



MA-STAT | 2023-2024

Master in Statistics : General

Programme mnemonic MA-STAT > Focus *Research General* : M-STATA

Studies level Master 120 credits

Learning language english and french

Schedule office hours

Studies category / subcategory Sciences and technics / Sciences

Campus Plaine and Solbosch

Programme objectives

The Master in Statistics teaches students the difficult art of transforming data into information and helping decision-makers and researchers in other fields analyze this information most efficiently. The programme offers three tracks, with specific learning outcomes and objectives:

- > Theoretical statistics
- > Applied statistics
- > Economics and statistics
- > The track in theoretical statistics provides students with the methodological knowledge required to design new statistical procedures and pursue doctoral studies in probability or statistics;
- > The track in applied statistics prepares students for a career in statistics (in experimental sciences, human sciences, or in the industry) or for doctoral studies in applied statistics;
- > The track in economics and statistics offers first-class education in statistics, quantitative economics, and econometrics. This programme is unique in French-speaking Belgium and is taught in English, attracting foreign students from all around the world.

Programme's added value

Statistics finds its origin both in mathematics and in applications, and is virtually present in all branches of human activity. This explains that statistics courses are found in the curricula of all faculties—hard sciences, human sciences, medicine, engineering. This diversity, which is expressed in the curriculum of the Master in Statistics, is one of the most attractive characteristics of careers in statistics.

The track in economics and statistics is organized in collaboration with ECARES (European Center for Advanced Research in Economics and Statistics – www.ecares.org). It offers first-class education in statistics, quantitative economics, and econometrics.

Teaching methods

Most courses are offered as lecture classes. The small number of students in the programme, however, eliminates the usual drawbacks of this teaching method and makes interactivity possible.

Of course, the curriculum also involves courses with homework and reports.

Finally, computers play an important role in the programme, not only in courses dedicated to statistical software applications or computational statistics, but also in other courses where computers are used to illustrate theories and to put into practice the methods taught.

Succeed in your studies

Choose

The information and guidance counsellors at the InfOR-études [https://www.ulb.be/en/studies-info-desk-1] service will help you choose your studies throughout the year.

Succeed

Take part in preparatory courses [https://www.ulb.be/en/studiesinfo-desk-1] or get help to succeed [https://www.ulb.be/en/ studies-info-desk-1], before or during your studies.

Get help

Apply for financial aid, look for accommodation or a student job, get support [https://www.ulb.be/fr/aides-services-et-accompagnement/aid-services-and-support-1] for your specific needs.

International/Openness

In addition to traditional exchanges programmes that allow students to spend the first or second block in a foreign university, strong relationships exist with the Université Pierre-et-Marie Curie (Paris 6), which has one of the best statistics programmes in France.

Job opportunities

Statisticians are found in all industries.

Many jobs involving statistics are available in the pharmaceutical industry, clinical trials, and agribusiness, but also in banks, insurance companies, and official statistics institutes.

There are also many opportunities in research (both theoretical and applied) in statistics, especially in the academic sector.



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Jury President Maarten JANSEN

Jury Secretary Thomas VERDEBOUT

Master in Statistics : General

Focus Research General

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DE BRUXELLES

The Master in Statistics is a two-year programme organised into two 'blocks'. The first block includes (i) required courses, (ii) courses specific to each specialisation (theoretical statistics, applied statistics, or economics and statistics; see above), and (iii) possibly elective courses. The second block is more flexible, and includes the Master's dissertation (which may involve a work placement), participation to seminars, a course on statistical software applications, and several elective courses.

Bloc 1 M-STATA MA-STAT

Cours obligatoires

Remarque : en fonction du dossier de l'étudiant, le jury pourra être amené à remplacer certains cours ci-dessous par d'autres cours du programme

STAT-F404	Graduate statistics Thomas VERDEBOUT (Coordinator) and Davy PAINDAVEINE © 5 credits [lecture: 24h] first term Finglish
STAT-F405	Time series analysis Yves-Caoimhin SWAN (Coordinator) Image: Stredits [lecture: 24h, tutorial classes: 12h] Image: Stredits term English
STAT-F407	Stochastic models Maarten JANSEN (Coordinator) and Jennifer ALONSO GARCIA © 5 credits [lecture: 36h, tutorial classes: 12h] first term Figure English

A total of 15 credits chosen from the following

Module 1

MATH-F309 (optional)	Statistique mathématique II Thomas VERDEBOUT (Coordinator) and Sophie Niang ② 5 credits [lecture: 24h, tutorial classes: 24h]	
STAT-F406 (optional)	Modèles de régression Davy PAINDAVEINE (Coordinator) ③ 5 credits [lecture: 24h, tutorial classes: 12h] ⁽¹⁾ second term ⁽²⁾ French	
STAT-F408 (optional)	Omputational statistics Maarten JANSEN (Coordinator) O 5 credits [lecture: 24h, tutorial classes: 12h, project: 100h] Image: State of the state of th	
	Module 2	
ECON-S428 (optional)	Graduate econometrics I Germain VAN BEVER (Coordinator) ⊘ 10 credits [lecture: 24h, tutorial classes: 24h]	

 ECON-S429
 Graduate econometrics II | Paula Eugenia GOBBI (Coordinator) and Alejandra Ramos

 (optional)
 \odot 5 credits [lecture: 24h, tutorial classes: 24h]

 \Box second term
 \wp English

An alternative chosen from the two following

Statistique	
INFO-F422 (optional)	Statistical foundations of machine learning Gianluca BONTEMPI (Coordinator) © 5 credits [lecture: 24h, tutorial classes: 12h, project: 60h] 📋 second term 📿 English
STAT-F410 (optional)	Inférence robuste Catherine DEHON (Coordinator) ② 5 credits [lecture: 24h, tutorial classes: 12h] [™] second term
STAT-F414 (optional)	Méthodes de sondage Catherine VERMANDELE (Coordinator) 3 5 credits [lecture: 24h, tutorial classes: 12h]





Cours optionnels

UNIVERSITÉ

Au besoin, choisir un ou des cours dans la liste suivante afin d'arriver à un total de 60 crédits		
MATH-F425	Ondelettes et applications ② 5 credits [lecture: 24h, tutorial classes: 12h] ☐ second term ♀ French	
STAT-F412	Plans expérimentaux Marie-Pierre MALICE (Coordinator) ③ 5 credits [lecture: 24h, tutorial classes: 24h]	
STAT-F418	Topics in nonparametric smoothing Maarten JANSEN (Coordinator)⊙ 5 credits [lecture: 24h, tutorial classes: 12h]☐ first term○ EnglishCe cours n'est pas donné en 2023-24 ,2025-26 etc.	
STAT-F420	O 5 credits [lecture: 24h, tutorial classes: 12h] Image: The provide the provided and the provid	
STAT-F421	Topics in probability theoryYves-Caoimhin SWAN (Coordinator)Image: Stredits [lecture: 24h, tutorial classes: 12h]Image: Stredits [le	
STAT-F426	Participation aux séminaires Maarten JANSEN (Coordinator) ② 5 credits [project: 60h]	
STAT-F600	Multivariate and high-dimensional statistics Thomas VERDEBOUT (Coordinator) ③ 5 credits [lecture: 24h, practical work: 12h]	
TEMP-0000	Cours extérieurs au programme ② 5 credits [™] academic year	



Master in Statistics : General Focus Research General

Bloc 2 | M-STATA | MA-STAT

Cours obligatoires

MEMO-F521	Mémoire Maarten JANSEN (Coordinator) ② 25 credits [mfe/tfe: 300h]
STAT-F413	Statistical softwares Maarten JANSEN (Coordinator) and Toufik ZAHAF ② 10 credits [lecture: 24h, tutorial classes: 24h, project: 200h] 🛗 second term 📿 English
STAT-F509	Participation aux séminaires Maarten JANSEN (Coordinator)

🕑 5 credits [project: 60h] 🛛 🛗 first and second terms 🛛 🔎 French

Cours optionnels

Compléter votre programme de façon à arriver à un total de 60 crédits en choisissant un ou plusieurs cours dans les listes du bloc 1 ou dans la liste suivante:

ACTU-F401	Modèles financiers I Griselda DEELSTRA (Coordinator) ③ 5 credits [lecture: 36h, tutorial classes: 12h]
ACTU-F403	Assurance non vie I Julien TRUFIN (Coordinator) ② 5 credits [lecture: 36h, tutorial classes: 12h] 🛗 first term 🔗 French
ECON-S432	Advanced international trade Mathieu PARENTI (Coordinator), Filippo Biondi and Paola CONCONI © 5 credits [lecture: 24h] 🛱 second term 🔎 English
ECON-S513	Behavioral economics Georg KIRCHSTEIGER (Coordinator) Image: Stredits [lecture: 24h] Image: Stredits [lecture: 24h]
ECON-S519	Graduate microeconomics III Georg KIRCHSTEIGER (Coordinator) ② 5 credits [lecture: 24h]
ECON-S520	Image: Graduate macroeconomics III Image: Stredits [lecture: 36h] Image: Stredits [lecture: 36h] Image: Stredits [lecture: 36h]
ECON-S521	Graduate econometrics III David PREINERSTORFER (Coordinator) ⊙ 5 credits [lecture: 24h]
MATH-F502	Imagerie et problèmes inverses Ignace LORIS (Coordinator) ② 5 credits [lecture: 24h, tutorial classes: 12h] 📋 second term 🔗 French
MATH-H401	Numerical methods Artem NAPOV (Coordinator) Image: Constraint of the second state of t
STAT-F415	Calcul stochastique Griselda DEELSTRA (Coordinator) ② 5 credits [lecture: 24h] [⊕] second term
STAT-F428	 ❷ 5 credits [lecture: 24h]
STAT-F430	O 5 credits [lecture: 24h] [™] first term
STAT-F507	Sequential analysis ② 5 credits [lecture: 24h] 📋 second term 📿 English



STAT-Y002

Autres cours

🛗 unknown term

Outre les cours ci-dessus, l'étudiant peut également choisir parmi les cours non pris en Bloc 1. Des cours d'autres masters de l'ULB ou de masters d'autres universités peuvent également être choisis (sous réserve d'approbation par le Jury), pour un maximum de 60 crédits annuels.

An alternative cho	sen from the three following
HULB-0000 (optional)	Cours externe à l'Université ⊘ 5 credits
or	
HULB-0000 (optional)	Cours externe à l'Université ⊙ 10 credits
or	
One course chos	en from the following

TEMP-0000	Cours extérieurs au programme
(optional)	🕑 5 credits 🛗 academic year 📿 French
TEMP-0000	Cours extérieurs au programme

nal) 🕘 10 credits 🛗 academic year 🖓 French