

SCIENCES, TECHNOLOGIES AND HEALTH

# Applied Mechanics 1st year

Master in Mechanics



Target level  
Baccalaureate  
+4



ECTS  
60 credits



Duration  
1 year



Component  
UFR PhITEM  
(physique,  
ingénierie, terre,  
environnement,  
mécanique)



Language(s) of  
instruction  
English

## Presentation

The 1st international year, 'Applied Mechanics', totally common to both programmes of Civil Engineering and Mechanics and which opens on three international courses, including GCER for the second year.

This Master Course gives you the opportunity to apply to the UGA Graduate School and one of its 15 thematic programs. The Graduate School@UGA is a new training program through and for research which was launched in 2021 within the Université Grenoble Alpes, and which concerns all the schools and components of the UGA.

The objective of these thematic programs is to offer interested students an interdisciplinary training program and academic excellence combining university studies and laboratory internships. Each thematic program develops a specific line of research, allowing then to embark on a PhD, or to have a direct professional insertion.

The program regroups students registered in different mentions, master programs or engineer school tracks and working together in specific courses.

Participation in the Graduate School@UGA is for two years (M1 and M2) and may open the possibility of obtaining an

academic scholarship for two years for the best international students (non-French baccalaureate holders).

For more information : <https://www.univ-grenoble-alpes.fr/education/graduate-school/>

**International education** : Internationally-oriented programmes

## International dimension

### Study abroad as an exchange student

As part of this track, you have the opportunity to study for a semester or a year at a UGA partner University abroad.

The International Relations Officers of your faculty will be able to provide you with more information.

More information on : <https://international.univ-grenoble-alpes.fr/partir-a-l-international/partir-etudier-a-l-etranger-dans-le-cadre-d-un-programme-d-echanges/>

## Admission

## Access conditions

- **For the first year** : holders of a general scientific degree with a specialisation in mechanics, or equivalent diploma
- **For the second year** : students who have completed the first year of a compatible programme or one of equivalent level

For candidates whose country of residence is not included in the "Studies in France" portal (PEF) scheme, the calendar for the eCandidat application campaigns is available [here](#)

Public continuing education : You are in charge of continuing education :

- if you resume your studies after 2 years of interruption of studies
- or if you followed a formation under the regime formation continues one of the 2 preceding years
- or if you are an employee, job seeker, self-employed

If you do not have the diploma required to integrate the training, you can undertake a [validation](#) of personal and professional achievements (VAPP)

## Candidature / Application

Would you like to apply and register ? Be aware that the procedure differs depending on the diploma, the degree obtained, or the place of residence for foreign students. Let us guide you simply by following this [link](#)

## Fees

Tuition fees 2022-2023 : 243 € + 100€ CVEC

## And after

### Targeted trades

This research program offers two main career opportunities :

- Doctoral studies in environmental fluid mechanics, either in France or abroad, with a view to pursuing a career as teacher-researcher in a university, or researcher in a large public organisation (CNRS, CEA etc)
- Engineer within a company or organisation in the environment or energy sectors

## Useful info

### Contacts

#### Program director

Christian Geindreau

✉ [Christian.Geindreau@univ-grenoble-alpes.fr](mailto:Christian.Geindreau@univ-grenoble-alpes.fr)

#### Program administration

Registrar's Office for the Master in Mechanics

✉ [phitem.master.mecanique@univ-grenoble-alpes.fr](mailto:phitem.master.mecanique@univ-grenoble-alpes.fr)

#### Program administration

Application

✉ [phitem.candidature.etudiant@univ-grenoble-alpes.fr](mailto:phitem.candidature.etudiant@univ-grenoble-alpes.fr)

## Course location(s) - City

📍 Grenoble

## Campus

🏠 Grenoble - University campus

# Program

## Master applied mechanics 1st year

### Semester 7

	Nature	CM	TD	TP	Crédits
UE Solid mechanics	Teaching Unit (UE)	24h			3 credits
UE Fluid mechanics	Teaching Unit (UE)			6h	3 credits
UE Experimental techniques and methods 1	Teaching Unit (UE)				3 credits
UE Numerical methods in solid and fluid mechanics 1	Teaching Unit (UE)			12h	3 credits
UE Image and signal processing	Teaching Unit (UE)				3 credits
UE English	Teaching Unit (UE)				3 credits
UE French as a foreign language	Teaching Unit (UE)				3 credits
UE Plastic analysis of structures	Teaching Unit (UE)				3 credits
UE Physics of granular media	Teaching Unit (UE)				3 credits
UE Convection in industrial and geophysical flows	Teaching Unit (UE)				3 credits
UE Instabilities and turbulence	Teaching Unit (UE)				3 credits
UE Basic geomechanics	Teaching Unit (UE)				3 credits
UE Introduction of geophysical fluids dynamics	Teaching Unit (UE)				3 credits
UE Mechanics of material	Teaching Unit (UE)				3 credits
UE Multiphysical couplings (THCM)	Teaching Unit (UE)				3 credits

UE Environmental flows	Teaching Unit (UE)	16h	8h	3 credits
UE Wave in fluids	Teaching Unit (UE)			3 credits
GS_GREEN_UE Climate and Energy for a Sustainable Transition	Teaching Unit (UE)			3 credits
UE Research project 1	Teaching Unit (UE)		30h	6 credits
GS_Soft-Nano_UE-Research Methodologies	Teaching Unit (UE)			6 credits

## Semester 8

	Nature	CM	TD	TP	Crédits
UE Experimental techniques and methods 2	Teaching Unit (UE)				3 credits
UE Numerical methods in solid and fluid mechanics 2	Teaching Unit (UE)	5h	10h	9h	3 credits
UE English	Teaching Unit (UE)				3 credits
UE French as a foreign language - Semester 8	Teaching Unit (UE)				3 credits
UE Plastic analysis of structures	Teaching Unit (UE)				3 credits
UE Physics of granular media	Teaching Unit (UE)				3 credits
UE Convection in industrial and geophysical flows	Teaching Unit (UE)				3 credits
UE Instabilities and turbulence	Teaching Unit (UE)				3 credits
UE Basic geomechanics	Teaching Unit (UE)				3 credits
UE Introduction of geophysical fluids dynamics	Teaching Unit (UE)				3 credits
UE Multiphysical couplings (THCM)	Teaching Unit (UE)				3 credits

UE Mechanics of material	Teaching Unit (UE)			3 credits
UE Environmental flows	Teaching Unit (UE)	16h	8h	3 credits
UE Wave in fluids	Teaching Unit (UE)			3 credits
GS_GREEN_UE_Energy Systems for the Transition	Teaching Unit (UE)			3 credits
UE Research Internship M1 AM	Teaching Unit (UE)			6 credits
GS_Soft-Nano_UE_Internship	Teaching Unit (UE)			6 credits
UE Research project 2	Teaching Unit (UE)		60h	12 credits