

Université Joseph Fourier in Grenoble

Research and training
in a cutting edge environment



www.ujf-grenoble.fr



UJF in short

Université Joseph
Fourier-Grenoble 1, is a
major university for
science, technology
medecine



UJF in short

- **16 800** students (out of doctorate students)
- **1 500** academic staff
- **1 400** technical and administrative staff
- **16 departments** including an Institute of Technology and an Institute of Engineering
- **83 master's programs**
- **4 research clusters** (M-STIC, SMING, CSVSB, TUNES)
- **50 research laboratories gathering 2100 doctorate students**
- **8 doctoral schools**
- **5 top level international schools**
- **Research valorisation** : 1 developpement compagny, Floralis
31 start-up companies in the past 10 years
- **240 M€ budget**

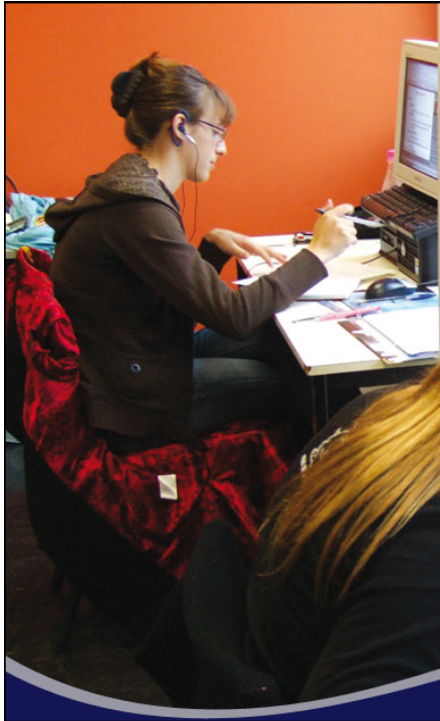
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Ranking

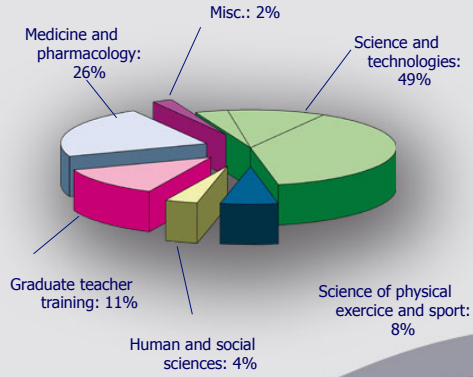
- **Shanghai Ranking 2010**
L' Université Joseph Fourier : 6th french university, in the world's top 200, top 100 in Physics, Natural sciences and mathematics
- **Ranking by the Centre for higher education development, Gütersloh - CHE (Allemagne)**
UJF is among leading european science universities in the four disciplines considered : biology, chemistry, physics and mathematics
- **Leiden Ranking (Netherlands)**
In the Top 100 European universities placed 55th among European universities for the average impact of publications – second highest french university in ranking, just two places behind Pari XI
- **Ranking published by Institut Montaigne (France)**
With 52,8% of its researchers in internationally recognized laboratories publishing abroad, UJF is the top french university in the list of teh best universitiers for research in hard science.

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Training

Science, technology, medicine and society



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Teaching and training

Undergraduate and graduate programmes in a wide range of disciplines...

- ❖ Biology
- ❖ Earth and universe sciences and environment
- ❖ Education sciences
- ❖ Engineering and technologies
- ❖ Humanities and social sciences
- ❖ Mathematics and computer science
- ❖ Medicine and health science
- ❖ Physics and chemistry
- ❖ Sport

83 Master's degrees

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Master programmes taught in English

3 Masters Erasmus Mundus

- ❖ Master in Earthquake engineering and engineering seismology (MEEES)
- ❖ Master in Nanoscience-Nanotechnology (N2)
- ❖ Master in BioHealth Computing (BHC)

5 Masters taught in english

- ❖ Master of Science in informatics at Grenoble
- ❖ Master in Earth universe environment
- ❖ Master in Chemistry
- ❖ International Master on industrial Processes automation (EEATS)
- ❖ International Master in Geomechanics, civil engineering and risks

3 International Bachelor's degree

- ❖ Networking and Telecommunications
- ❖ Chemistry and Biology
- ❖ Mathematics and Informatics

9 Double diploma

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International

Every year UJF welcomes :

Nearly **2,300** international students of which more than **300** are on exchange programmes

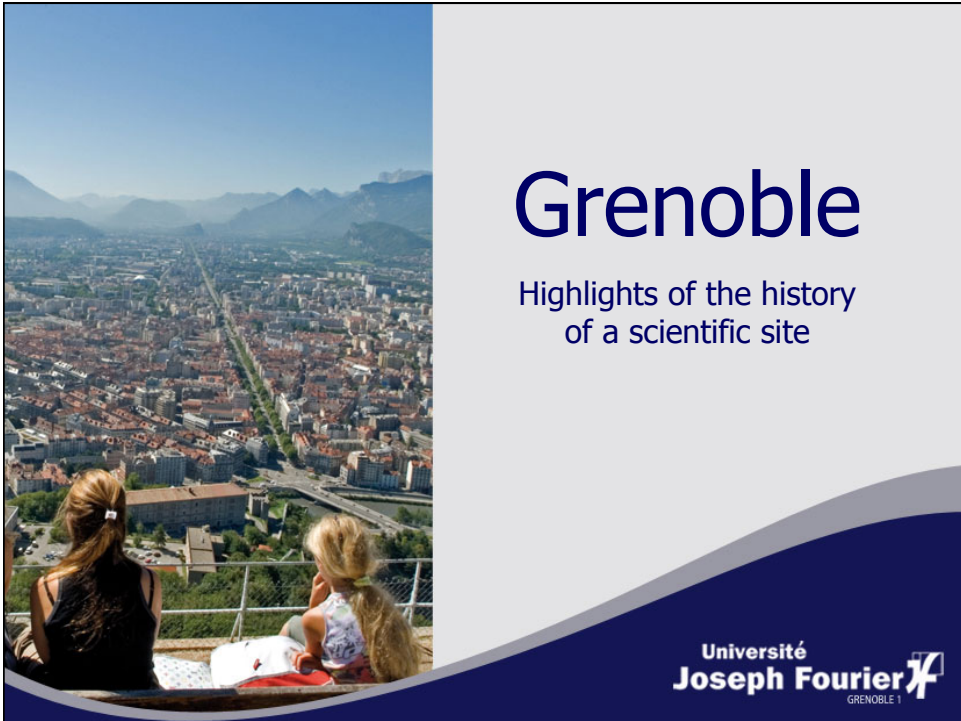
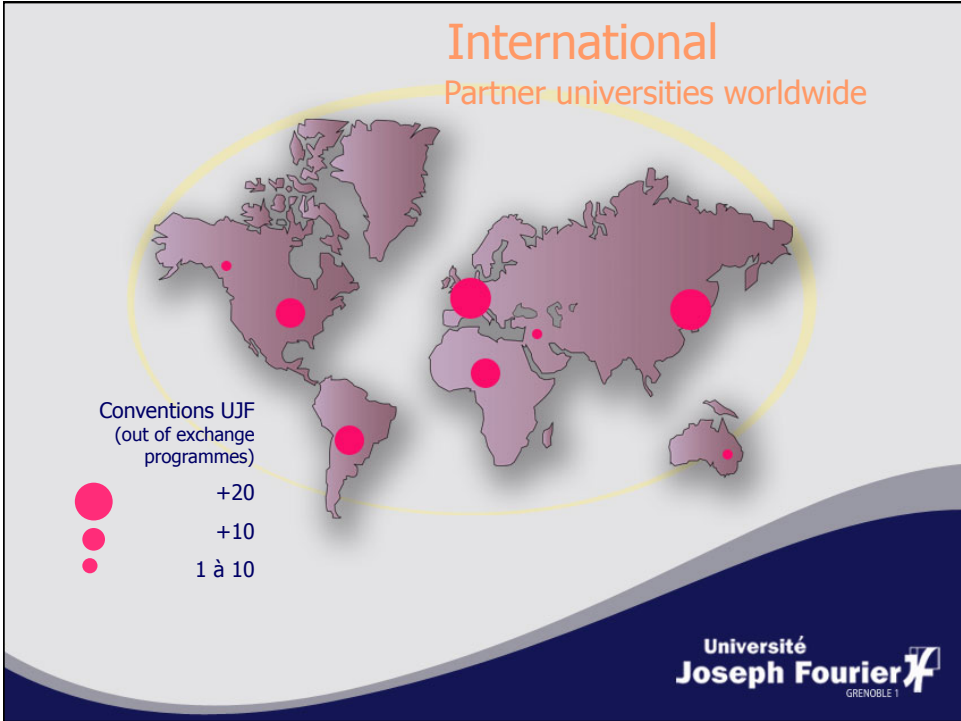
Every year almost **600** students study abroad

300 students as part of exchange programmes

350 students in the course of an internship

Abroad.

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J. Fourier
1768-1830

Joseph Fourier

Lives in Grenoble from 1802 to 1813. Nominated Prefect (representative of the government) by Napoléon.

Contributes to two important large civil engineering projects.

Studies heat conduction (experiments and modelling) and invents what are now called Fourier series and Fourier analysis. Well-known book "Heat theory".

Creates the Faculty of Science of the University of Grenoble in 1811.



A. Bergès
1833-1904

Aristide Bergès

Arrives in Grenoble in 1866.

Develops hydraulic power for the paper making industry.

First use of hydraulic power to produce electricity on a large scale (hydroelectric energy).

Houille blanche – hydroelectric energy / Houille (noire) – Coal



L. Néel
1904 - 2000

Louis Néel

Arrives in Grenoble in 1945.

Helps developing Grenoble as a scientific centre of excellence:
first CNRS laboratory outside Paris (1946),
Grenoble Atomic energy center (1956),
European high flux neutron source(1967).

Helps developing strong relationships with local industry and creates the engineer curricula in Grenoble.

Nobel laureate 1970 (physics).



P.L. Merlin
1882-1973

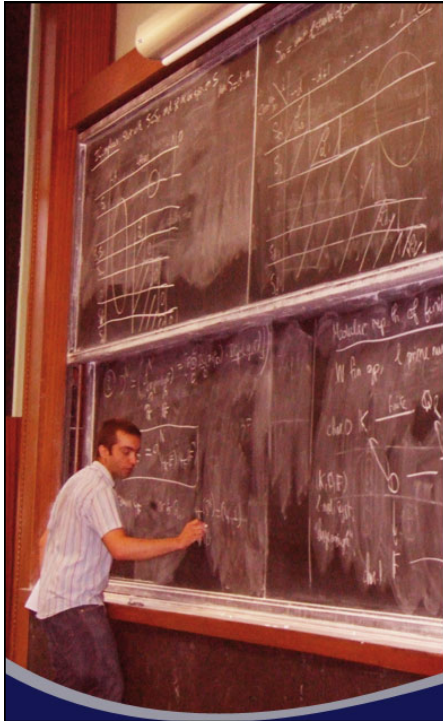
Paul Louis Merlin

With Paul Gerin creates Merlin-Gerin, a world leader in the electrical engineering industry, now part of Schneider Electric.

Promotes the relationships between the university and the industrial sector.

→ Grenoble center of excellence in microelectronics – MINATEC.

R&D centers : ST Microelectronics – Freescale
semiconductors (Motorola) – Philips semiconductors
and Schneider Electric.



5 top level International schools

- Les Houches Physics School
- HERCULES
Higher European Research Course for Users of Large Experimental Systems
- ERCA
European research course on atmospheres
- ESONN'
European School on nanosciences and nanotechnologies
- Mathematics Summer School

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4 research clusters

- ❖ Chemistry – Life and medical sciences – Bio engineering
- ❖ Mathematics – Information science and technology
- ❖ Matter and material sciences – Engineering
- ❖ Earth, Universe, Environment, Social issues

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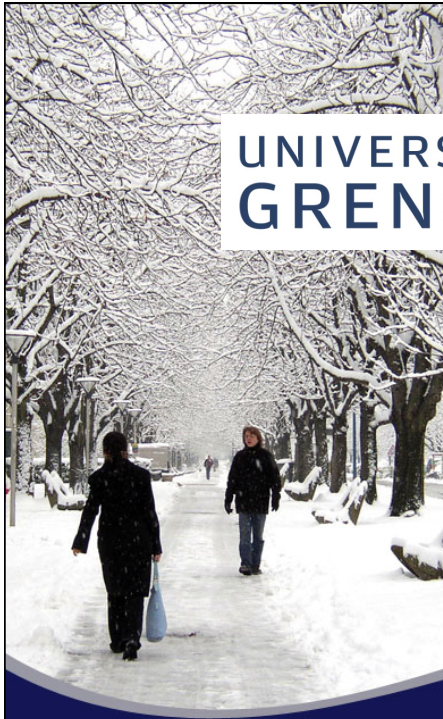


2 advanced research thematic network -RTRA

Nanosciences

FINOVI (infectiology)

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UNIVERSITÉ DE GRENOBLE

Partnership: UJF + 5 Universities



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Partnership: research centers



France :
approx. 61 000 000
inhabitants

Rhône-Alpes :
approx. 6 000 000
inhabitants

Grenoble-Isère :
1 200 000
inhabitants

Grenoble in the heart of Europe





Grenoble in the heart of the Alps

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International Bachelor Program

<http://dlst.ujf-grenoble.fr/>

Chemistry and biology

semester 1	semester 2	semester 3	semester 4
CHI110	CHI120	CHI231	CHI241
BIO111	BIO121	CHI232	CHI242
PHY11b	BIO122	BIO231	BIO241
INF112	ANG	BIO232	BIO242
ANG			
UET	PEP	STA230	
UET	ANG		

Biology

semester 1	semester 2	semester 3	semester 4
BIO111	BIO121	BIO231	BIO241
CHI110	BIO122	BIO232	BIO242
MAT11a	CHI120	CHI231	BIO243
PHY11a			
PAN1	PEP	STA230	BIO245
INF112	ANG		
UET	ANG	ANG	

In english

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International Bachelor Program

<http://dlist.ujf-grenoble.fr/>

Maths and computer science

semester 1	semester 2	semester 3	semester 4
MAT112	MAT123	MAT231	MAT241
PHY112	MAT124	MAT232	MAT242
INF111	INF121	INF231	INF241
INF110	INF123	INF232	INF242
PAN1	PEP	PHY121	
INF234	PAN2		
MAP244	ANG		

Physics

semestre 1	semestre 2	semestre 3	semestre 4
PHY111	PHY121	PHY235	PHY242*
MAT112	PHY122*	PHY236	PHY244
CHI110	MAT128*	MAT234	MAT244
INF111	MAT129	MFC23a	X4
UET	PEP	CHI120	X3
UET	ANG		

In english

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Bachelor Summer Program

6 weeks in june and mid july

- Science (~ 2 x 30h)
- French language (36 h)
- Lab/industry visits
- cultural visits
- To start in june 2012

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Bachelor Summer Program

Engineering

Physical computing

Engineering and Environmental Geology

Chemistry

Applied theoretical chemistry

Physics

neutron and X-ray spectroscopy

Electro magnetism. Applications to solid state spectroscopy.

Maths

Introduction to probability

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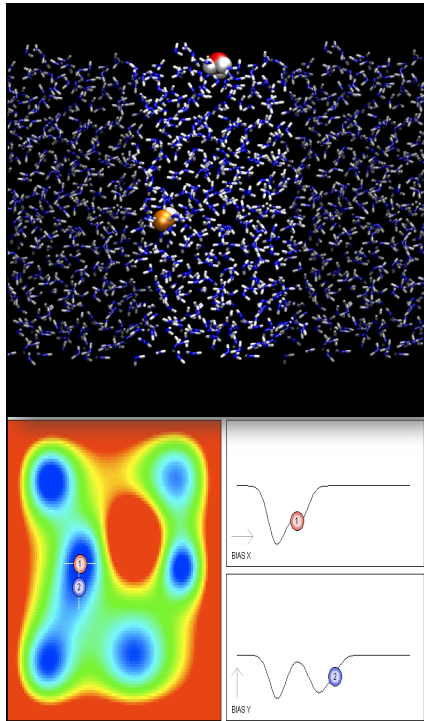
Bachelor Summer Program

Physics	30h /60 h	Lecture / tutorials / ESRF and ILL visit
Title	neutron and X-ray spectroscopy	
Prerequisites	Wave propagation and interferences, background in quantum mechanics is useful	
Topic	Introduction to neutron and x-ray scattering. Application to the study of structure and dynamics in condensed matter.	

Physics	30 / 60 h	Lecture / tutorials / lab visits
Title	Electrodynamics. Application to solid state spectroscopy.	
Prerequisites	Electrostatics and magnetostatics. Wave propagation.	
Topic	Maxwell equations in a continuous medium. Propagation of electromagnetic wave in vacuum and in a continuous medium . Wave guides. Some applications in solid state spectroscopy (from GHz to IR)	



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Bachelor Summer Program

Chemistry	60 h Lecture / tutorials
Title	Applied theoretical chemistry
Prerequisites	quantum chemistry or quantum physics, skills in Linux or equivalent is useful
Topic	DFT, semi-empirical methods, applications to reactivity and calculations of molecular properties dynamics, force fields methods, applications to solvation or ligand/protein interaction.

Math	30 h Lecture / tutorials
Title	Introduction to probability
Prerequisites	Basics in set theory and elementary calculus including infinite series, partial differentiation, and multiple integration. Some exposure to rudimentary linear algebra (e.g., matrices and determinants) is also desirable.
Topic	Basics of mathematical probability, discrete and continuous random variables, expectation and variance, random vectors, laws of large numbers and central limit theorem .

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Bachelor Summer program

Polytech	60h Lecture / tutorials / lab visits / field trips
Title	Engineering Geology
Prerequisites	Basic knowledge in geology, mechanics and physics
Topic	Geology of the Alps and Landslides; Rock mass description; Rock mass stability; Rock mechanics; Soil mechanics; Environmental geology; Geophysical prospecting

Engineering	60h Lecture / tutorials / lab and company visits
Title	Introduction to Physical computing
Prerequisites	Elementary notions of programming and electronics
Topic	Computer Sciences, Electronic, Instrumentation sensors and actuators controlled by microcontrollers and computers. http://www.arduino.cc

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