

## Vue cycle du programme des cours

B1 Or Th Pr Au Cr

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 (B1 : 35Cr, B2 : 25Cr)

INFO0085-1	<i>Compilers</i> (anglais) - Pascal FONTAINE - [75h Proj.] <b>Corequis :</b> INFO0016-1 - Introduction to the theory of computation INFO2050-1 - Programmation avancée INFO0012-2 - Computation structures INFO0940-1 - Operating systems	B1	Q2	25	-	[+]	5
ELEN0062-1	<i>Introduction to machine learning</i> (anglais) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.]	B1	Q1	30	5	[+]	5
INFO0016-1	<i>Introduction to the theory of computation</i> (anglais) - Quentin LOUVEAUX	B1	Q1	26	26	-	5
ELEN0060-2	<i>Information and coding theory</i> (anglais) - Louis WEHENKEL - [30h Proj.]	B1	Q2	30	15	[+]	5
PROJ0010-1	<i>Software project engineering and management</i> (anglais) - JeanLouis BINOT, Benoît DONNET, Guy LEDUC, Laurent MATHY - [280h Proj.] <b>Prérequis :</b> INFO0062-1 - Object-oriented programming <b>Corequis :</b> INFO0010-4 - Introduction to computer networking	B1	TA	20	-	[+]	10
[...]	As a transitional measure in 2020-2021, students who have earned GEST3162-1 credits will be required to include the course INFO9012-1 "Parallel Programming" in their curriculum						
GEST3162-1	<i>Principles of management</i> (anglais) - Michael GHILISSEN, François PICHAULT	B1	Q1	25	25	-	5
INFO9012-1	<i>Parallel Programming</i> (anglais) - Pascal FONTAINE	B1	Q2	25	25	-	5
ATFE0002-1	<i>Master thesis</i> (anglais) - COLLÉGIALITÉ, Laurent MATHY - [750h Proj.]	B2	TA	-	-	[+]	25

### Optional courses (B1 : 25Cr, B2 : 35Cr)

Choose one focus among the three below : (B1 : 15Cr, B2 : 15Cr)

#### Professional focus on "Computer systems security" (B1 : 15Cr, B2 : 15Cr)

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>Network Engineering</i> (anglais) - Benoît DONNET, Guy LEDUC - [12h Labo., 30h Proj.] <b>Corequis :</b> INFO0010-4 - Introduction to computer networking	B1	Q2	30	-	[+]	5
INFO0045-3	<i>Introduction to computer security</i> (anglais) - Benoît DONNET - [10h Labo., 30h Proj.] <b>Corequis :</b> INFO2050-1 - Programmation avancée INFO0010-4 - Introduction to computer networking	B1	Q1	30	6	[+]	5

Choose 20 credits in the following list : (B1 : 5Cr, B2 : 15Cr)

INFO0064-2	<i>Embedded systems</i> (anglais) - Bernard BOIGELOT	-	Q1	25	20	-	3
------------	--	---	----	----	----	---	---

INFO2055-1	<i>Embedded systems project</i> (anglais) - Bernard BOIGELOT - [60h Proj.] <b>Corequis :</b> INFO0064-2 - Embedded systems	-	Q2	-	-	[+]	2
INFO2051-1	<i>Object-oriented programming on mobile devices</i> (anglais) - Laurent MATHY - [90h Proj.]	-	Q1	15	10	[+]	5
INFO0056-1	<i>Securing Networks</i> (anglais) - Guy LEDUC - [12h Labo., 30h Proj.] (années paires) <b>Corequis :</b> INFO0045-3 - Introduction to computer security INFO0010-4 - Introduction to computer networking	-	Q2	30	-	[+]	5
ELEN0002-2	<i>Introduction to audio and video techniques</i> (anglais) - JeanJacques EMBRECHTS - [8h Labo.]	-	Q1	30	22	[+]	5
INFO0939-1	<i>High performance scientific computing</i> (anglais) - Christophe GEUZAINÉ - [20h Proj.]	-	Q1	30	15	[+]	5
INFO8002-1	<i>Large-scale data systems</i> (anglais) - Gilles LOUPPE - [45h Proj.]	-	Q1	25	10	[+]	5
INFO8012-1	<i>Digital Forensics</i> (anglais) - Benoît DONNET, Laurent MATHY - [12h Labo., 30h Proj.] (années paires) <b>Corequis :</b> INFO0940-1 - Operating systems INFO0085-1 - Compilers INFO0010-4 - Introduction to computer networking	-	Q2	30	-	[+]	5
INFO8011-1	<i>Network infrastructures</i> (anglais) - Benoît DONNET, Guy LEDUC, Laurent MATHY - [12h Labo., 30h Proj.] (années impaires) <b>Corequis :</b> INFO0010-4 - Introduction to computer networking	-	Q1	30	-	[+]	5
INFO8013-1	<i>Advanced Computer Security</i> (anglais) - Benoît DONNET, Laurent MATHY - [20h Labo., 30h Proj.] (années impaires) <b>Prérequis :</b> INFO0045-3 - Introduction to computer security	-	Q2	20	-	[+]	5

#### Professional focus on "Intelligent Systems" (B1 : 15Cr, B2 : 15Cr)

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

INFO8010-1	<i>Deep learning</i> (anglais) - Gilles LOUPPE - [55h Proj.]	B1	Q2	25	10	[+]	5
------------	--	----	----	----	----	-----	---

Choose 25 credits in the following list : (B1 : 10Cr, B2 : 15Cr)

ELEN0016-2	<i>Computer vision</i> (anglais) - Marc VAN DROOGENBROECK - [50h Proj.]	-	Q1	30	10	[+]	5
INFO0051-1	<i>Logic</i> (anglais) - Pascal GRIBOMONT - [10h Proj.]	-	Q1	25	25	[+]	5
INFO0948-2	<i>Introduction to intelligent robotics</i> (anglais) - Pierre SACRÉ - [80h Proj.]	-	Q2	30	4	[+]	5
INFO0049-1	<i>Knowledge representation</i> (anglais) - Pascal GRIBOMONT - [50h Proj.] <b>Corequis :</b> INFO0051-1 - Logic	-	Q2	28	4	[+]	5
INFO2049-1	<i>Web and Text Analytics</i> (anglais) - Ashwin ITTOO	-	Q1	30	-	-	5
GBIO0002-1	<i>Genetics and bioinformatics</i> (anglais) - Franck DEQUIEDT,	-	Q1	30	15	[+]	5

Programme des cours 2020-2021  
 Faculté des Sciences Appliquées  
 Master en sciences informatiques, à finalité

Kristel VAN STEEN - [15h Proj.]

DROI1357-1	<i>European law, (big) data and artificial intelligence applications seminar</i> (anglais) - Pieter VAN CLEYNENBREUGEL	-	Q1	24	-	-	5
INFO8003-1	<i>Optimal decision making for complex problems</i> (anglais) - Damien ERNST - [45h Proj.]	-	Q2	25	10	[+]	5
INFO8004-1	<i>Advanced Machine learning</i> (anglais) - Pierre GEURTS, Gilles LOUPPE, Louis WEHENKEL - [45h Proj.]	-	Q2	25	-	[+]	5
INFO8005-1	<i>Semantic Data</i> (anglais) - - Suppl : JeanLouis BINOT - [45h Proj.]	-	Q2	25	10	[+]	5
INFO0050-1	<i>Constraint programming projects</i> (anglais) - Pascal GRIBOMONT - [80h Proj.]	-	TA	15	10	[+]	5

**Prérequis :**

INFO0049-1 - Knowledge representation

**Professional focus on "Management" (B1 : 15Cr, B2 : 15Cr)**

Students choosing this focus shall select, in addition to 27 credits of compulsory courses, 33 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.

Registration to this focus only with a file (contact: C. Puit)

**Compulsory courses**

FINA0001-1	<i>Analyse des états financiers et financement de l'entreprise</i> - Wouter TORSIN	B1	Q2	45	-	-	5
FINA0017-1	<i>Comptabilité générale (hd)</i> - Anne BILS, Wilfried NIESSEN	B1	Q1	30	15	-	5
LOGI0010-1	<i>Supply Chain Management</i> (anglais) - Yasemin ARDA	B1	Q2	45	-	-	5
ERAS0011-1	<i>Business Simulation</i> (anglais) - Anne CHANTEUX - [50h TD]	B2	Q1	-	-	[+]	2
GRHO0001-4	<i>Gestion stratégique des ressources humaines</i> - François PICHAULT	B2	Q1	45	-	-	5
DROI2003-2	<i>Gestion juridique générale de l'entreprise</i> - <i>Droit des sociétés</i> - Frédéric DAERDEN, Laurent STAS DE RICHELLE - <i>Droit fiscal</i> - Isabelle RICHELLE - [5h Conf.]	B2	Q2	25	-	-	5
				25	-	[+]	

Choose one of the three following courses : (B2 : 3Cr)

LANG1936-1	<i>Néerlandais élémentaire 1</i> - Stéphane GHIJSEN, Isabelle VAN DEN HOVE	B2	TA	30	-	-	3
LANG1933-1	<i>Allemand élémentaire 1</i> - Marie MAWHIN	B2	Q2	30	-	-	3
LANG1934-1	<i>Espagnol élémentaire 1</i> - Alexis ALVAREZ BARBOSA	B2	TA	30	-	-	3

Choose remaining credits in the lists below : (B1 : 10Cr, B2 : 20Cr)

**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 à l'algorithmique numérique</i> - Quentin LOUVEAUX - [6h Labo., 45h Proj.]	B1	Q1	24	14	[+]	5
INFO2050-1	<i>Programmation avancée</i> - Pascal FONTAINE, Pierre GEURTS - [40h Proj.]	B1	Q1	25	20	[+]	5
INFO0010-4	<i>Introduction to computer networking</i> (anglais) - Guy LEDUC - [12h Labo., 40h Proj.]	B1	Q1	35	2	[+]	5

INFO0012-2	<i>Computation structures</i> (anglais) - Pascal FONTAINE, Laurent MATHY - [40h Proj.]	B1	Q1	26	26	[+]	5
INFO0940-1	<i>Operating systems</i> (anglais) - Laurent MATHY - [30h Proj.]	B1	Q2	30	6	[+]	5
INFO8006-1	<i>Introduction to artificial intelligence</i> (anglais) - Gilles LOUPPE - [45h Proj.]	B1	Q1	25	20	[+]	5

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

#### Computer systems security

INFO0031-1	<i>Network Engineering</i> (anglais) - Benoît DONNET, Guy LEDUC - [12h Labo., 30h Proj.]	-	Q2	30	-	[+]	5
INFO0045-3	<i>Introduction to computer security</i> (anglais) - Benoît DONNET - [10h Labo., 30h Proj.] <b>Corequis :</b> INFO2050-1 - Programmation avancée INFO0012-2 - Computation structures INFO0010-4 - Introduction to computer networking	-	Q1	30	6	[+]	5
INFO0056-1	<i>Securing Networks</i> (anglais) - Guy LEDUC - [12h Labo., 30h Proj.] (années paires) <b>Corequis :</b> INFO0045-3 - Introduction to computer security INFO0010-4 - Introduction to computer networking	-	Q2	30	-	[+]	5
ELEN0002-2	<i>Introduction to audio and video techniques</i> (anglais) - JeanJacques EMBRECHTS - [8h Labo.]	-	Q1	30	22	[+]	5
INFO0939-1	<i>High performance scientific computing</i> (anglais) - Christophe GEUZAIN - [20h Proj.]	-	Q1	30	15	[+]	5
INFO8002-1	<i>Large-scale data systems</i> (anglais) - Gilles LOUPPE - [45h Proj.]	-	Q1	25	10	[+]	5
INFO8012-1	<i>Digital Forensics</i> (anglais) - Benoît DONNET, Laurent MATHY - [12h Labo., 30h Proj.] (années paires) <b>Corequis :</b> INFO0085-1 - Compilers INFO0010-4 - Introduction to computer networking INFO0940-1 - Operating systems	-	Q2	30	-	[+]	5
INFO8011-1	<i>Network infrastructures</i> (anglais) - Benoît DONNET, Guy LEDUC, Laurent MATHY - [12h Labo., 30h Proj.] (années impaires) <b>Corequis :</b> INFO0010-4 - Introduction to computer networking	-	Q1	30	-	[+]	5
INFO8013-1	<i>Advanced Computer Security</i> (anglais) - Benoît DONNET, Laurent MATHY - [20h Labo., 30h Proj.] (années impaires) <b>Corequis :</b> INFO0045-3 - Introduction to computer security	-	Q2	20	-	[+]	5

#### Intelligent Systems

INFO8010-1	<i>Deep learning</i> (anglais) - Gilles LOUPPE - [55h Proj.] <b>Corequis :</b> ELEN0062-1 - Introduction to machine learning	-	Q2	25	10	[+]	5
ELEN0016-2	<i>Computer vision</i> (anglais) - Marc VAN DROOGENBROECK - [50h Proj.]	-	Q1	30	10	[+]	5
INFO0948-2	<i>Introduction to intelligent robotics</i> (anglais) - Pierre SACRÉ - [80h Proj.]	-	Q2	30	4	[+]	5
INFO0051-1	<i>Logic</i> (anglais) - Pascal GRIBOMONT - [10h Proj.]	-	Q1	25	25	[+]	5
INFO0049-1	<i>Knowledge representation</i> (anglais) - Pascal GRIBOMONT - [50h Proj.] <b>Corequis :</b>	-	Q2	28	4	[+]	5

	INFO0051-1 - Logic								
INFO2049-1	<i>Web and Text Analytics</i> (anglais) - Ashwin ITTOO <b>Corequis :</b> ELEN0062-1 - Introduction to machine learning	-	Q1	30	-	-	-	-	5
GBIO0002-1	<i>Genetics and bioinformatics</i> (anglais) - Franck DEQUIEDT, Kristel VAN STEEN - [15h Proj.]	-	Q1	30	15	[+]			5
INFO8004-1	<i>Advanced Machine learning</i> (anglais) - Pierre GEURTS, Gilles LOUPPE, Louis WEHENKEL - [45h Proj.]	-	Q2	25	-	[+]			5
INFO8005-1	<i>Semantic Data</i> (anglais) - - Suppl : JeanLouis BINOT - [45h Proj.]	-	Q2	25	10	[+]			5
INFO0050-1	<i>Constraint programming projects</i> (anglais) - Pascal GRIBOMONT - [80h Proj.] <b>Prérequis :</b> INFO0049-1 - Knowledge representation	-	TA	15	10	[+]			5
<b>Other optional courses</b>									
INFO0064-2	<i>Embedded systems</i> (anglais) - Bernard BOIGELOT	-	Q1	25	20	-			3
INFO2055-1	<i>Embedded systems project</i> (anglais) - Bernard BOIGELOT - [60h Proj.] <b>Corequis :</b> INFO0064-2 - Embedded systems	-	Q2	-	-	[+]			2
INFO2051-1	<i>Object-oriented programming on mobile devices</i> (anglais) - Laurent MATHY - [90h Proj.]	-	Q1	15	10	[+]			5
INFO0060-1	<i>Concurrent system verification and temporal logic</i> (anglais) - Bernard BOIGELOT, Pascal GRIBOMONT - [20h Proj.] <b>Prérequis :</b> INFO0016-1 - Introduction to the theory of computation INFO0051-1 - Logic	-	Q2	30	10	[+]			5
MECA0524-1	<i>CAD &amp; Geometric Algorithms</i> - Eric BÉCHET - [60h Proj.]	-	Q1	20	20	[+]			5
GBIO0009-1	<i>Topics in bioinformatics</i> (anglais) - Kristel VAN STEEN - [35h Proj.] <b>Prérequis :</b> GBIO0002-1 - Genetics and bioinformatics	-	Q1	25	15	[+]			5
MATH0461-2	<i>Introduction to numerical optimization</i> (anglais) - Quentin LOUVEAUX - [25h Proj.]	-	Q1	30	20	[+]			5
MATH0462-1	<i>Discrete optimization</i> (anglais) - Quentin LOUVEAUX - [25h Proj.] <b>Corequis :</b> MATH0500-1 - Introduction à l'algorithmique numérique	-	Q2	30	20	[+]			5
GBIO0030-1	<i>Computational approaches to statistical genetics</i> (anglais) - Kristel VAN STEEN - [35h Proj.] <b>Prérequis :</b> GBIO0002-1 - Genetics and bioinformatics	-	Q2	25	15	[+]			5
GBIO0031-1	<i>Learning from genomic data</i> (anglais) - Kristel VAN STEEN - [150h Proj.] <b>Prérequis :</b> GBIO0002-1 - Genetics and bioinformatics	-	Q2	-	-	[+]			5
INGE0012-1	<i>Scientific research in engineering and its impact on innovation</i> (anglais) - Rodolphe SEPULCHRE	-	Q2	26	26	-			5
INFO9012-1	<i>Parallel Programming</i> (anglais) - Pascal FONTAINE	-	Q2	25	25	-			5
<b>Internships and projects (maximum 15 credits)</b>									
ASTG9005-1	<i>Research Internship</i> (anglais) - Benoît DONNET - [300h Proj.]	B2	TA	-	-	[+]			10
ASTG0021-1	<i>Technical company internship</i> (anglais) - Laurent MATHY - [300h Proj.]	B2	TA	-	-	[+]			10

*Remarque :* the two company internships are mutually exclusive

Programme des cours 2020-2021  
 Faculté des Sciences Appliquées  
 Master en sciences informatiques, à finalité

PROJ0011-1 *Personal student project* (anglais) - Bernard BOIGELOT, B2 TA - - [+] 5  
 COLLÉGIALITÉ - [150h Proj.]

**Crédits supplémentaires Master en sciences informatiques (pour les étudiants qui n'ont pas obtenu un Bachelier en sciences informatiques)**

Students that are admitted to the master of science in Computer Science without having obtained a degree of bachelor in Computer Science must add to their programme the following list of courses, to be taken in the first year of the master.

**Compulsory courses (B0 : 27Cr)**

INFO9012-1	<i>Parallel Programming</i> (anglais) - Pascal FONTAINE	B0	Q2	25	25	-	5
INFO0062-1	<i>Object-oriented programming</i> (anglais) - Bernard BOIGELOT - [20h Proj.]	B0	Q2	25	20	[+]	5
INFO0054-1	<i>Programmation fonctionnelle</i> - Pascal GRIBOMONT - [15h Proj.]	B0	Q2	28	24	[+]	5
MATH2019-1	<i>Mathématiques pour l'informatique 1</i> - Emilie CHARLIER, N...	B0	Q1	26	26	-	5
INFO0058-1	<i>Introduction à la programmation récursive</i> - Pascal GRIBOMONT	B0	Q1	15	15	-	2
INFO0027-2	<i>Programming techniques</i> (anglais) - Laurent MATHY - [70h Proj.]	B0	Q2	24	24	[+]	5

**Optional courses (B0 : 3Cr)**

Students who pass the entrance test may replace LANG6011-1 with the advanced course LANG0988-1 "Advanced for ICT studies". (B0 : 3Cr)

LANG6011-1	<i>Remedial English for Computer Science</i> (anglais) - Adnan VESSEUR	B0	Q2	3	27	-	3
LANG0988-1	<i>Advanced English for ICT studies</i> (anglais) - Christine FILOT, ISLV, Adnan VESSEUR	B0	Q1	5	25	-	3