University of Oum El Bouaghi

Faculty of Exact sciences and natural and life sciences

Department of Mathematics and Computer Science

Program name: Master's degree in Applied Mathematics

- **Level:** Master

- **Domain:** Mathematics and Computer Science

- **Field:** mathematics

- **Specialty:** Applied mathematics

1. **Program Description :**

Training aims : The objective of the Applied Mathematics Master's is to provide students with rich training in areas of mathematics that are the subject of active research. Students will then be able to engage in the preparation of mathematics recruitment competitions, move towards a professional activity in industry, or prepare a thesis in pure or applied mathematics. The first year of this master (Master 1) aims to familiarize the student with general mathematical tools, so all students must follow all the courses of semesters 1 and 2. The second year of the master (master 2) allows the student to acquire an in-depth training in the fields of analysis and probability and statistics. In semester 4 he will prepare a thesis which will be sanctioned by a defense.

2. **Entry Requirements**

- Bachelor's degree or equivalent certificate

3. **Program Units and modules**

- ### Semester 1

Teaching units	Coeff	Credits	Evaluation Mode	
			Continues	Exam
Fundamental Teaching Unit	9	18		
Addition to probability theory	3	6	*40%*	*60%*
Functional analysis 1	3	6	*40%*	*60%*
Complements on integration and Lebesgue spaces	3	6	*40%*	*60%*
Methodology Teaching Unit	5	9		
Numerical methods	2	5	*40%*	*60%*
Linear programming	3	4	*40%*	*60%*
Discovery Teaching Unit	1	2		
English	1	2		*100%*
Transversal Teaching Unit	1	1		
Work ethics and deontology	1	1		*100%*

- ### Semester 2

Teaching units	Coeff	Credits	Evaluation Mode	
			Continues	Exam
Fundamental Teaching Unit	9	18		
Distributions 1	3	6	*40%*	*60%*
Functional analysis 2	3	6	*40%*	*60%*
Inferential statistics	3	6	*40%*	*60%*
Methodology Teaching Unit	5	9		
Optimization with constraints	2	5	*40%*	*60%*
Partial differential equations	2	4	*40%*	*60%*
Discovery Teaching Unit	1	2		
LATEX	1	2		*100%*

Teaching units	Coeff	Credits	Continues	Exam
Transversal Teaching Unit	1	1		
Thinking skills	1	1		*100%*

- **Semester 3**

Teaching units	Coeff	Credits	Evaluation Mode	
			Continues	Exam
Fundamental Teaching Unit	9	18		
Distributions 2	3	6	*40%*	*60%*
Variational theory of elliptic equations	3	6	*40%*	*60%*
Random Processes and System Reliability	3	6	*40%*	*60%*
Methodology Teaching Unit	5	9		
Control theory	2	4	*40%*	*60%*
Dynamical systems and introduction to chaos	2	5	*40%*	*60%*
Discovery Teaching Unit	1	1		
Seminars	1	1		*100%*
Transversal Teaching Unit	1	2		
Scientific writing	1	2		*100%*

Semester 4 is devoted to a dissertation sanctioned by a defense.

- **Semester 4**

- End of studies' project Master.

4. Profiles and targeted business skills :

The training allows you to acquire a level of knowledge and experience in Mathematics sufficient to, for example : present yourself with good chances of success in recruitment competitions, or start a Doctoral Thesis. It therefore leads from a level of beginner Mathematician (Licence) to a level of solid and confirmed Mathematician, knowing his subject well, and able to transmit it ; it

also allows, for those who wish, to have access to research subjects in development, and to specialists in these subjects, who will guide them towards the choice of a thesis work.

Regional and national potential for employability of graduates : The openings are as follows :

 • The Master allows students to take part in recruitment competitions at the different levels of education.

 • Offer direct outlets, for example in recruitment for various administrations (insurance companies, banks, etc.).

 • open up the field of research in mathematics to the best students to enable them to prepare a doctorate in mathematics in one of the host laboratories of the Doctoral Training or in another Mathematics laboratory in Algeria or abroad.