodolphe SEPULCHRE	Q2	30	30	-	5
<b>Internships and projects (maximum 15 credits)</b>						
ASTG9005-1	<i>Research Internship</i> (english language) - Benoît DONNET - [300h Proj.]	TA	-	-	[+]	10
ASTG0021-1	<i>Technical company internship</i> (english language) - Laurent MATHY - [300h Proj.]  <i>Notice : the two company internships are mutually exclusive</i>	TA	-	-	[+]	10
PROJ0011-1	<i>Personal student project</i> (english language) - Bernard BOIGELOT, COLLÉGIALITÉ - [150h Proj.]	TA	-	-	[+]	5

#### Bloc d'aménagement du programme de l'année

## Additional ECTS Master in computer science (for students who have not obtained a Bachelor's degree in computer science)

Students that are admitted to the "master 120" in Computer Science without having obtained a degree of bachelor in computer science (which includes bachelors in "Informatique de gestion" and "Informatique et Systèmes") must add to their programme the following list of courses, to be taken in the first year of the master.

#### Compulsory Courses

MATH0499-1	<i>Graph theory</i> - Michel RIGO	Q1	25	20	-	4
INFO0062-1	<i>Object-oriented programming</i> (english language) - Bernard BOIGELOT - [20h Proj.]	Q2	30	24	[+]	5
INFO0054-1	<i>Functional programming</i> - Pascal GRIBOMONT - [15h Proj.]	Q2	30	25	[+]	5
MATH0491-1	<i>Mathematics for computing</i> - Georges HANSOUL	Q1	25	25	-	5
INFO0058-1	<i>Introduction to Recursive Programming</i> - Pascal GRIBOMONT	Q1	15	15	-	3
INFO0027-2	<i>Programming techniques</i> (english language) - Laurent MATHY - [70h Proj.]	Q2	30	24	[+]	5

#### Optional courses

Choose one of the courses below :

LANG0310-2	<i>Computing English</i> (english language) - Christine FILOT, ISLV, Adnan VESSEUR  <i>Notice : Students who pass the entrance test will replace LANG0310-2 by the higher level course LANG0988 "Advanced English for ICT studies"</i>	Q1	3	27	-	3
LANG0988-1	<i>Advanced English for ICT studies</i> (english language) - Christine FILOT, ISLV, Adnan VESSEUR	Q1	5	25	-	3