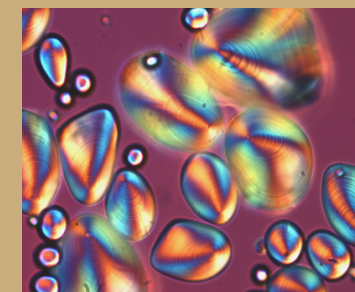




Master in Chemistry

Polymers for Advanced Technologies (PTA) – R & P



A 2-Year Postgraduate degree at the European Master level

This Master is oriented towards innovation, with specialisations giving openings towards dynamic sectors of activity and high technology:

- Polymers for renewable energy sources and for flexible electronics
- Polymers for medical and pharmaceutical applications
- Biobased polymers
- Nanostructured materials

This Master offers vocational specialisation by Research or Profession and is based on the competences of local and regional research laboratories of international repute. It is co-habilitated with the University of Savoie.

Target competences :

- A sound basis in advanced methods of macromolecular synthesis
- A knowledge of the various methods for characterizing polymer materials
- A good grounding in structure/property relationships
- An understanding of the different classes of functional polymers for the energy, biomedical, and micro- & nanotechnology sectors.

Career openings :

This speciality is designed to prepare you for careers either in the private or public sectors. In the private sector the Professionnel option allows you to enter directly after graduation into such sectors as research & development, production, quality control, etc. in various companies which either supply or use polymers or polymer-based products.

The Research option is designed to prepare you for continuing your education to the doctorate level. After a Ph.D. thesis there is again the possibility of entering directly into the private sector in the R&D laboratories of polymer manufacturers or in the industries which use polymers, such as the cosmetic, biomedical, pharmaceutical, tyre, paint, surface coating, textile, microelectronics, energy, transport, building, and sport & leisure sectors. In the public sector there is the possibility of becoming a researcher in various organisations in France (CNRS, INRA, CEA,...) or abroad or becoming a university lecturer.

INFORMATIONS AND REGISTRATIONS

Responsible:

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UFR de Chimie et Biologie

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CS 40700, 38058 Grenoble
Cedex 9

ADMISSION CONDITIONS & APPLICATION

Master Year 1 (M1)

Admission into M1 is possible for all students having an undergraduate degree (180 ECTS) in a Chemistry or Physical sciences related subject.

Master Year 2 (M2)

Direct admission into M2 is possible for all students having validated 60 ECTS in the first year of a Master in Chemistry, Physical Chemistry, Physics, or related subjects.

The admission of students having obtained other types of degrees or degrees from foreign institutions is also possible and will be examined on a case-by-case basis.

How to apply

Applications can be made on-line at the web site of UGA:

www.univ-grenoble-alpes.fr rubrique Formation > Candidatures et Inscriptions.



Master in Chemistry

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4 semesters of courses adapted to your future career

- Semesters 1 & 2 (M1) are based around a common set of core modules and options of which two are specializing in polymers
- Semesters 3 & 4 (M2) offer a PROFESSIONAL specialization, in direct contact with the industrial sector of advanced technologies and aimed at an immediate insertion into a professional life, and a RESEARCH specialization, where the aim is to continue your education up to the doctorate level

RESEARCH ROUTE (Year M2)

SEMESTER 3 (30 ECTS)

Seven speciality UEs:

Polymers for renewable energy sources and for flexible electronics

Polymers used in fuel cells, organic solar cells, organic conductors and semi-conductors...

Biomaterials and biobased polymers

Polymers designed for use with living tissues and/or biological fluids, natural polymers, polymers synthesized from biobased monomers

Nanostructured materials

Structure/properties relationships in polymers and composites

Tools for investigating polymers

Multiscale study of the structure of polymer materials using small angle scattering, NMR (liquid and solid state) and rheometry

Analysis, formulation and coatings

Dégradation et durabilité

Mécanismes de vieillissement des matériaux organiques, modes de stabilisation, problème du recyclage des polymères

Bibliography project

1 optional UE chosen from :

Green chemistry

Molecular modelling

SEMESTER 4 (30 ECTS)

Laboratory placement

1 UE: Outils pour l'Ingénieur

(3 ECTS) followed during semester 3

1: UE Language

(3 ECTS) followed during semester 3

PROFESSIONAL ROUTE (Year M2)

SEMESTER 3 (30 ECTS)

Speciality and professional UEs:

Polymers for renewable energy sources and for flexible electronics

Polymers used in fuel cells, organic solar cells, organic conductors and semi-conductors...

Biomaterials and biobased polymers

Polymers designed for use with living tissues and/or biological fluids, natural polymers, polymers synthesized from biobased monomers

Nanostructured materials

Structure/properties relationships in polymers and composites

Tools for investigating polymers

Multiscale study of the structure of polymer materials using small angle scattering, NMR (liquid and solid state) and rheometry

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Dégradation et durabilité

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Outils de l'entreprise

Gestion financière
Qualité, Normes, Droit du travail,
Hygiène et Sécurité

Outils pour l'ingénieur

Gestion de projet, Communication
Plans d'expérience

SEMESTER 4 (30 ECTS)

Industrial placement

1 UE: Language

(3 ECTS) followed during semester 3

This programme allows the exchange of students the Politecnico of Turin.

A TRULY EXCEPTIONAL ENVIRONMENT

Research laboratories of renown recognized by the national agencies (CNRS, INSERM, CEA...)

DCM, CERMAV, DPM, LMB, LCIB...

A network of industrial laboratories in France and abroad for « Professionnal » placements

International openings

Possibilities of laboratory or industrial placements abroad

Availability of specific facilities for practical work, projects & placements

Various characterization techniques, access to specialist research instruments, computer and project rooms,...

A lively and dynamic working environment

The campus at Gières-Saint Martin d'Hères-Grenoble and the region offer many possibilities for sporting and cultural activities.

A Master programme at the cutting edge of Research and Technology which will prepare you for working in the microelectronics, renewable energies, pharmacy, biomedical, and nanocomposite materials sectors