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SCIENCES, TECHNOLOGIES, SANTÉ, INGÉNIERIE

Parcours Biohealth engineering 1st year

Master Ingénierie de la santé

Université Grenoble Alpes

Niveau d'étude visé
Bac +4

ECTS
60 crédits

Durée
1 an

Composante
UFR Pharmacie

Langue(s) d'enseignement
Anglais

Présentation

The master's program in BioHealth Engineering (BHE) provides a solid foundation for the development of sustainable biotechnological solutions and their use in health care. Students acquire knowledge about state-of-the-art techniques, experience in operating technological platforms and analyzing big data in the context of human health. Graduates have the competence necessary to research and develop diagnostics, disease prevention tools and therapies.

With the rapid advance of biomedical engineering, life sciences and physical sciences have converged to create a new discipline: biomedicine. This convergence is helping scientists to make important breakthroughs, such as innovative tools for diseases detection and drug design and delivery, for modeling diseases progression and drug response aiming at improving our skills in personalized medicine. Over the past 150 years, thanks to basic and translational science, average life expectancy has increased leading to an increased occurrence in chronic diseases. There is consequently a growing need for scientists to increase their knowledge in multi-pathologic models in order to adjust biomedical innovations. Postgraduate recruits to the fast-growing sector of biomedical engineering will need to bring not only their expertise in a particular field, but also a thorough grounding in a range of technologies and the ability to apply their knowledge and skills to the design of new products and services.

Admission

Conditions d'admission

The master of Health Engineering is open only to initial training education. It is accessible on file (and / or interview) to the candidates having validated a bachelor degree (equivalent to 180 ECTS) in biology, biotechnology, biochemistry, chemistry, physics, mathematics, informatics. Also opened to MD or PharmD with a strong scientific background, students in veterinary medicine, life science engineering. Other profiles after examination by the selection committee

Tuition fees: 3500€/year. Exemption possible on request justifying financial issues, after agreement of the selection committee

Scolarships: GS@UGA: LWLW or PH covers the 2 years (M1+M2) as well as the M2 internship gratification), see links above

Informations non contractuelles.
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Idex: https://www.univ-grenoble-alpes.fr/call-for-applications-idex-master-scholarships-2025-2026-academic-year-1545508.kjsp

GS Chemistry Biology and Health: only for newcomers

Candidature

How to apply depends on your profile ?

You are a student of French nationality, or you reside in the EU, or you reside in a country not covered by the Studies in France procedure (see below), you must apply via the MonMaster application (only in Frnech, please ask for help): https://monmaster.gouv.fr/formation

You live in one of the countries below. You are therefore subject to the Studies in France procedure online applications entered on the Campus France site.

Afrique du Sud, Angola, Arménie, Azerbaïdjan, Algérie, Arabie Saoudite, Argentine, Bahreïn, Bénin, Birmanie, Bolivie, Brésil, Burkina Faso, Burundi, Cambodge, Cameroun, Canada, Chili, Chine, Colombie, Comores, Congo, Corée du Sud, Côte d'Ivoire, Djibouti, Émirats arabes unis, Égypte, Equateur, États-Unis, Ethiopie, Gabon, Géorgie, Ghana, Guinée, Haïti, Hong Kong, Inde, Indonésie, Iran, Israël, Japon, Jordanie, Kenya, Koweït, Liban, Madagascar, Malaisie, Mali, Maroc, Maurice, Mauritanie, Mexique, Népal, Nigeria, Pakistan, Pérou, Qatar, République Centrafricaine, République démocratique du Congo, République dominicaine, Royaume-Uni, Russie, Rwanda, Sénégal, Singapour, Taïwan, Tchad, Thaïlande, Togo, Tunisie, Turquie, Ukraine, Vietnam.

The application dates are listed on the Campus France website.

Public cible

- Non French speaking students with a background in biology, biotechnology, biochemistry, chemistry, physics, mathematics, informatics

- French speaking students wishing to follow courses in English and to include a mobility in their 2nd year (courses or internship) – B2 level in English is required

Droits de scolarité

To be defined.

Et après

Poursuite d'études

What's next?

2nd Year of Master BHE : https://formations.univ-grenoble-alpes.fr/fr/catalogue-2021/master-XB/master-ingenierie-de-la-sante-IAQKSXOB/parcours-biohealth-engineering-2nd-year-IBKJR8K0.html

2nd Year Master AI4OH : https://www.masterai4onehealth.eu/

2nd Year Master BeinP Erasmus Mundus : https://www.beinprecisionmedicine.eu/apply/

Frenck speaking 2nd Years Master specialization from Research in the biohealth field, particularly in the following areas: biotechnologies, environmental toxicology, public health, innovative medical devices.

Infos pratiques

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Contacts

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Programme

Organisation

The first year of the Master BHE aims at teaching basic sciences (basic technical skills in biology and biochemistry, statistics, drug design and modeling, physiology, pharmaceutical formulation) and initiation in innovative biomedical engineering (DNA/membrane/cell system technologies, data training). It consists in two terms named S7 and S8 (~30 ECTS each) of mandatory and elective teaching classes.

S7 contains most of the mandatory courses while students can choose among two specialization tracks starting from S7 and continuing during S8: one is more dedicated in developing practical and theoretical school in Biotechnology for health and the other track aims at opening the route to becoming a specialist in Data Processing for Health. Acute skills are also acquired thanks to a research project from 2 to 5 months during S8.

Among theses scientific teaching, students also have the opportunity to enroll for 6 ECTS credits to thematic programs from the Graduate School @UGA and apply for a scholarship.

One of them is dedicated to Living Well, Aging Well, considering aging from a global and complex perspective including social sciences, history, geography, sports, psychology… (webpage here) – B1 in French recommended

The other one is dedicated to physical and numerical methods in health (webpage here)

Master 1re année

Semestre 7

	Nature	CM	TD	TP	Crédits
Planning and communication in science	UE				3 crédits
Physiology	UE				3 crédits
Pharmaceutical formulation	UE				3 crédits
Informatics and statistics	UE				3 crédits
Biotechnology of DNA systems	UE				3 crédits
French as a foreign language (Fall or Spring semester)	UE				3 crédits
Cell systems biology	UE				3 crédits
Practical aspects of biotechnology-biochemistry fundamentals	UE				3 crédits
Practical aspects of biotechnology-cell biology and microbiology fundamentals	UE				3 crédits
Practical aspects of biotechnology-Purification and Analysis of Biomolecules	UE				3 crédits

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Data management technologies, policies and ethics (Fall or Spring semester)	UE				3 crédits
Scientific Programming (sigma)	UE				6 crédits
Health Innovation Report	UE		21h		3 crédits

Semestre 8

	Nature	CM	TD	TP	Crédits
Internship or Tutorial project	UE				12 crédits
Introduction to drug discovery and drug design	UE	18h	3h	3h	3 crédits
English for research	UE				3 crédits
Hackathon project	UE				3 crédits
Biotechnology engineering: design, experimentation and marketing	TP	6h	24h	65h	12 crédits
Data challenge (sigma)	UE				6 crédits
Image processing (sigma)	UE				6 crédits

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