

**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**

## STAT2M - Introduction

### Introduction

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#### 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 64 to 72 credits of courses (UE) and 30 credits (incluclatan0 04880 -1z94itsp Uni70 043tt 223.32o.sh to become a 8.1999962nti80•



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 l'option "Fundamentals", maîtriser 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 l'option "Statistics in Action", 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 en l'invitant à l'autonomie.

5.3

Gérer de grandes bases de données.

5.4

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.



				Year	
				1	2
⊗ LFILO2003E	Ethics in the Sciences and technics (sem)	Alexandre Guay (compensates Charles Pence) Hervé Jeanmart René Rezsóhazy	EN [q2] [15h+15h] [2 Credits]	x	x
⊗ LSC2001	Introduction to contemporary philosophy	Peter Verdée Peter Verdée (compensates Charles Pence)	EN [q2] [30h] [2 Credits]	x	x
⊗ LSC2220	Philosophy of science	Alexandre Guay	EN [q2] [30h] [2 Credits]	x	x

### ⊗ Optional courses :

*These credits are not counted within the 120 required credits.*

⊗ LSST1001	IngénieursSud	Stéphanie Merle Jean-Pierre Raskin (coord.)			
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## PROFESSIONAL FOCUS [30.0]

- Mandatory
- ⊗ Optional
- △ Not offered in 2023-2024
- ⊙ Not offered in 2023-2024 but offered the following year
- ⊕ Offered in 2023-2024 but not the following year
- △ ⊕ Not offered in 2023-2024 or the following year
- Activity with requisites
- 🌐 Open to incoming exchange students
- 🚫 Not open to incoming exchange students
- [FR] Teaching language (FR, EN, ES, NL, DE, ...)

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

Year

1 2

### Content:

○ LSTAT2820	Mémoire en statistique		FR [q1 or q2] [] [20 Credits]		X
○ LSTAT2380	Statistical consulting	Christian Ritter	EN [q1+q2] [30h] [5 Credits] > French-friendly		X
○ LSTAT2040	Statistical analysis	Anouar El Ghouch	FR [q2] [30h+15h] [5 Credits]		X

## OPTIONS

- > Fundamentals [ en-prog-2023-stat2m-lstat207o ]
- > Statistics in Action [ en-prog-2023-stat2m-lstat208o ]

## FUNDAMENTALS

- Mandatory
- ⊗ Optional
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Year

1 2

### Content:

○ LSTAT2440	Inference and Data Reduction	Rainer von Sachs	EN [q1] [15h+7.5h] [4 Credits]		X
○ LSTAT2450	Statistical learning. Estimation, selection and inference	Eugen Pircalabelu	EN [q1] [30h+7.5h] [5 Credits]		X
○ LSTAT2460	Asymptotic Statistics	Johan Segers	EN [q1] [15h+5h] [4 Credits]		X
⊗ LDATS2470	Statistical Machine Learning and High Dimensional Data Analysis	Christian Hafner	EN [q2] [15h] [3 Credits]	X	X
⊗ LMAT1371	Probability Theory	Johan Segers	EN [q2] [30h+22.5h] [5 Credits]	X	X
⊗ LMAT2470	Processus stochastiques (statistique)	Donatien Hainaut	FR [q2] [30h] [5 Credits] > English-friendly		X











## STAT2M - Information

### Access Requirements

Master course admission requirements are defined by the French Community of Belgium Decree of 7 November 2013 defining the higher 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.

Unless explicitly mentioned, the bachelor's, master's and licentiate degrees listed in this table or on this page are to be understood as those issued by an institution of the French, Flemish or German-speaking Community, or by the Royal Military Academy.

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

#### SUMMARY

- > [General access requirements](#)
- > [Specific access requirements](#)
- > [University Bachelors](#)
- > [Non university Bachelors](#)
- > [Holders of a 2nd cycle University degree](#)
- > [Holders of a non-University 2nd cycle degree](#)
- > [Access based on validation of professional experience](#)
- > [Access based on application](#)
- > [Admission and Enrolment Procedures for general registration](#)

### 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
<b>UCLouvain Bachelors</b>			
<a href="#">Bachelor in Bioengineering</a> <a href="#">Bachelor in Engineering</a> <a href="#">Bachelor : Business Engineering</a> <a href="#">Bachelor in Economics and Management</a> <a href="#">Bachelor in Computer Science</a> <a href="#">Bachelor in Mathematics</a> <a href="#">Bachelor in Physics</a>		Direct access	
Tous les bacheliers	S'ils ont suivi la <a href="#">Minor in Statistics, Actuarial Sciences and Data Sciences</a>	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 <a href="#">Minor in Statistics, Actuarial Sciences and Data Sciences</a>  Supplementary classes: <a href="#">LSTAT2011</a> , <a href="#">LSTAT2012</a> , <a href="#">LSTAT2013</a> or <a href="#">LMAT1271</a>	Access based on application	
<b>Others Bachelors of the French speaking Community of Belgium</b>			
Bachelier en sciences de l'ingénieur, orientation bioingénieur		Direct access	

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		
Tout bachelier	Supplementary classes: <a href="#">LSTAT2011</a> , <a href="#">LSTAT2012</a> , <a href="#">LSTAT2013</a> or <a href="#">LMAT1271</a>	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: <a href="#">LSTAT2011</a> , <a href="#">LSTAT2012</a> , <a href="#">LSTAT2013</a> or <a href="#">LMAT1271</a>	Access based on application

### Foreign Bachelors

Tous les bacheliers	Supplementary classes: <a href="#">LSTAT2011</a> , <a href="#">LSTAT2012</a> , <a href="#">LSTAT2013</a> or <a href="#">LMAT1271</a>	Access based on application
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## Non university Bachelors

> Find out more about [links](#) to the university

## Holders of a 2nd cycle University degree

Diploma	Special Requirements	Access	Remarks
<b>"Licenciés"</b>			
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.
<b>Masters</b>			
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

Access based on application : access may be granted either directly or on the condition of completing additional courses 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 (<https://uclouvain.be/fr/facultes/sc/infos-lsba.html>) .

## Evaluation

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***The evaluation methods comply with the regulations concerning studies and exams (<https://uclouvain.be/fr/decouvrir/rgee.html>). 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

