UCLouvain

STAT2M

2021 - 2022

Master [120] in Statistics: General

At Louvain-la-Neuve - 120 credits - 2 years - Day schedule - In French
Dissertation/Graduation Project : **YES** - Internship : **optional**
Activities in English: **YES** - Activities in other languages : **NO**
Activities on other sites : **NO**
Main study domain : **Sciences**
Organized by: **Faculty of Science (SC)**
Programme acronym: **STAT2M** - Francophone Certification Framework: 7

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STAT2M - Introduction

Introduction

Introduction

Organized by Louvain School of Statistics, Biostatistics and Actuarial Sciences (LSBA), this Master's program offers you

- A training in the fundamental concepts of statistics and to the main technical tools and software for the analysis of statistical data.
- The choice between a focus on research or oriented towards a field of applications.
- Several opportunities to put in practice statistical techniques based on exercises, individual projects, analyses of real data using statistical software and the preparation of a Master's thesis, possibly in collaboration with an external industry partner.

Your profile

You

- Hold an undergraduate diploma and you wish to become a specialist in data analysis methods;
- Hold an undergraduate diploma or Master's degree from a University or a University college and statistics is an additional competence to your actual training;
- Are working in the field of applied data analysis and you wish to provide an academic framework for your practice.

Your programme

The program of Master's degree in Statistics is composed of a core study program of 52 to 74 credits of courses (UE) and 30 credits (including the Master's thesis) of professional or methodological focus (*finalité spécialisée*). You will complete your programs with courses from the proposed options of the programs.

The methodological focus (*finalité approfondie*) is an initiation to fundamental or applied research in statistics, but also gives access to the professional life.

The specialized focus (*finalité spécialisée*) is oriented towards applied statistics and aims to provide you with the main tools for statistical data analysis.

STAT2M - Teaching profile

Learning outcomes

Le master en statistique, orientation générale, propose une formation aux concepts fondamentaux de la statistique et à un large éventail d'outils de traitement des données, à l'étudiant émanant soit d'une formation de base en mathématique ou informatique, soit dans un des nombreux domaines d'application de la statistique.

Cette formation permettra à l'étudiant d'acquérir de solides bases méthodologiques en statistique tout en lui offrant de multiples occasions de les appliquer dans des domaines particuliers. Ce Master prépare à la vie professionnelle, permettant aux diplômés d'assumer les fonctions de statisticiens dans différents domaine tels que le secteur des banques, des companies d'assurance, des cabinets de conseil et d'audit, de diverses industries, ... etc. Il peut également constituer une initiation à la recherche et une préparation au doctorat en statistique.

Selon les objectifs visés par l'étudiant, deux finalités sont proposées.

La finalité approfondie est une initiation à la recherche fondamentale ou appliquée, mais elle conduit également à la vie professionnelle sans choix a priori d'un domaine d'application. A cette fin, le mémoire de la finalité approfondie aura pour principal objectif d'aborder un sujet méthodologique en motivant son intérêt pratique.

La finalité spécialisée est, quant à elle, orientée vers la statistique appliquée. Elle permet d'acquérir la maîtrise des principaux outils de traitement de données, tout en se spécialisant dans un domaine d'application de la statistique : informatique, économie, data mining, assurance, finance, ...Le mémoire de la finalité spécialisée sera donc typiquement motivé par des problèmes pratiques et étudiera des solutions méthodologiques en les appliquant à des données réelles. Il sera le plus souvent associé à un stage.

On successful completion of this programme, each student is able to :

1. Maitriser un socle fondamental de la probabilité et de la statistique.

1.1

Maîtriser les calculs mathématiques fondamentaux.

1.2

Résumer un texte de méthodologie statistique et situer les limites de ses connaissances face à un problème donné.

1.3

Utiliser les outils fondamentaux de calcul et de programmation dans des problèmes de probabilité et statistique.

1.4

Reconnaître les concepts fondamentaux et transversaux d'importantes théories de probabilité et statistique actuelles et établir les liens principaux entre ces théories.

1.5

Expliquer des théories de probabilité et statistique en motivant les énoncés et les définitions par des exemples et des contre-exemples et en mettant en évidence les idées principales.

1.6

Retracer l'évolution historique des concepts de probabilité et de statistique et des problématiques associées, en ayant compris le rôle de probabilité et statistique dans divers pans de l'ensemble des connaissances et de la culture.

2. S'exprimer de façon claire, précise et rigoureuse dans les activités de communication tant en français que en anglais (niveau B1 CECRL).

2.1

Saisir, résumer et interpréter l'essentiel de communications scientifiques orales en statistique et probabilité.

2.2

Résumer, par des tables et graphiques informatifs et pertinents, l'information disponible dans un ensemble de données.

2.3

Rédiger des textes statistiques selon les conventions de la discipline.

2.4

Structurer un exposé oral, mettre en évidence les éléments clef, distinguer techniques et concepts et adapter l'exposé au niveau d'expertise des auditeurs.

2.5

Utiliser des outils médiatiques et informatiques variés pour communiquer (expliquer, rédiger, publier) des résultats d'analyses statistiques et leur interprétation dans le contexte de l'étude.

2.6

Dialoguer avec des collègues d'autres disciplines.

3. Analyser rigoureusement et dans différents contextes disciplinaires, un problème ou un système complexe pour en extraire les points essentiels et les mettre en relation avec les outils théoriques les mieux adaptés.

3.1

Utiliser des solides connaissances de la méthodologie statistique dans des contextes multidisciplinaires parfois éloignés de la statistique.

3.2

Analyser un problème statistique et proposer une méthode (en validant les hypothèses sous-jacentes) et des outils adéquats pour l'étudier et le résoudre de façon approfondie et originale.

3.3

Utiliser plusieurs outils informatiques d'aide à la résolution de problèmes statistiques, tout en connaissant les limitations de ces outils.

3.4

Développer une analyse rigoureuse et originale pour comprendre et résoudre des problèmes spécifiques dans tous les domaines d'application des statistiques qu'il rencontrera dans sa profession, en respectant les contraintes imposées par le contexte.

4. S'il choisit la finalité approfondie, maitriser plusieurs domaines de la probabilité ou statistique actuelle et ses problématiques.

4.1

Développer de façon autonome son intuition statistique en anticipant les résultats attendus et en vérifiant la cohérence avec des résultats déjà existants.

4.2

Analyser un problème de recherche et proposer des outils adéquats pour l'étudier de façon approfondie et originale.

4.3

Démontrer des résultats classiques et plus avancés de probabilité et statistique mathématique.

4.4

Etudier les propriétés de méthodes statistiques à l'aide de simulation.

4.5

Collaborer à la rédaction d'une communication scientifique pour une publication avec comité de revue.

5. S'il choisit la finalité spécialisée, gérer un projet de consultation statistique.

5.1

Communiquer avec un client d'une autre discipline, lui apporter un regard proactif et objectif par rapport à son problème, faire preuve de curiosité et de connaissances minimales pour sa discipline.

5.2

Cerner et reformuler les questions du client et y apporter des réponses adéquates, originales, documentées et l'invitant à l'autonomie.

5.3

Gérer de grandes bases de données.

5.4

Budgétiser, planifier et gérer un projet de consultation statistique.

5.5

Ecrire un rapport clair, succinct et rigoureux d'un projet de consultation statistique.

5.6

Expliquer les résultats d'un projet de consultation statistique aux clients non-statisticiens.

6. Etre autonome dans ses apprentissages et faire preuve d'esprit critique.

6.1

Rechercher dans la littérature statistique des sources et évaluer leur pertinence.

6.2

Lire et comprendre un texte statistique avancé et le situer correctement par rapport aux connaissances acquises.

6.3

Modéliser et résoudre un problème donné et être capable de s'initier à un nouveau champ de connaissances.

6.4

Juger de façon autonome de la pertinence d'une démarche statistique et de l'intérêt d'une théorie statistique.

Programme structure

For a programme-type, and regardless of the focus, options/or elective courses selected, this master will carry a minimum of 120 credits divided over two annual units, corresponding to 60 credits each.

> Tronc commun *[en-prog-2021-stat2m-tronc_commun]*

Finalités

> Research Focus *[en-prog-2021-stat2m-lstat200a]*
> Professional Focus *[en-prog-2021-stat2m-lstat200s]*

> List of electives *[en-prog-2021-stat2m-options]*

> Option 1 : Statistique mathématique *[en-prog-2021-stat2m-lstat201o]*
> Option 2 : Data science *[en-prog-2021-stat2m-lstat203o]*
> Option 3 : Econométrie, finance et sciences actuarielles *[en-prog-2021-stat2m-lstat204o]*
> Option 4 : Statistique en sciences humaines *[en-prog-2021-stat2m-lstat206o]*

Preparatory Module *(only for students who qualify for the course via complementary coursework)*

> Master [120] in Statistics: General *[en-prog-2021-stat2m-module_complementaire]*

STAT2M Programme

Detailled programme by subject

CORE COURSES

O Mandatory	⊠ Optional
△ Courses not taught during 2021-2022	⊘ Periodic courses not taught during 2021-2022
⊕ Periodic courses taught during 2021-2022	🟨 Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

O Cours obligatoires de statistique (52 credits)

						Year 1	Year 2
O LSTAT2020	Statistical softwares and basic statistical programming	Céline Bugli	15h+15h	4 Credits	q1	x	
O LSTAT2030	Statistique et data sciences avec R: Programmation avancée	Anouar El Ghouch	15h+15h	4 Credits	q2	x	
O LSTAT2040	Statistical analysis	Anouar El Ghouch	30h+15h	5 Credits	q2	x	
O LSTAT2100	Discrete data analysis.	Anouar El Ghouch	30h+7.5h	5 Credits	q2	x	
O LSTAT2110	Data Analysis	Johan Segers	30h+7.5h	5 Credits	q1	x	
O LSTAT2120	Linear models	Christian Hafner	30h+7.5h	5 Credits	q1	x	
O LSTAT2130	Introduction to Bayesian statistics	Philippe Lambert	15h+5h	4 Credits	q2	x	
O LSTAT2140	Non parametric statistics	Eugen Pircalabelu	15h+5h	4 Credits	q1	x	x
O LSTAT2150	Nonparametric statistics: smoothings methods	Rainer von Sachs	15h+5h	4 Credits	q1	x	x
O LSTAT2170	Times series	Rainer von Sachs	22.5h +7.5h	5 Credits	q2	x	x
O LSTAT2180	Resampling methods with applications	Eugen Pircalabelu	15h+5h	4 Credits	q1	x	x
O LSTAT2390	Applied statistics workshops 🟨	Catherine Legrand Christian Ritter	15h	3 Credits	q1+q2		x

					Year 1	Year 2

⊠ Cours au choix

L'étudiant peut compléter son programme avec des cours proposés dans le programme du master en statistiques, orientation biostatistique. En particulier, les cours suivants sont recommandés :

⊠ LSTAT2210	Advenced linear models	Lieven Desmet (compensates Catherine Legrand)	15h+5h	4 Credits	q1		x
⊠ LSTAT2220	Analysis of survival and duration data	Ingrid Van Keilegom	15h+5h	4 Credits	q1	x	x
⊠ LSTAT2230	Advanced survival models	Catherine Legrand	15h	3 Credits	q2		x
⊠ LSTAT2310	Statistical quality control.	Bernard Francq	15h+5h	4 Credits	q1	x	x
⊠ LSTAT2320	Design of experiment.	Patrick Bogaert Bernadette Govaerts	22.5h +7.5h	5 Credits	q2	x	x
⊠ LSTAT2330	Statistics in clinical trials.	Catherine Legrand Annie Robert	22.5h +7.5h	5 Credits	q2	x	x
⊠ LSTAT2340	Statistical Analyses of ¿omics Data	Céline Bugli Bernadette Govaerts	15h	4 Credits	q2	x	x

⊠ Stage optionnel (10 credits)

⊠ LSTAT2920	Stage ou travail d'application			10 Credits	q1 or q2		x

⊠ Philosophie

Choisir maximum un cours parmi:

⊠ LFILO2003E	Ethics in the Sciences and technics (sem)	Hervé Jeanmart Charles Pence René Rezsohazy	15h+15h	2 Credits	q2	x	x
⊠ LSC2001	Introduction to contemporary philosophy	Peter Verdée	30h	2 Credits	q2	x	x
⊠ LSC2220	Philosophy of science	Cristian Lopez (compensates Alexandre Guay)	30h	2 Credits	q2	x	x

⊠ Optional courses :

These credits are not counted within the 120 required credits.

⊠ LSST1001	IngénieuxSud	Stéphanie Merle Jean-Pierre Raskin (coord.)	15h+45h	5 Credits	q1+q2	x	x
⊠ LSST1002M	Information and critical thinking - MOOC	Myriam De Kesel Jean-François Rees	30h+15h	3 Credits	q2	x	x

LIST OF FOCUSES

> Research Focus *[en-prog-2021-stat2m-lstat200a]*
> Professional Focus *[en-prog-2021-stat2m-lstat200s]*

RESEARCH FOCUS [30.0]

O Mandatory
△ Courses not taught during 2021-2022
⊕ Periodic courses taught during 2021-2022
⊠ Optional
⊘ Periodic courses not taught during 2021-2022
Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Content:

					Year	1	2
O LSTAT2810	memory of research			25 Credits	q1 or q2		x
O LSTAT2450	Statistical learning. Estimation, selection and inference	Eugen Pircalabelu	30h+7.5h	5 Credits	q1		x

PROFESSIONAL FOCUS [30.0]

O Mandatory
△ Courses not taught during 2021-2022
⊕ Periodic courses taught during 2021-2022
⊠ Optional
⊘ Periodic courses not taught during 2021-2022
Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Content:

					Year	1	2
O LSTAT2820	Mémoire projet			25 Credits	q1 or q2		x
O LSTAT2380	Statistical consulting	Christian Ritter	30h	5 Credits	q1+q2		x

OPTIONS

> Option 1 : Statistique mathématique *[en-prog-2021-stat2m-lstat201o]*
> Option 2 : Data science *[en-prog-2021-stat2m-lstat203o]*
> Option 3 : Econométrie, finance et sciences actuarielles *[en-prog-2021-stat2m-lstat204o]*
> Option 4 : Statistique en sciences humaines *[en-prog-2021-stat2m-lstat206o]*

OPTION 1 : STATISTIQUE MATHÉMATIQUE

O Mandatory
△ Courses not taught during 2021-2022
⊕ Periodic courses taught during 2021-2022
⊠ Optional
⊘ Periodic courses not taught during 2021-2022
Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

The student will validate this option if he/she obtains between 15 and 30 credits among the following courses.

Content:

						Year 1	Year 2
○ LMAT1371	Probability Theory	Johan Segers	30h +22.5h	5 Credits	q2	x	x
⊠ LMAT2470	Processus stochastiques (statistique)	Donatien Hainaut	30h	5 Credits	q2		x
⊠ LSTAT2410	Copulas: models and inference	Johan Segers	15h	3 Credits	q1 ⊕		x
⊠ LSTAT2430	Nonparametric curve estimation : Fourier-based methods	Rainer von Sachs	30h	5 Credits	q2 ⊕		x
⊠ LSTAT2440	Inference and Data Reduction	Rainer von Sachs	15h+7.5h	3 Credits	q1		x

OPTION 2 : DATA SCIENCE

○ Mandatory
⊠ Optional
△ Courses not taught during 2021-2022
⊘ Periodic courses not taught during 2021-2022
⊕ Periodic courses taught during 2021-2022
Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

The student will validate this option if he/she obtains between 15 and 30 credits among the following courses.

Content:

						Year 1	Year 2
○ LDATS2350	Data Mining	Robin Van Oirbeek	15h+15h	5 Credits	q2		x
○ LDATS2360	Seminar in data management: basic	Céline Bugli	15h+10h	5 Credits	q1	x	x
⊠ LDATS2370	Data Management II : SAS ADVANCED PROGRAMMING	Christophe Kabacinski	15h+10h	5 Credits	q2		x
⊠ LDATS2310	Data science for insurance and finance	Donatien Hainaut	15h	3 Credits	q1	x	x
⊠ LELEC2870	Machine learning : regression, deep networks and dimensionality reduction	John Lee Michel Verleysen	30h+30h	5 Credits	q1		x
⊠ LINFO2262	Machine Learning :classification and evaluation	Pierre Dupont	30h+30h	5 Credits	q2		x
⊠ LINMA2472	Algorithms in data science	Jean-Charles Delvenne (coord.) Gautier Krings (compensates Vincent Blondel)	30h +22.5h	5 Credits	q1	x	x
⊠ LINFO2275	Data mining & decision making	Marco Saerens	30h+15h	5 Credits	q2		x

OPTION 3 : ECONOMÉTRIE, FINANCE ET SCIENCES ACTUARIELLES

O Mandatory	⊠ Optional
△ Courses not taught during 2021-2022	⊘ Periodic courses not taught during 2021-2022
⊕ Periodic courses taught during 2021-2022	Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

The student will validate this option if he/she obtains between 15 and 30 credits among the following courses.

Content:

						Year 1	Year 2
⊠ LSTAT2420	Non- and semi- parametric econometrics	Christian Hafner	30h	5 Credits	q2 ⊘	x	x
⊠ LACTU2010	NON LIFE INSURANCE	Michel Denuit	45h	7 Credits	q1	x	x
⊠ LACTU2210	Quantitative Risk Management	Christian Hafner	30h	5 Credits	q2	x	x
⊠ LINMA2725	Financial mathematics	Pierre Devolder	30h +22.5h	5 Credits	q1	x	x
⊠ LECON2033	Applied econometrics: Microeconometrics	Bertrand Verheyden (compensates Muriel Dejemeppe)	30h+12h	5 Credits	q1	x	x
⊠ LECON2601	Advanced Econometrics II - Time Series Econometrics	Sébastien Van Bellegem	30h	5 Credits	q2	x	x
⊠ LECON2602	Advanced Econometrics II - Microeconometrics	William Parienté	30h	5 Credits	q2	x	x

OPTION 4 : STATISTIQUE EN SCIENCES HUMAINES

O Mandatory	⊠ Optional
△ Courses not taught during 2021-2022	⊘ Periodic courses not taught during 2021-2022
⊕ Periodic courses taught during 2021-2022	Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

The student will validate this option if he/she obtains between 15 and 30 credits among the following courses.

O Content:

						Year 1	Year 2
O LSTAT2200	Survey and Sampling	Marie-Paule Kestemont	15h+5h	4 Credits	q2	x	x

⊠ Cours au choix

L'étudiant choisit au maximum 15 crédits parmi les cours ci-dessous. Les cours LDEMO2402 et LSOC2095 sont toujours à suivre conjointement.

⊠ LDEMO2402	Méthodologie de collecte de données par enquêtes quantitatives (dont sondage) *Ce cours est à prendre oblibatoirement avec LSOC2095*	Bruno Schoumaker	30h	4 Credits	q2	x	x
⊠ LSOC2095	Techniques approfondies d'enquête extensive et de sondage en sociologie : atelier d'exercices *Ce cours est à prendre oblibatoirement avec LDEMO2402*		15h	2 Credits	q2	x	x
⊠ LDEMO2403	Event history analysis in social sciences	Philippe Bocquier	35h	5 Credits	q2	x	x
⊠ LPSYS2162	Advanced workshops of analysis methods	Liesje Coertjens	15h	2 Credits	q1	x	x
⊠ LPSYS2165	Advanced workshops of analysis methods	Xavier Dumay	15h	2 Credits	q2	x	x
⊠ LPSYS2166	Advanced workshops of analysis methods	Florence Stinglhamber	15h	2 Credits	q2	x	x
⊠ LPSYS2167	Advanced workshops of analysis methods	Xavier Dumay Vincent Dupriez	15h	2 Credits	q2	x	x
⊠ LPSYS2168	Advanced workshops of analysis methods	Alexandre Heeren	15h	2 Credits	q2	x	x

Course prerequisites

The **table** below lists the activities (course units, or CUs) for which there are one or more prerequisites within the programme, i.e. the programme CU for which the learning outcomes must be certified and the corresponding credits awarded by the jury before registering for that CU.

These activities are also identified **in the detailed programme**: their title is followed by a yellow square.

Prerequisites and student's annual programme

As the prerequisite is for CU registration puposes only, there are no prerequisites within a programme year. Prerequisites are defined between CUs of different years and therefore influence the order in which the student will be able to register for the programme's CUs.

In addition, when the jury validates a student's individual programme at the beginning of the year, it ensures its coherence, meaning that it may:

- transform a prerequisite into a corequisite within the same year (to enable the student to continue his or her studies with a sufficient annual course load)
- require the student to combine registration in two separate CUs which it considers necessary from a pedagogical point of view.

For more information, please consult the Academic Regulations and Procedures.

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 # Prerequisities list

LDATS2350 "Data Mining" has prerequisite(s) LSTAT2110 AND LSTAT2120 AND LSTAT2100

- LSTAT2110 - Data Analysis
- LSTAT2120 - Linear models
- LSTAT2100 - Discrete data analysis.

LDATS2370 "Data Management II : SAS ADVANCED PROGRAMMING" has prerequisite(s) LDATS2360

- LDATS2360 - Seminar in data management: basic

LSTAT2380 "Statistical consulting" has prerequisite(s) LSTAT2020 AND LSTAT2110 AND LSTAT2120 AND LSTAT2100

- LSTAT2020 - Statistical softwares and basic statistical programming
- LSTAT2110 - Data Analysis
- LSTAT2120 - Linear models
- LSTAT2100 - Discrete data analysis.

LSTAT2390 "Applied statistics workshops" has prerequisite(s) LSTAT2110 AND LSTAT2120

- LSTAT2110 - Data Analysis
- LSTAT2120 - Linear models

LSTAT2440 "Inference and Data Reduction" has prerequisite(s) LSTAT2040

- LSTAT2040 - Statistical analysis

LSTAT2920 "Stage ou travail d'application" has prerequisite(s) LSTAT2020 AND LSTAT2110 AND LSTAT2120

- LSTAT2020 - Statistical softwares and basic statistical programming
- LSTAT2110 - Data Analysis
- LSTAT2120 - Linear models

The programme's courses and learning outcomes

For each UCLouvain training programme, a reference framework of learning outcomes specifies the the skills expected of every graduate on completion of the programme. Course unit descriptions specify targeted learning outcomes, as well as the unit's contribution to reference framework of learning outcomes.

STAT2M - Information

Access Requirements

Master course admission requirements are defined by the French Community of Belgium Decree of 7 November 2013 defining the hiher education landscape and the academic organisation of courses.

General and specific admission requirements for this programme must be satisfied at the time of enrolling at the university.

In the event of the divergence between the different linguistic versions of the present conditions, the French version shall prevail.

SUMMARY

Specific access requirements

In addition to the access conditions described below, candidates will have to provide proof of a sufficient command of the French language (level B1 of the CEFR, Common European Framework of Reference for Languages).

Students who wish to be admitted on the basis of a dossier (see tables below) are invited to consult the criteria for the evaluation of application.

University Bachelors

Diploma	Special Requirements	Access	Remarks
UCLouvain Bachelors			
Bachelor in Bioengineering Bachelor in Engineering Bachelor : Business Engineering Bachelor in Economics and Management Bachelor in Computer Science Bachelor in Mathematics Bachelor in Physics		Direct access	
Tous les bacheliers	S'ils ont suivi la Minor in Statistics, Actuarial Sciences and Data Sciences	Direct access	In some cases, the UCLouvain Enrolment Office, after reviewing their online enrolment or re-enrolment application, will ask the students concerned to provide an enrolment authorisation from the faculty/ school.
Tous les autres bacheliers	if the student did not succeed Minor in Statistics, Actuarial Sciences and Data Sciences Supplementary classes: LSTAT2011, LSTAT2012, LSTAT2013 or LMAT1271	Access based on application	
Others Bachelors of the French speaking Community of Belgium			
Bachelier en sciences de l'ingénieur, orientation bioingénieur Bachelier en sciences de l'ingénieur, orientation ingénieur civil Bachelier en sciences économiques et de gestion		Direct access	

Bachelier en sciences informatiques Bachelier en sciences informatiques Bachelier en sciences physiques		
Tout bachelier	Supplementary classes: LSTAT2011, LSTAT2012, LSTAT2013 or LMAT1271	Access based on application
Bachelors of the Dutch speaking Community of Belgium		
Bachelier en sciences de l'ingénieur, orientation bioingénieur Bachelier en sciences de l'ingénieur, orientation ingénieur civil Bachelier en sciences économiques et de gestion Bachelier en sciences informatiques Bachelier en sciences informatiques Bachelier en sciences physiques		Direct access
Tous les autres bacheliers	Supplementary classes: LSTAT2011, LSTAT2012, LSTAT2013 or LMAT1271	Access based on application
Foreign Bachelors		
Tous les bacheliers	Supplementary classes: LSTAT2011, LSTAT2012, LSTAT2013 or LMAT1271	Access based on application

Non university Bachelors

> Find out more about links to the university

Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
"Licenciés"			
Ingénieur civil (sauf ingénieur civil architecte) Sciences informatiques Sciences économiques Sciences de gestion Ingénieur de gestion Sciences actuarielles Sciences physiques Sciences mathématiques Bioingénieur		Direct access	Subject to the acceptance of the Jury, a student may be exempted from a maximum of 60 activity credits and possibly complete the master's degree in Statistics in a single year.
Toutes les autres licences		Access based on application	Subject to the acceptance of the Jury, a student may be exempted from a maximum of 60 activity credits and possibly complete the master's degree in Statistics in a single year.
Masters			
Ingénieur civil (sauf ingénieur civil architecte) Sciences informatiques Sciences économiques Sciences de gestion Ingénieur de gestion Sciences actuarielles Sciences physiques Sciences mathématiques Bioingénieur		Direct access	Subject to the acceptance of the Jury, a student may be exempted from a maximum of 60 activity credits and possibly complete the master's degree in Statistics in a single year.
Tous les autres masters		Access based on application	Subject to the acceptance of the Jury, a student may be exempted from a maximum of 60 activity credits and possibly

complete the master's degree in Statistics in a single year.

Holders of a non-University 2nd cycle degree

Access based on validation of professional experience

> It is possible, under certain conditions, to use one's personal and professional experience to enter a university course without having the required qualifications. However, validation of prior experience does not automatically apply to all courses. Find out more about Validation of priori experience.

Access based on application

Admission on the basis of a submitted dossier may be granted either directly or on the condition of completing additional coursework of a maximum of 60 ECTS credits, or refused.

Foreign students who have succeeded an university education (minimum 3 years) with strong quantitative connotation and who have obtained at least 70% (or 14/20) of average for all successful university years in their home university, without fail in mathematics/ statistics/probability, have the possibility to apply for admission to the master's program in Statistics (120 ECTS).

Students who wish to be admitted on the basis of a dossier are invited to consult the criteria for the evaluation of application.

Admission and Enrolment Procedures for general registration

The student contacts the LSBA secretariat if a faculty authorization has been requested by the registration service. The student then establishes his program with the study consultant of the purpose concerned.

Supplementary classes

To access this Master, students must have a good command of certain subjects. If this is not the case, they must add supplementary classes at the beginning of their Master's programme in order to obtain the prerequisites for these studies.

O Mandatory	⊠ Optional
△ Courses not taught during 2021-2022	⊘ Periodic courses not taught during 2021-2022
⊕ Periodic courses taught during 2021-2022	Activity with requisites

Click on the course title to see detailed informations (objectives, methods, evaluation...)

Maximum 60 credits

⊠ Bloc intégré de probabilité, statistique et mathématique

O LSTAT2011	Éléments de mathématiques pour la statistique	Catherine Legrand	15h+15h	3 Credits	q1
O LSTAT2012	Probabilités: Concepts de base pour l'analyse statistique	Eugen Pircalabelu	15h+15h	3 Credits	q1
O LSTAT2013	Concepts de base en statistique inférentielle	Eugen Pircalabelu	15h+15h	3 Credits	q1

⊠ Cours de mathématique

⊠ LINGE1114	Mathematics I: analysis	Heiner Olbermann	30h+30h	5 Credits	q1
⊠ LINGE1121	Mathematics II: algebra and matrix calculus	Tom Claeys	30h+30h	5 Credits	q2

⊠ Cours d'informatique

⊠ LECGE1215	Information Technology in Economics and Management	Manuel Kolp Marco Saerens	30h+20h	4 Credits	q1

⊠ Cours de Probabilité et Statistique

⊠ LINGE1113	Probability	Johan Segers	30h+15h	4 Credits	q2
⊠ LINGE1214	Further Statistics	Christian Hafner	30h+15h	4 Credits	q1
⊠ LINGE1221	Econometrics	Sébastien Van Bellegem	30h+15h	5 Credits	q2
⊠ LINGE1222	Multivariate Statistical Analysis	Nathan Uyttendaele (compensates Johan Segers)	30h+15h	4 Credits	q2
⊠ LMAT1271	Calculation of probability and statistical analysis	Rainer von Sachs	30h+30h	6 Credits	q2
⊠ LMAT1371	Probability Theory	Johan Segers	30h+22.5h	5 Credits	q2
⊠ LPSP1209	Statistics, inference on one or two variables	Aurélie Bertrand (compensates Eugen Pircalabelu) Aurélie Bertrand (compensates Bernadette Govaerts)	22.5h+15h	4 Credits	q1
⊠ LPSP1306	Statistics: descriptive analysis and GLM multivariate data modeling	Nathalie Lefèvre Cédric Taverne	30h+15h	4 Credits	q2
⊠ LMAFY1101	Data exploration and introduction to statiscal inference	Anouar El Ghouch	30h+30h	5 Credits	q2

⊠ Cours d'anglais

⊠ LANGL1330	English intermediate level - 1st part	Stéphanie Brabant Estelle Dagneaux Aurélie Deneumoustier Fanny Desterbecq Marie Duelz Carlo Lefevre Sandrine Mulkers (coord.) Marc Piwnik (coord.) Nevin Serbest Françoise Stas Anne-Julie Toubeau	20h	3 Credits	q1 or q2

Evaluation

The evaluation methods comply with the regulations concerning studies and exams. More detailed explanation of the modalities specific to each learning unit are available on their description sheets under the heading "Learning outcomes evaluation method".

Each course in the programme involves an oral or written examination. There may also be a project leading to a report which will form part of the assessment. The work placement (or work involving statistical application) and the dissertation both involve the production of a document to be defended in an oral examination with an examination.

Contacts

Curriculum Management

Entity

Structure entity	SST/SC/LSBA
Denomination	(LSBA)
Faculty	Faculty of Science (SC)
Sector	Sciences and Technology (SST)
Acronym	LSBA
Postal address	Voie du Roman Pays 20 - bte L1.04.01 1348 Louvain-la-Neuve Tel: +32 (0) 10 47 43 14 - Fax: +32 (0) 10 47 30 32
Website	https://uclouvain.be/fr/facultes/sc/lsba

Academic supervisor: Eugen Pircalabelu

Jury

- Foreman of the jury: Christian Hafner
- Secretary of the jury: Rainer von Sachs

Useful Contact(s)

- Study advisor: Bernadette Govaerts
- Study advisor: Eugen Pircalabelu
- Secretary of The Louvain School of Statistics, Biostatistics and Actuarial Sciences: Sophie Malali