

Faculty of Science

Université Grenoble Alpes

The Faculty of Science hosts a number of undergraduate and graduate programs accross **5 teaching departments:**

- Department of Science & Technology
- Observatory of Sciences of the Universe of Grenoble
- Faculty of Chemistry & Biology
- Department of Computer Science, Math & Applied Math
- Department of Physics, Engineering, Geosciences, Environment & Mechanics

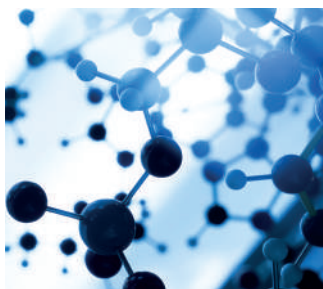
KEY FIGURES:

- **6 700** students
- **600** full-time faculty members
- More than **50 research laboratories**



PhITEM Department

Physics, Engineering, Earth sciences,
Environment and Mechanics



Diplomas and Programs

ELECTRONICS, ELECTRICAL ENERGY, CONTROL SYSTEMS • CIVIL ENGINEERING
• MECHANICS • NANOSCIENCES AND NANOTECHNOLOGIES • PHYSICS • EARTH
& ENVIRONMENTAL SCIENCES, SCIENCES OF THE UNIVERSE • NUCLEAR EN-
GINEERING



UGA
UFR
PhITEM Université
Grenoble Alpes

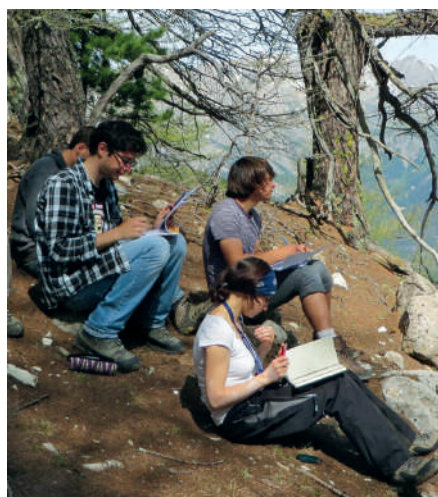
PhITEM Department

Programs

Our Training and Research Unit (UFR) brings the University's strengths in the Science, Technology and Health fields together as well as in five key scientific disciplines: Physics; Electronics; Electrical Energy, Control Systems; Mechanics; Civil Engineering, Earth Sciences and Sciences of the Universe.

We combine our scientific and professional programs, enabling graduates to rapidly enter employment.

- 1,300 Bachelor's and Masters students
- 250 lecturers and research professors and 40 administrative staff
- 5 degree programs, 3 professional degrees and 7 Masters programs
- 42,000m2 assigned buildings, located on campus and at the Polygone Scientifique



Experimental teaching

Programs using experimental teaching and project work are vital for science and technology learning. .

10 THEMATIC FACILITIES FOR PRACTICAL WORK

UFR PhITEM offers its students access to 7,000 m2 of facilities for practical work, fitted out with modern equipment in line with the latest developments in research.

LABORATORY EXPERIMENTS

The CESIRE (Center for Higher Education and Initiation in Research through Experiments) provides cutting-edge tools for Bachelors and Masters students to carry out laboratory experiments.

FIELD PLACEMENTS

Field placements, a specificity of UFR PhITEM disciplines and one of the strengths of our Earth Sciences and Sciences of the Universe programs, enable teachings to be directly put into practice..

Research

The program benefits from the outstanding research potential of UFR PhITEM affiliate labs.

LABORATORIES

UFR PhITEM partner labs are affiliated with both of the UGA community research hubs: The Physics, Engineering, Matter hub and the Particle Physics, Astrophysics, Geosciences, Environment and Ecology hub..

LABORATORIES OF EXCELLENCE (LABEX)

The "Investment in the future" calls for projects have seen 7 laboratories certified Laboratories of Excellence (LabEX), bringing together UFR PhITEM partner research teams and labs.

• 25 partner labs

UFR PhITEM is proud to have in its ranks :

- 1 member of the French Academy of Sciences
- 1 CNRS crystal medal, 3 silver medals and 5 bronze medals (award winners since 2011)
- 38 members and emeritus members of the Institut Universitaire de France
- 18 winners of the European Research Council grant (Starter Consolidator, Advanced Grant) since 2011.

International

We value talent mobility, a source of mutual discovery and enrichment. For many years the site's scientific potential, the presence of key European research infrastructures and the quality of life in Grenoble have attracted numerous students, researchers and research professors.

UFR PhITEM supports three doctoral and post-doctoral European schools: European Research Course on Atmosphere (ERCA), Higher European Research Course for Users of Large Experimental Systems (HERCULES), European School On Nanosciences and Nanotechnologies (ESONN), as well as ESIPAP (European School of Instrumentation in Particle & Astroparticle Physics) and JUAS (Joint Universities Accelerator School).

INTERNATIONAL ENGAGEMENT

UFR PhITEM has signed a large number of bilateral agreements. Many of the programs are taught in English favoring international engagement.

Studying at UGA is all about discovering this center of excellence, perfecting your language skills, throwing yourself into the cultural experience and increasing your chances of recruitment at a high level position.

STUDYING ABROAD

UFR PhITEM favors international exchanges and experiences. Help in studying abroad can be requested for both a full year or for shorter-term courses (semester, international internship).



- Roughly 100 international students are welcomed every year through the student exchange program
- 17 international programs and 2 Erasmus Mundus programs
- Roughly 35 exchange students abroad



- 130 vocational students
- Degree internships: from 1 to 2 months
- Masters internships: from 2 to 6 months

Corporate relations

More than one in two students are enrolled in a vocational program at the end of their Bachelors or Masters degree with the aim of finding work on graduation.

INTERNSHIPS

The vast majority of UFR PhITEM's Bachelors and Masters students obtain internships in laboratories or businesses in the Grenoble area

VOCATIONAL COURSES can be carried out on a professional contract or as an internship, depending on the company's wishes.

FRENCH APPRENTICESHIP TAX enables UFR PhITEM to constantly improve the quality of its teaching by maintaining at the highest level, the educational means made available to the students: experimental facilities, computing tools, external lecturers etc. By paying the French apprenticeship tax, companies support quality training for their future collaborators.

CONTINUING EDUCATION OFFER

In order to meet the needs of company managers, heads of HR, members of large and medium-sized companies, UFR PhITEM offers short programs to develop employee skills and is committed to building a knowledgeable and innovative society.

Université Grenoble Alpes

The UGA is a large, multidisciplinary university. It is the result of a merger between three Grenoble universities: the Université Joseph Fourier, the Université Pierre Mendès France and the Université Stendhal (on January 1st 2016). It is a major player in secondary education and research in France.

The University is a member of the IDEX project: "Université Grenoble Alpes: an innovative university" whose aim is to create a unique university with strong international engagement in Grenoble. In an increasingly competitive world our establishment aims to better respond to all the challenges universities face in the world of today as well as the future, and to be increasingly visible and attractive internationally. UGA offers its students a wide range of programs covering all university disciplines from Bachelors to Masters Degrees.

Its range of programs are divided into four main educational fields:

- Arts, Literature, Languages
- Law, Economics, Management
- Humanities and Social Sciences
- Science, Technologies, Health

This multidisciplinary approach enables students to access a rich study program, opening career gateways and career changes.

- **45,000 students**
- **5,500 staff**, including 3,000 lecturers, research professors and 2,200 administrative and technical staff
- **24 faculties, schools and institutes**
- **80 laboratories**
- **A 450 million-euro budget**
- **500,000m2 of buildings** on 12 sites shared across 6 departments
- **175 hectares** of landscaped campus



PhITEM Department

Physics, Engineering, Earth sciences,
Environment and Mechanics

Bâtiment PhITEM B

Université Grenoble Alpes

CS 40700

38058 GRENOBLE CEDEX 9

Tél. 04 76 51 47 12

<http://phitem.univ-grenoble-alpes.fr>

www.univ-grenoble-alpes.fr

The Grenoble Alpes University, a university of knowledge and know-how!

The Grenoble Alpes University represents a major player in **higher education** and research in France. Already among the top 100 and 200 best universities worldwide according to International ranking (Reuters, Shanghai, Times Higher Education, QS...) Grenoble Alpes University competes with the world's best universities thanks to the vitality of its research and its many innovations in education.

A world-renowned university environmentally, friendly and socially responsible

59 000 students;

7 700 staff including **4500** lecturers and associate-professors or professors;

24 faculties, schools or institutes;

75 research institutes;

A 175-hectare landscaped campus.

An exceptional setting

Located in the **Heart of the Alpes**, three hours by TGV away from Paris and one hour by train from Lyon, Grenoble benefits from an extraordinary natural and scientific environment.

It gathers **5000** researchers, **5** international and **9** national research centers.



Enrollment conditions

HOW TO APPLY?

• Master 1

Registration is possible for students with a Bachelor's degree in Chemical Sciences.

Enrolment is based on cursus records and interview.

• Master 2

For students who have validated a first year of another Master (60ECTS)

Holders of equivalent foreign diplomas via "*Etudes en France*" or by direct application : <https://www.univ-grenoble-alpes.fr/education/how-to-apply/applying-and-registering/>

Training dates: September to June

INFORMATION AND REGISTRATION:

<https://master-chimie.univ-grenoble-alpes.fr/en/>

ADMINISTRATIVE OFFICE:

ufrchimiebiologie-formation@univ-grenoble-alpes.fr



CHEMISTRY BIOLOGY HEALTH GRADUATE SCHOOL

Master's degree in chemistry relies on the CBH Graduate School which supports graduate students from start to finish and beyond, continuously improves the quality of the programs on offer through extensive hands-on research experience, and enhances national and international visibility.

One-year Mobility Scholarship for incoming student are available.

More information: <http://grad-chembiohealth.univ-grenoble-alpes.fr/>

Grenoble Alpes University

UFR Chemistry & Biology

470 rue de la Chimie -
Bâtiment André Rassat / Chimie E
38058 Grenoble cedex 9
+33 4 76 51 44 47



CBH Graduate School
Université Grenoble Alpes

UGA
UFR **CHIMIE**
& **BIOLOGIE** Université
Grenoble Alpes



MASTER'S DEGREE IN CHEMISTRY

CHIMIE

UGA
UFR **CHIMIE**
& **BIOLOGIE** Université
Grenoble Alpes

Scientific excellence for your future career

A MASTER IN CHEMISTRY: WHAT FOR?

Gradual specialisation within the Master, through the choice of electives in Master 1 and through the choice of the Master 2 program, will allow you to build a curriculum to the extent of your professional ambitions.

Many opportunities to undertake a career in many fields of chemistry:

- In the **industry** as engineer in research and development, in production, in quality control, in consulting ...
- In **academic research** by carrying on with a PhD to become a full-time researcher or an assistant professor/a professor at the university or in one of the major research organization: CNRS, INSERM, CEA, INRAE, IRD...

A multidisciplinary training in chemistry

A 2-year international program with progressive specialization.

You wish to become an executive or a researcher in Chemistry?

Within the Master in Chemistry offered at Grenoble Alpes University, you will find the **disciplinary and transverse education** to enable to gradually build your specialization.

The master's degree is based on the expertise of research teams of the **Chemistry-Biology-Health research centers** in Grenoble. Our research labs are recognized internationally and the Master's program is based on the cutting-edge themes developed there.

With this master, you will become a highly qualified chemist in key areas such as **organic synthesis** (Organic Synthesis for Pharmaceuticals and Food Sciences), **polymers** (Polymers for Advanced Technologies) or **bio-driven chemistry** (Chemistry for Life Sciences), **chemistry and commercial techniques** (ChemTechCo).

Chemistry is an **interdisciplinary science**, connected to the life sciences, materials sciences, renewable energies, medicine, aromas, perfumes, and agrochemistry.

The strengths of this program

- A large part for **practical work** and **internships**.
- **A international training**: the entire master program is taught in English.
- **Cross- curricular teaching of languages** and **professional integration**, enabling you to prepare your arrival in the professional world.
- Many contributors from the **professional setting** lead.



Program

MASTER 1 IN CHEMISTRY

1st semester provides a **common knowledge**, enabling to acquire essential disciplinary skills for all types of chemist.

Two compulsory courses: Analytical methods and spectroscopies / Experimental chemistry

Three courses to choose from: Organic Chemistry 1 / Polymers 1 / Organometallic Catalysis / Chemistry of Biomolecules

2nd semester, will lead you to in one or two of the master.

Two transversal compulsory courses: Communication tools - Foreign language

There courses to choose from: Organic Synthesis 2 / Polymers 2 / Bio-Organic and Bio-Inorganic Chemistry / Lab Project / Engineering of Macromolecules

A mandatory internship (2 to 5 months) is full part of the Master 1 year allowing students to understand teamwork, in an academic or industrial environment, in France or abroad.

MASTER 2 CHEMISTRY FOR LIFE SCIENCES (CLS)

The **M2 CLS** develops a program from **bio-targeted to bio-inspired chemistry** for energy and health.

- Specialization in bioorganic chemistry: synthesis and engineering of biomolecules including peptides, oligosaccharides and oligonucleotides
- Specialization in bioinorganic chemistry: metal complexes in biology, health and energy.

MASTER 2 ORGANIC SYNTHESIS FOR PHARMACEUTICAL AGROCHEMICAL INDUSTRIES (SO-IPA)

The **M2 SO-IPA** focus on the **synthesis and characterization of organic molecules**, particularly for applications in the fields of fine chemistry, chemistry of bioactive molecules and/or innovative materials.

- Synthesis and characterization of all types of organic molecules
- Design and/or optimisation of synthetic routes while respecting the principals of green chemistry
- Analysis of the structure-activity relationships of a class of molecules in order to optimise new active ingredients

MASTER 2 POLYMERS FOR ADVANCED TECHNOLOGIES (PTA)

Oriented toward innovation, the **M2 PTA** program offers specialization in **dynamic and high-technology sectors**.

- Polymers for renewable energies and flexible electronics
- Polymers for medical and pharmaceutical applications
Biobased polymers
Nanostructured materials
3D printing

MASTER 2 CHEMISTRY & COMMERCIAL TECHNIQUES (CHEMTECHCO)

The **M2 ChemTechCo** trains chemists as technical commercial representatives for business in the sectors of health, chemistry and environment through the acquisition of **both scientific and technological development**, as well as **skills in marketing and sales**.

The M2 ChemTechCo is an alternating school and work experience comprising 13 weeks of courses (one week of training per month), and 29 weeks in a company.

Practical information

Coordinator of the Master's degree in Biology:

Prof. Alain Buisson

alain.buisson@univ-grenoble-alpes.fr

Department of Chemistry and Biology – Université Grenoble Alpes

Administration Office :

ufrchimiebiologie-formation@univ-grenoble-alpes.fr

International Students and Scholars Office

<https://master-biologie.univ-grenoble-alpes.fr>

(COMUE Université Grenoble Alpes)

isso@univ-grenoble-alpes.fr

<http://international.univ-grenoble-alpes.fr/en/>

MAILING ADDRESS

Master's degree in Biology

UFR de Chimie et de Biologie

Service Formation

470 Rue de la Chimie

CS 40700 – 38058 Grenoble Cedex 9

France

WEBSITES:

<http://international.univ-grenoble-alpes.fr/en/presentation/>

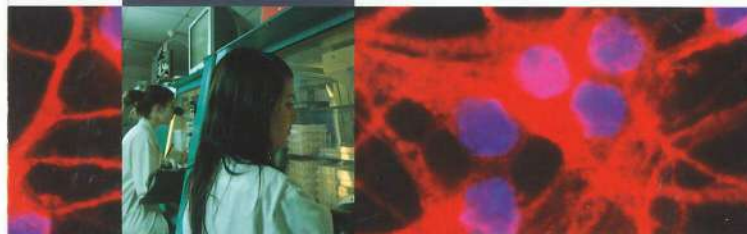
for foreign students

<http://www.univ-grenoble-alpes.fr/fr/grandes-missions/formation/>

for French students



MASTER'S DEGREE IN BIOLOGY



Master's degree in Biology

The Université Grenoble Alpes, ranked among the best French universities and the 200 top world universities according to the Shanghai Ranking, welcomes French and foreign students for a Master's degree in Biology almost entirely taught in English. The Master program relies on the research laboratories in Grenoble, which are among the most prestigious in Europe. Our University offers a great opportunity for Biology students to get experimental training by both practicals inside the CUBE platform and long-term internships in the research institutes.

MASTER'S DEGREE IN BIOLOGY

Coordinator: **A. Buisson**

M1	Molecular and Cell Biology (MCB)					Plant International (PLANT-Int)
	Coord.: C. VOURCH					Coord.: C. CARLES <small>Double diploma with UNIMilan</small>
M2	PhEDC <small>Physiology, Epigenetics, Differentiation, Cancer</small> Coord.: F. BOUCHER	NN <small>(Neuroscience, Neurobiology)</small> Coord.: R. SADOUL	IMID <small>(Immunology, Microbiology, Infectious Diseases)</small> Coord.: B. HUARD	ISB <small>(Integrative Structural Biology)</small> Coord.: M. JAMIN	Lab Science Trading (LST) Coord.: G. PELLAT	Plant International (PLANT-Int) Coord.: C. CARLES <small>Double diploma with UNIMilan</small>



Program

FIRST YEAR OF THE MASTER'S DEGREE IN BIOLOGY (M1)

The first year of the Master's degree in Biology, i.e. the Master 1 program named Molecular and Cell Biology (MCB), opens the way to 7 Master 2 programs, four with a research orientation and three with a professional one. The first year of the Master's degree in Biology, i.e. The Plant International program (PLant Int.) opens the way to the Master 2 program «Plant International».

SECOND YEAR OF THE MASTER'S DEGREE IN BIOLOGY (M2). RESEARCH ORIENTATION

- Physiology, Epigenetics, Differentiation & Cancer (PhEDC) program
Keywords : Genetics, Epigenetics / Cell Differentiation / Cell Signaling / Cancer Disease / Cardiovascular Physiology / Development / Metabolism / Ageing / High throughput / System Biology
- Neurosciences, Neurobiology (NN) program
Keywords : Neurodegeneration / Neurophysiology / Neuronal Plasticity / Cancer Disease / High throughput / System Biology
- Immunology, Microbiology, Infectious Diseases (IMID) program
Keywords : Microbiology / Infectious Diseases / Parasitology / Viruses / Immunology / Pathology / Cancer Disease / High throughput / System Biology
- Integrative Structural Biology (ISB) program
Keywords : Structure of macromolecules and multimolecular complexes, molecular biology of the cell, intermolecular interactions, enzymes, drug design, host-pathogen interactions, cancer disease, epigenetics, cell signalling, high-throughput
- Plant International (PLANT-Int) program. Double Diploma with the Plant Science Master's degree of UNIMilan
Keywords: Plant Sciences including Development / Physiology / Metabolism / Photosynthesis / Genetics / Epigenetics / High Throughput / System Biology / Integrative Functional Biology / Arabidopsis / Microalgae / Crop



SECOND YEAR OF THE MASTER'S DEGREE IN BIOLOGY (M2). PROFESSIONAL ORIENTATION

- Parcours/Program Pro2Bio
Mots-clés / Keywords : Gestion de projet / Entreprise / Propriété intellectuelle / Immunology / Microbiology / Infectious Diseases
- Parcours Biologie et Techniques de Commercialisation (BioTechCo)
Mots-clés / Keywords : Instrumentation / Nanotechnologies / Biomédicaments / Techniques de commercialisation / Communication / Gestion
- Lab Science Trading (LST) program («Science et Commerce»)
Keywords : Instrumental Analysis / Biotechnologies / Selling and Science / Project Management / Commercial Negotiation / Cultural approach of selling in different parts of the world



Further information:
www.univ-grenoble-alpes.fr



SECOND YEAR OF THE MASTER'S DEGREE IN BIOLOGY (M2). PROFESSIONAL ORIENTATION

■ Parcours/Program Pro2Bio

Mots-clés / Keywords : Gestion de projet / Entreprise
/ Propriété intellectuelle / Immunology / Microbiology /
Infectious Diseases

■ Parcours Biologie et Techniques de Commercialisation (BioTechCo)

Mots-clés / Keywords : Instrumentation /
Nanotechnologies / Biomédicaments / Techniques de
commercialisation / Communication / Gestion

■ Lab Science Trading (LST) program («Science et Commerce»)

Keywords : Instrumental Analysis / Biotechnologies /
Selling and Science / Project Management / Commercial
Negotiation / Cultural approach of selling in different
parts of the world

Biology research in Grenoble

Science is the driving force of the town and our Biology
laboratories provide a vast playground for a strong
experimental training encompassing the main fields of
modern Biology.

Grenoble Institutes for Research in Biology

Three prestigious European research centers, the
European Synchrotron Research Facility (ESRF), the
Laue Langevin Institute (ILL) and the European Molecular
Biology Laboratory (EMBL). Research areas include
Structural Biology, Plant Biology and Biology of viruses
and cancer.

Seven health research centers on Medical Imaging,
Pathogens, Neurosciences, Cancer and Medical
Research.

Four research laboratories in the fields of Molecular
Chemistry, Ecology and Bioenergetics.



Further information:
www.univ-grenoble-alpes.fr

Application and admission

The programs are open to students coming from our partner universities around the world under a student exchange agreement or to any French and foreign student. If they wish, international students can take French courses for foreigners.

For additional information or customized arrangements :
isso@univ-grenoble-alpes.fr
<http://international.univ-grenoble-alpes.fr/en/>

Studying at Université Grenoble Alpes

Registering to Université Grenoble Alpes in Grenoble (France) is to experience education backed by excellent scientific research. It is also an opportunity to discover and truly experience an exceptional natural and scientific area, a city in the heart of the Alps, where prestigious international research instruments have been developed.

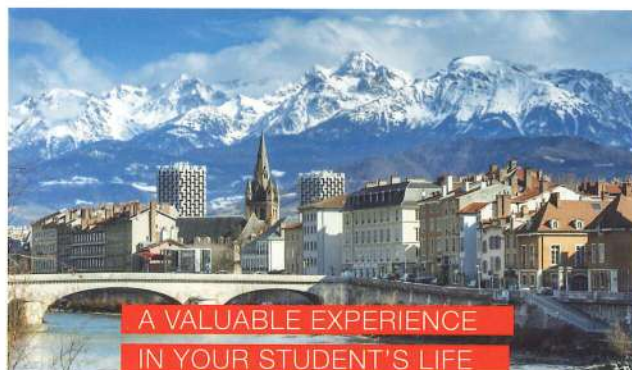
University Grenoble Alpes offers to its students an international scientific and technological environment that is unique in France, to support them in their studies and to promote employability. Our students have access to extensive documentation resources from 2 university libraries for Science, Medicine and Pharmacy, as well as 8 specialized documentation centers.

University Grenoble Alpes is nestled in the heart of an exceptional area of natural beauty: the city of Grenoble is located in a valley surrounded by 3 mountain chains - Vercors, Chartreuse and Belledonne. This location offers perfect surroundings for mountain sports. The many sports facilities on the Grenoble campus give students the opportunity to practice about thirty different physical and sports activities.

Lastly, in the middle of the campus, the EVE (Espace Vie Etudiante / Student Life Zone), brings together many student associations and serves as a meeting place for many cultural events.

Why Grenoble?

Living in Grenoble is a great opportunity to get immersed in a multicultural community studying arts and sciences. 60,000 students including 7,200 foreign students from 160 nationalities study at University Grenoble Alpes each year. The city is a leading research center in France outside the Paris area and is part of what is often described as the "French Silicon Valley" with booming high tech businesses. You will leave Grenoble speaking fluent French and with a new insight in French history, literature and way of life.



Having fun in Grenoble

- Skiing
- Mountain hiking
- Fauna, Flora of the Alps
- An outstanding art museum
- Concert halls, theaters

At the crossroads of Europe: 3 hours from Paris and the Mediterranean Sea (by train), driving distance from Spain, Italy, Germany, Switzerland.
Enjoy the great French way of life – You may become addicted!

Testimonies



"The PLANTA-International master proposes exactly what I was looking for: a programme in plant sciences taught in English, in an international context and with students from different cultures; the possibility to study abroad, with a tempting exchange programme in Italy; a wide number of optional courses that respond to every student's needs; and the possibility to carry out numerous internships throughout the programme."

Jhoanell, from Venezuela



"UGA is known for the quality of the administered courses, the rigorous educational support and the strong presence of its graduates on the labor market. The PLANT-Int programme motivated me for two reasons.

First, I identified different subjects that I would like to expand my knowledge on. Second, my studies allowed me to acquire the necessary bases needed to follow the program."

Hamza, from Morocco



"The PLANT-Int Master program from UGA caught my attention for its international curriculum. I am certain that it will definitely open up many opportunities for my personal and professional future, in a context

where language should not be a constraint. Not many Master programmes with this feature are being offered currently and even less between two distinguished European Universities."

Andrea, from Bolivia

Contact Information

Academic coordinator of the PLANTA-International Master's Degree

■ Christel Carles
christel.carles@univ-grenoble-alpes.fr

Generic email address

■ ufrchimiebiologie-master-plantint@univ-grenoble-alpes.fr

WEBSITES

PLANT-Int:

<https://master-biologie.univ-grenoble-alpes.fr/parcours/planta-international-plant-int/>

UGA: www.univ-grenoble-alpes.fr

UniMi: www.unimi.it

UniMi's Department of Bioscience:

<https://bioscienzebio.unimi.it/ps.php>



La Région
Auvergne-Rhône-Alpes



UNIVERSITÀ
DEGLI STUDI
DI MILANO

LA STATALE



**UFR de Chimie
et de Biologie**
—
**UNIVERSITÉ
Grenoble
Alpes**

INTERNATIONAL MASTER'S DEGREE

PLANTA - International (PLANT-Int) MASTER IN BIOLOGY

Double Degree between
Université Grenoble Alpes
(UGA)

and

Università degli Studi
di Milano (UniMi)



**UFR de Chimie
et de Biologie**
—
**UNIVERSITÉ
Grenoble
Alpes**

The PLANTA-International (PLANT-Int) programme is a major of the Master in Biology of Université Grenoble Alpes (UGA).

Objectives

The PLANT-Int programme leads to a **double Master's Degree diploma** delivered by **UGA** and Università degli Studi di Milano (**UniMi**).

PLANT-Int focuses on plant sciences. It aims at training **future scientists for academic and private careers** in plant biology and plant biotechnologies, providing them with advanced scientific and technological expertise in an international context.

This programme relies on the excellence and complementarity of UGA and UniMi, two institutions hosting internationally renowned laboratories with a long tradition of research in plant sciences.

Programme

Organisation of the PLANT-Int Master is shared between UGA and UniMi: students enter a **mobility programme**, spending the first semester in Grenoble and the second one in Milan. The 2nd year is mostly dedicated to internships, including the Master Thesis.

Teaching is carried out in English and offers a large panel of options and internships that allow a **customized study plan** for each student.

The **trans-disciplinary teaching programme** includes lectures in molecular genetics and epigenetics, bioengineering, mathematics for modelling of biological systems, communication and professional insertion tools. Specialised lectures focus on specific aspects of plant development, evolution of the green lineage, agroenergy, metabolism and photosynthesis.

SEMESTER	LOCATION	COURSES
S1	GRENOBLE	Evolutionary Biology of Plants ; Plant Development & Signaling (I) ; Strategies in Experimental Biology ; Scientific English + Optional choices
S2	free choice	INTERNSHIP 1 (8 WEEKS)
	MILAN	Plant Development & signaling (II) + optional choices
S3	free choice	INTERNSHIP 2 (8 - 16 WEEKS) Optional choices
S4	free choice	MASTER INTERNSHIP (6 MONTHS)
		Optional choices



Internships

Three mandatory internships are to be completed over the course of the 4 semesters:

- a 2-month mandatory internship at UGA or UniMi (laboratory internship) at S2
- a 3-month internship in an academic laboratory or in a private company at S3
- a 6-month internship in an academic laboratory or in a private company at S4

Application

- PLANT-Int is open to any undergraduate student holding a Bachelor of Sciences in Biology, Chemistry or equivalent.
- B2-level English proficiency is expected.
- Students may apply to the PLANT-Int programme from either UGA or UniMi as home institution.

MoSIG

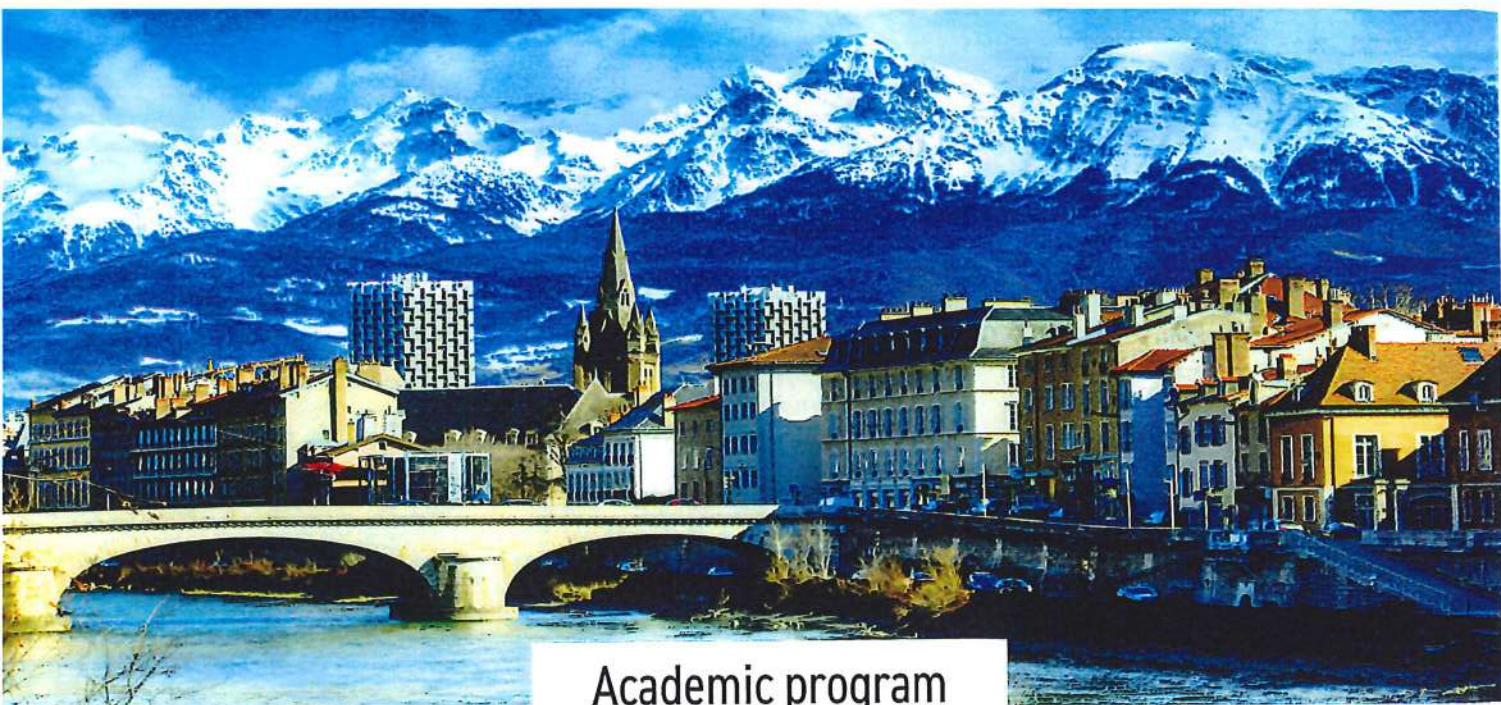
Master of Science in Informatics at Grenoble

The Master of Science in Informatics at Grenoble offers access to worldwide graduate training in computer science domains where the research community, academic and industrial, in Grenoble is particularly strong. MoSIG is a highly competitive, two-year European standard (LMD) graduate program, entirely taught in English.



Artificial Intelligence - Cloud Computing - Data Science - Vision Robotics - IoT

<http://mosig.imag.fr>



Academic program

First Semester

The first semester is a 12-week (September - January) academic program composed of foundational courseware:

Principles of Operating Systems • Mathematics for Computer Science • Software Engineering • Introduction to Visual Computing • Programming Languages and Compiler Design • Algorithmics and Problem Solving / (6 ECTS). English and/or French language training • Programming Project / (6 ECTS).

Third Semester

The third semester is composed of a 12-week (September - January) academic program which includes 30 ECTS.

Students should select one of the specialized programs:

Advanced Information Systems & Software Engineering • Artificial Intelligence and the Web • Data Science • Digital Infrastructure • Graphics, Vision and Robotics • High-confidence Embedded and Cyberphysical Systems • Ubiquitous and Interactive Systems.

Second Semester

The second semester is composed of a 12-week (February - May) academic program that combines advanced work on fundamental topics as well as introduction to more specialized subjects, followed by participation in a 4-week internship (6 ECTS) in a research group (June).

Students should select 8 courses (3 ECTS each):

Database Foundations • Operations Research • Computer Networks Principles • Intelligent Systems: Reasoning and Recognition • 3D Graphics • Robotics and IoT • Introduction to Cryptology • Human Computer Interaction • Introduction to Distributed Systems • Introduction to Modeling and Verification of Digital Systems • Parallel Algorithms and Programming • Fundamental Computer Science.

Fourth Semester

The final semester from February to July is devoted to an individual research project conducted in a company or in a research laboratory.

Admission

Candidates must have previously completed their undergraduate studies and been awarded a Bachelor's degree in either Science (BSc) or Engineering (BEng) in Computer Science, Computer Engineering, Informatics or Applied Mathematics and solid practice in programming. Students can apply either to the full program (2 years) or for the 2nd year of the program. For admission directly to the second year of the program you must have a Bachelor's Degree (4-year program), or be currently enrolled in a Master's study.

Requirement: English language competence B2

Application deadline for non-EU students: mid-March

Application deadline for EU students: mid-May

Contact: mosig@ensimag.fr

<https://relint.ensimag.fr/MainEn/Admission>



This program is offered jointly by Grenoble INP - Ensimag school of engineering in Applied Mathematics and Informatics and the Department of Informatics and Mathematics of Université Grenoble Alpes, IM²AG.



Master of Science in Operations Research, Combinatorics and Optimization

Université Grenoble Alpes-IM2AG / Grenoble INP-Ensimag

In the current context of globalization and competition, optimization plays a major role in all sectors of the industry. As a consequence, operations research and combinatorial optimization are very active domains of research both in R&D labs and in academia. In Grenoble, in particular, several teams of researchers from Grenoble INP, UGA, CNRS and INRIA are recognized worldwide for their work in this area. The methods and tools of the field range from applied mathematics to computer science and a deep expertise of these area are needed to develop advanced solutions. This master program aims at preparing students to contribute actively to the development of the field, both in academia and in the industry.

- International Master program, taught in English
- Joint program between Université Grenoble Alpes UFR IM²AG and Grenoble INP Ensimag



Scientific objectives:

- Study of advanced and efficient methods and tools of Operations Research, Combinatorics and Optimization (Mathematical programming, Graph theory, Complexity theory, Stochastic programming, heuristics, approximation algorithms, Robust optimization...)
- Emphasis on the use of these methods to implement efficient solution techniques to complex industrial applications (in supply chain management, scheduling, transport ...)
- Preparation for research positions (in industry and academia)

Professional objectives:

At the end of the program, the students should be able to pursue a career in research (academic or industrial PhD), or to join major research and development departments or consulting companies in optimization. They might also build upon their ability to analyze operational problems methodologically to join less specialized companies and act as key actors in performance management: either by interfacing with consulting firms or by developing in-house solutions. In the long run, students who are moving towards industrial careers, strengthened by their experience in improving business performances and by the development of business-specific knowledge, should naturally reach decision-making positions with a high level of responsibility.

Related research labs in Grenoble:

G-SCOP, LJK, LIG, IF and also Inria research centre.





Academic program

Common core

- Advanced models and methods in operations research (6 ECTS)
- Combinatorial optimization and graph theory (6 ECTS)
- Optimization under uncertainty (6 ECTS)

Elective courses

Choose a total of 12 ECTS among the following courses:

- Logistic and transport (3 ECTS)
- Scheduling (3 ECTS)
- Graph and discrete structures (3 ECTS)
- Advanced heuristic and approximation algorithms (3 ECTS)
- Advanced mathematical programming methods (3 ECTS)
- Efficient methods in optimization (3 ECTS)
- Parallel systems (6 ECTS)
- Academic and industrial challenges (3 ECTS)

Master thesis (30 ECTS)

A five-month internship is compulsory. It can be done in a R&D department of a private company or in an academic laboratory.

Admission:

To be admitted in the program, candidates shall have previously completed the first year of a master program (M1) in Computer science, Applied Mathematics or Industrial Engineering, or shall hold an equivalent degree. Basic skills in the following domains would largely be appreciated: probability theory, graph theory, linear programming, branch and bound. Candidates can contact the persons in charge of the master program to have references of books and/or articles on these domains to prepare at best.

Admission webpage: <https://relint.ensimag.fr/MainEn/Admission>

Academic supervisors:

Marie-Laure ESPINOUSE
Gautier STAUFFER

Registrar's office:

- Elena LEIBOWITCH (Ensimag)
- Bérengère DUC (UGA)

Application Deadlines

Non-European Students:

Mid-March

European students:

Mid-May

Contact:

im2ag-service-formation@univ-grenoble-alpes.fr

Tuition and fees

Approximately 500 Euros / Year

Note that tuition fees are highly subsidized by the French Government.

More information:

<https://master-informatique.univ-grenoble-alpes.fr/>

<http://orco.imag.fr/>



MSIAM

Master of Science in Industrial and Applied Mathematics

Grenoble INP-Ensimag / Université Grenoble Alpes-IM2AG

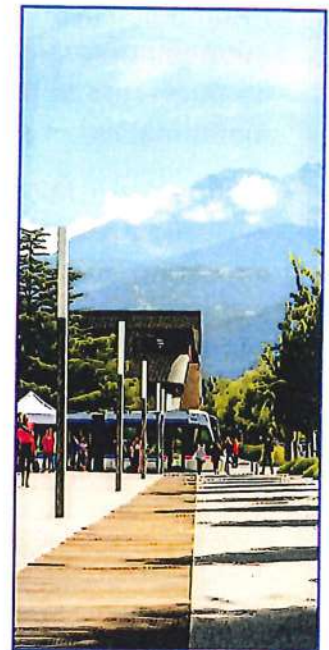
The Master of Science in Industrial and Applied Mathematics (MSIAM) offers a large spectrum of courses, covering areas where the research in applied math in Grenoble is at the best level.

Our graduates are trained to become experts and leaders in scientific and technological projects where mathematical modelling and computing issues are central, in industry or research.

Currently, applied mathematics is an area that provides many job opportunities, in industry and in the academic world.

There is a great demand for mathematical engineers on topics such as scientific computation, big data analysis, imaging and computer graphics, with applications in many fields such as physics, medicine, biology, engineering, finance, environmental sciences.

Experienced graduate faculty members teach in this program and bring their expertise in a wide range of areas of mathematics including applied analysis, numerical analysis and scientific computing, probability theory and statistics, computational graphics, image analysis and processing, and applied geometry.



Academic program

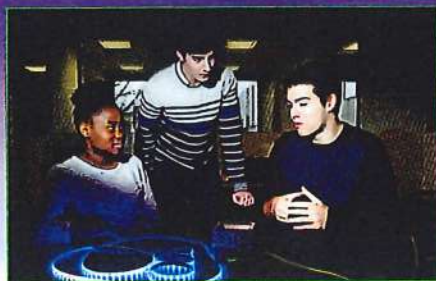
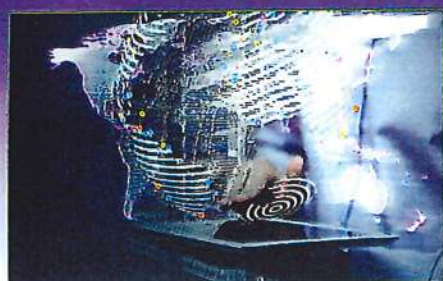
The academic program is a two-year Master program (120 ects) , fully taught in English. It combines three semesters of courses and laboratory work with a six-month individual research project.

The first year (60 ects) is composed of a common core, which provides theoretical and practical grounds in probability and statistics, PDE and modelling, images and geometry as well as computer sciences, optimization and cryptology. All courses include a substantial time of pratical sessions, mostly with Python and C++.

In the second year, the third semester (30 ects) is essentially divided in 2 tracks:

- Data Science
- Modeling, Scientific Computing and Image analysis

The fourth semester (30 ects) is devoted to the master thesis project.



Who should apply?

To be admitted to the program, candidates must have previously completed their undergraduate studies and been awarded a Bachelor degree in Mathematics or Applied Mathematics, or equivalent. MSIAM is a two-year Master Degree. Students can apply to M1 (1st year) or directly to M2 (2nd year).

/ Admission in M1 (MSIAM 1st year): Anyone holding a L3 or Bachelor Degree in applied mathematics or mathematics, with a background in both mathematics and numerical programming. Candidates should be interested in pursuing a high level mathematical education and motivated by the applications of mathematics.

/ Admission in M2 (MSIAM 2nd year): Anyone holding a first year of master (60 ects credits) in mathematics or applied mathematics or an equivalent degree, interested in pursuing a high level mathematical education and motivated by the applications of mathematics. The minimum requirement is to have earned at least the equivalent of 240 ects credits.

/ Students from related backgrounds (physics, computer science, engineering...) may also apply provided they possess outstanding mathematical qualifications and are highly motivated by applications.

Language requirements

/ Students from countries where English language is not the primary language are required to provide evidence of Competence in English.

The requirement is waived for applicants from English speaking countries as well as applicants whose previous degree is from a program taught in English.

English scores required: TOEFL IBT 78 / TOEIC 700 / IELTS 6.0. This is equivalent to the CEFR level B2.

/ An A2 level in French is recommended in everyday life.

Admissions:

<https://relint.ensimag.fr/MainEn/Admission>

Application deadlines :

Non-European students

Mid-April

European students:

End of June

Contact :

msiam@imag.fr

Website:

<http://msiam.imag.fr>



CyberSecurity

Master of Science in Cybersecurity

Grenoble INP-Ensimag / Université Grenoble Alpes-IM2AG

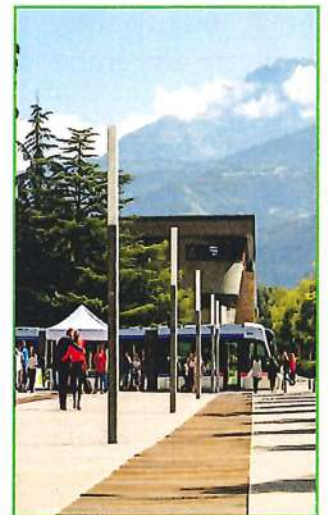
With the increasing externalization of corporations and organizations in an interconnected world, security of information systems and integration of data protection technologies are now among the most critical issues. Security of Information Systems is thus an active field of research, both academically and industrially.

Within the Grenoble Alpes community, the Grenoble technopole gathers international level experts in Computer Science, Mathematics and Electronics from both Grenoble INP (Institut polytechnique de Grenoble) and UGA (Université Grenoble Alpes), working together in the field of Information Systems and Security.

Objective

Training cybersecurity experts in :

- Risk analysis and audits, certification for security evaluation
- Security of operating systems, networks, software and hardware
- Security architecture, secure and validated solutions
- Cryptology, privacy



Since its creation, more than 400 students have graduated the master.

Related research labs in Grenoble

Institut Fourier, LJK, LIG, VERIMAG, Gipsa-Lab, TIMA, LCIS and also Inria research center. Those labs federate their research in cryptology and security within the IDEX Cross disciplinary Grenoble Alpes CyberSecurity Institute, in collaboration with the CEA and the Social Sciences community.

International Master's program, fully taught in English.

English language track of the master's degree in Mathematics & Applications and Informatics.

Joint program between Grenoble INP Ensimag and Université Grenoble Alpes UFR IM²AG.



Academic Courses

Lectures (from September to February)

Common core

- Software security and secure programming (3 ects)
- Security architectures : network, system, key managements, cybersecurity of industrial IT (6 ects)
- Cryptographic engineering, protocols and security models, data privacy and applications (6 ects)
- Threat and risk analysis, IT security audit and norms (3 ects)
- Hardware and embedded systems security (6 ects)

Elective courses

- Advanced Cryptology (6 ects)
- Advanced Security (6 ects)

Master thesis (from February to September) 30 ects

All students will have to demonstrate a B2 level in english language in order to be awarded their degree.

English scores required :

TOEFL IBT 78 / TOEIC 700 / IELTS 6.0 or equivalent

Admission

Students are selected and admitted to the program based on their academic records, language skills, motivation and a judgement of their ability to successfully complete the program.

The CySec master program is a one-year (M2) specialized program.

To enter the program, students are selected after successful completion of:

- MSc in Informatics or Mathematics at Grenoble (MoSIG M1, MSIAM M1, M1 Mathématiques, M1 Informatique)

- Alternatively an equivalent M1 program.

(The minimum requirement is to have earned at least the equivalent of 240 ECTS credits)

Admission webpage: <https://relint.ensimag.fr/MainEn/Admission>

Academic supervisors

Jean-Guillaume Dumas (UGA)
Marie-Laure Potet (Ensimag)
Vanessa Vitse (UGA)

Registrar's office

- Elena Leibowitch (Ensimag)
- Carine Beaujolais (UGA)

Tuition and fees

Approximately 500 Euros / Year

Note that tuition fees are highly subsidized by the French Government.

Application Deadlines

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Mid-April

European students:

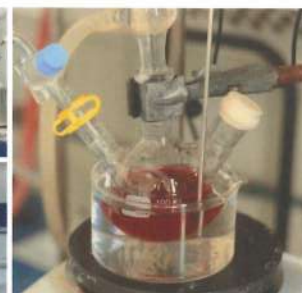
End of June

Contact :

m2cybersec@ensimag.fr

website :

<https://cybersecurity.imag.fr>



**FACULTÉ
DES SCIENCES**

UGA



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