UCLouvain

BSTA2M

2024 - 2025

Master [120] in Statistics: Biostatistics

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 : **YES**
Main study domain : **Sciences**
Organized by: **Faculty of Science (SC)**
Programme acronym: **BSTA2M** - Francophone Certification Framework: 7

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BSTA2M - Teaching profile

Learning outcomes

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

1. Maîtriser 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

Relier des concepts de probabilité et de statistique et des problématiques associées à leur contexte historique en ayant compris le rôle de ces outils en science.

2.

S’exprimer de façon claire, précise et rigoureuse dans les activités de communication tant en français que en anglais (niveau B1 Ccise et7utiop6 0 t0c.11106.lit-1 0 348.36300659)ience.1.1

Gérer de grandes bases de données.

4.

Maîtriser les méthodes de base en probabilité et statistique et utiliser les outils spécifiques de la bio-statistique.

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

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

4.4

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

4.5

Adapter des méthodes statistiques à des problématiques des sciences du vivant.

5.

Participer à la mise en Œuvre d'un projet de recherche avec un collaborateur issu d'une discipline des sciences du vivant.

5.1

Communiquer avec un collaborateur d'une des disciplines des sciences du vivant (médecin, pharmacien, ingénieur agronome, etc.), 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 collaborateur et y apporter des réponses adéquates, originales, documentées.

5.3

Planifier l'étude à mettre en oeuvre (par exemple, un essai clinique) pour apporter des réponses aux questions du collaborateur, identifier le plan d'expérience optimal.

5.4

Anticiper les différentes difficultés dans le déroulement d'une étude et proposer une solution appropriée.

5.5

Conseiller le collaborateur sur les aspects statistiques lors du déroulement de l'étude.

5.6

Ecrire un rapport clair, succinct et rigoureux présentant les résultats d'une analyse statistique appropriées des données.

5.7

Expliquer les résultats des analyses statistiques aux collaborateurs 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

The program consists of

- a common core of at least 69 credits, including 53 credits of compulsory courses and a minimum of 16 credits of elective courses.
- a finality of 30 credits including a thesis of 20 credits
- Elective courses offered in the options of the program "Clinical biostatistics / epidemiology" and "Biometrics, technometry and bioinformatics".

The student may request to include in his program other teaching units useful as part of the Master up to a maximum of 10 credits.

of 5 credits. These extra-curricular courses must be relevant, of a sufficient level and adapted to the profile of the program and of the student.

The student prepares his program in consultation with a study advisor, then submits it to the jury for approval.

For a typical program, this master will count, regardless of the options and / or elective courses selected, a minimum of 120 credits spread over two annual blocks corresponding to a minimum of 60 credits each.

BSTA2M Programme

Detailed programme by subject

CORE COURSES

- 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...)

Cours obligatoires de statistique générale (40 credits)

				Year 1	Year 2
LSTAT2020	Statistical softwares and basic statistical programming	Céline Bugli	FR [q1] [15h+15h] [4 Credits]	x	


Year

PROFESSIONAL FOCUS [30.0]

La finalité spécialisée comprend le mémoire, l'UE de base en statistique du biostatisticien et une UE en statistique appliquée.

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Content:

				Year 1	Year 2
Cours obligatoires de la finalité					
LSTAT2828	memory in biostatistics		FR [q1 or q2] [] [20 Credits]		x
LSTAT2330	Statistics in clinical trials.	Catherine Legrand Annie Robert	FR [q2] [22.5h+7.5h] [5 Credits]	x	
Cours au choix de la finalité					
L'étudiant choisit obligatoirement une unité d'enseignement parmi les deux suivantes. L'étudiant qui désire inclure les deux unités d'enseignement à son programme ajoute l'autre dans le tronc commun.					
LSTAT2930	Training course or work of application in biostatistics		FR [q1 or q2] [] [5 Credits]		

OPTIONS

The student completes his program by choosing teaching units in the options and respecting the instructions of each option.

If the student chooses 15 or more credits in an option (including compulsory courses), this option will appear on the appendix of his diploma.

BIOMÉTRIE, TECHNOMÉTRIE ET BIOINFORMATIQUE

Supplementary classes

BSTA2M - 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

En plus de remplir les conditions d'accès décrites ci-dessous, les candidats devront apporter la preuve d'une maîtrise suffisante de la langue française (niveau B1 du Cadre européen commun de référence)

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		Direct access	
Tous les bacheliers	If student has succeeded Minor in Statistics, Actuarial Sciences and Data Sciences and LBIO1110, LBIO1111, LIEPR1004.	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.
Bachelor in Biology Bachelor in Biomedicine Bachelor in Medecine Bachelor in Pharmacy Bachelor in Dentistry Bachelor in Motor skills : General Bachelor in Physiotherapy and Rehabilitation	Supplementary classes: LSTAT2011, LSTAT2012, LSTAT2013.	Access based on application	
Bachelor : Business Engineering (Louvain-la-Neuve) Bachelor : Business Engineering (Mons) Bachelor in Economics and Management Bachelor in Engineering	Supplementary classes: LBIO1110, LBIO1111 ou LIEPR1004A	Access based on application	

Tous les autres bacheliers	Supplementary classes: - LBIO1110, LBIO1111 or LIEPR1004A - and/or LSTAT2011, LSTAT2012, LSTAT2013	Access based on application
Foreign Bachelors		
Tous les bacheliers	Supplementary classes: - LBIO1110, LBIO1111 or LIEPR1004A - and/or LSTAT2011, LSTAT2012, LSTAT2013	Access based on application

Non university Bachelors

> Find out more about links to the university

Diploma	

Licenciés belges de la communauté française: Bioingénieur Ingénieur civil (sauf ingénieur civil architecte) sciences mathématiques	

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).

Teaching method

Most of the teaching units applied statistics methods & tools include practical work on computers and an application project involved in the evaluation. This approach allows the student to systematically implement the tools presented in the methodological presentations and thus be prepared for field work. The implementation of projects also fosters a stimulating and friendly spirit of collaboration among the students in the program. The program offers the possibility of an internship in a company or in a research laboratory that will eventually complete the methodological aspects of the thesis. Most of the teaching units provided by statistical teachers are available on moodle or on the LSBA website. Some specialized teaching units are given by professors from companies and/or in English in order to familiarize the student with this language commonly used in the field of statistics.

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 board.

Mobility and/or Internationalisation outlook

Students who have achieved outstanding results in the first annual block will be allowed to participate in international exchange programs organized by the LSBA. Currently, bilateral exchange agreements are being established with several partners in and outside Europe.

Students interested in participating in an international exchange program are invited to contact the person responsible for them in the Faculty of Science or the contact person in the LSBA.

Detailled information on https://uclouvain.be/fr/facultes/sc/programmes-d-echange-d-etudiants.html

Contacts