



## 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 (including the Master's thesis) of professional focus (*finalité spécialisée*). You will complete your programs with courses from the proposed options of the programs.

The "Fundamentals" option is an initiation to fundamental or applied research in statistics, but also gives access to the professional life.

The "Statistics in Action" option is oriented towards applied statistics and aims to provide you with the main tools for statistical data analysis.



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.

## STAT2M Programme

### Detailed programme by subject

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**CORE COURSES** [q1] [15h+15h] [4 Credits]

- Mandatory
- ⊗ Optional
- △ Not offered in 2024-2025
- ⊙ Not offered in 2024-2025 but offered the following year
- ⊕ Offered in 2024-2025 but not the following year
- △ ⊕ Not offered in 2024-2025 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

○ **Cours obligatoires de statistique (32 credits)**

○ LSTAT2020	Statistical softwares and basic statistical programming	Céline Bugli	[FR] [q1] [15h+15h] [4 Credits]	X
○ LSTAT2190	Concepts and treatment of random vectors	Rainer von Sachs	[FR]	

				Year	
				1	2
⌘ LFILO2003E	Ethics in the Sciences and technics (sem)		EN [q2] [15h+15h] [2 Credits] 	x	x
⌘ LSC2001	Introduction to contemporary philosophy	Peter Verdée Peter Verdée (compensates Charles Pence)	EN [q2] [15h+15h] [2 Cr30]		

**PROFESSIONAL FOCUS [30.0]**

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- △ ⊕ Not offered in 2024-2025 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, ...)

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

Year

1 2

**o Content:**

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- |             |                        |  |
|-------------|------------------------|--|
| ○ LSTAT2820 | Mémoire en statistique |  |
|-------------|------------------------|--|

**STATISTICS IN ACTION**

- Mandatory
- ⊗ Optional
- △ Not offered in 2024-2025
- ⊖ Not offered in 2024-2025 but offered the following year
- ⊕ Offered in 2024-2025 but not the following year
- △ ⊕ Not offered in 2024-2025 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

**o Content:**

● LSTAT2390	<a href="#">Applied statistics workshops</a>	Christian Ritter Laura Symul	EN [q1+q2] [15h] [3 Credits] 🌐 > <i>French-friendly</i>	x
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**⊗ Stage ou travail d'application**

⊗ LSTAT2920	<a href="#">Stage ou travail d'application</a>
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


## Supplementary classes

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## ⌘ Cours d'anglais

⌘ LANGL1330	English intermediate level - 1st part	Stéphanie Brabant Charline Coduti (compensates Anne-Julie Toubeau) Estelle Dagneaux Jean-Luc Delghust Aurélié Deneumoustier Fanny Desterbecq Marie Duelz Claudine Grommersch Sandrine Mulkers (coord.) Yannick Paquin (compensates Anne-Julie Toubeau) Marc Piwnik (coord.) Françoise Stas	EN [q1 or q2] [20h] [3 Credits] 
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## Course prerequisites

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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 purposes 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:

- require the student to combine registration in two separate CUs which it considers necessary from a pedagogical point of view.
- transform a prerequisite into a corequisite if the student is in the final year of a degree course.

For more information, please consult the [Academic Regulations and Procedures](#).

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### # Prerequisites list

**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

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For each UCLouvain training programme, a [reference framework of learning outcomes](#) specifies 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 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>		Direct access	
<a href="#">Bachelor in Engineering</a>		Direct access	
<a href="#">Bachelor : Business Engineering (Louvain-la-Neuve)</a>		Direct access	
<a href="#">Bachelor : Business Engineering (Mons)</a>		Direct access	
<a href="#">Bachelor : Business Engineering (Bruxelles Saint-Louis)</a>		Direct access	
<a href="#">Bachelor : Business Engineering (French-English)</a>			

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="#">LSTAT2014</a> or <a href="#">LMAT1271</a>	<a href="#">Access based on application</a>
<b>Others Bachelors of the French speaking Community of Belgium</b>		
Bachelier en sciences de l'ingénieur, orientation bioingénieur Bachelier en sciences de l'ingénieur, orientation ingénieur civil Bachelier : ingénieur de gestion Bachelier en sciences informatiques Bachelier en sciences physiques		Direct access
Tout bachelier	Supplementary classes: <a href="#">LSTAT2011</a> , <a href="#">LSTAT2014</a> or <a href="#">LMAT1271</a>	<a href="#">Access based on application</a>
<b>Bachelors of the Dutch speaking Community of Belgium</b>		
Bachelor of Science in de bio-ingenieurswetenschappen Bachelor of Science in de toegepaste economische wetenschappen: handelsingenieur Bachelor of Science in de toegepaste economische wetenschappen Bachelor of Science in de ingenieurswetenschappen Bachelor of Science in de informatica Bachelor of Science in de wiskunde Bachelor of Science in de fysica		Direct access
Tous les autres bacheliers	Supplementary classes: <a href="#">LSTAT2011</a> , <a href="#">LSTAT2014</a> or <a href="#">LMAT1271</a>	<a href="#">Access based on application</a>
<b>Foreign Bachelors</b>		
Tous les bacheliers	Supplementary classes: <a href="#">LSTAT2011</a> , <a href="#">LSTAT2014</a> or <a href="#">LMAT1271</a>	<a href="#">Access based on application</a>

## 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		<a href="#">Access based on application</a>	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

## Evaluation

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**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

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### Curriculum Management

Entity

Structure entity

Denomination

Faculty

Sector

Acronym

Postal address

SST/SC/LSBA

(LSBA)

Faculty of Science (SC)

Sciences and Technology (SST)

LSBA

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<https://uclouvain.be/fr/facultes/sc/lsba>

Website

Academic supervisor: [Eugen Pircalabelu](#)

Jury

- Foreman of the jury: [Christian Hafner](#)
- Secretary of the jury: [Rainer von Sachs](#)
- Study advisor: [Eugen Pircalabelu](#)

Useful Contact(s)

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