

Parcours Biohealth engineering 2nd year

Master Ingénierie de la santé



Niveau d'étude
visé
Bac +5



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.

Thus, the first year of the Master BHE aims at teaching basic sciences (basic technical skills in biology and chemistry, statistics, drug design and modeling, physiology, English) and initiation in innovative biomedical engineering (DNA/membrane/cell system technologies, data training). The 1st year of the master's program in BioHealth Engineering (BHE) consists in two terms (S7 and S8) of courses. Each term consist of approximately 30 ECTS credits. The courses presented on this page apply to studies starting in autumn 2022.

Formation internationale : Formation ayant des partenariats formalisés à l'international

Organisation

Aménagements particuliers

L'UGA s'attache à offrir aux personnes en situation de handicap des conditions d'accueil et d'accompagnement adaptées à leurs besoins et à leurs projets.

Se faire reconnaître travailleur handicapé et **Bénéficiaire de l'Obligation d'Emploi (BOE)**, par la **Reconnaissance de la Qualité de Travailleur Handicapé (RQTH)**, peut vous permettre de bénéficier de tous les accompagnements techniques et humains possibles et de prétendre à des droits particuliers.

[Page web et contact](#)

Vous trouverez toutes les informations sur la **validation d'acquis** (VAE - VAPP) [ici](#).

Stage à l'étranger : En France ou à l'étranger

Admission

Conditions d'admission

The master of Health Engineering is open in initial training and continuing education. The 2nd year is accessible on file (and / or interview) to the candidates having validated the 1st year of master of a compatible course or else by a validation of studies or acquired according to the conditions determined by the university or training.

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 training under the continuous training regime one of the previous 2 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 \(VAPP\)](#)

You can also consult the prices applying to the public of the continuing education (link : <https://www.univ-grenoble-alpes.fr/consulter-nos-tarifs/>)

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 [ecandidat](#) application on the dates below :

- Only the 2nd year of the Master in health engineering is in English language: application from the **25th of february 2025 to the 29th of april 2025**.
- 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.
 - The application dates are as follows: from 01 october 2024 to 15 december 2024. These dates are also listed on the Campus France website.
- The "Studies in France" procedure only concerns students residing in one of the following 41 countries: Algeria, Argentina, Benin, Brazil, Burkina Faso, Burundi, Cameroon, Chile, China, Colombia, Comoros, Congo Brazzaville, South Korea , Ivory Coast, Djibouti, Egypt, United States, Gabon, Guinea, India, Indonesia, Iran, Japan, Kuwait, Lebanon, Madagascar, Mali, Morocco, Mauritius, Mauritania, Mexico, Peru, Democratic Republic of the Congo, Russia , Senegal, Singapore, Taiwan, Togo, Tunisia, Turkey and Vietnam.
- For more information, we invite you to consult the master of Health engineering website or the training catalog

Public cible

Non French speaking students with a background in :

- Molecular biology, cellular biology and biotechnologies (biotechnology courses)
- Biology, biochemistry, toxicology (health-environment courses)
- Medical imaging, signal processing, informatics... (innovative medical devices courses)

This program is also open to students with a medical or pharmaceutical background. This MSc can also be selected by french speaking students wishing to follow courses in english and to include a mobility in their 2nd year (courses or internship).

- Students from the first year of Master's programme (M1) « Ingénierie de la Santé »
- Students who have validated 4 years of higher education in biology, chemistry- biology...
- Students who validated 5 years of Pharmacy studies – industrial or research track

- MD or PharmD students with a strong scientific background, students in veterinary medicine
- Students in life sciences engineering
- Other profiles, after examination by the selection committee

Droits de scolarité

3500 € specific participation costs + national costs

Et après

Poursuite d'études

Health4life leads on naturally to PhD positions and/or R&D careers in world-leading industries, high-potential start-ups, teaching hospitals and universities, where students are able to utilise their skills in collaborative cutting-edge research and innovation projects, translating technologies into viable applications for the benefit of all.

Our multidisciplinary, two-summer school programme offers diverse perspectives in all areas of health.

Examples of prospects :

- Pursuing doctoral thesis studies (around 40% of students are doing a thesis in France or elsewhere)
- Executive in hospital and industrial teams in the health sector
- Research engineer in academia
- Creation of start-ups in the field of engineering for health

Insertion professionnelle statistiques

Find all the information concerning the success rate at the diploma and the future of our graduates

(link: <https://www.univ-grenoble-alpes.fr/formation/devenir-de-nos-diplomes/>)

It is also possible to consult our resource documents From studies to employment classified by fields of training (link:

<https://prose.univ-grenoble-alpes.fr/metiers-secteurs/choisir-une-thematique-ou-un-secteur/>)

Secteur(s) d'activité(s)

Research in the biohealth field, particularly in the following areas: biotechnologies, environmental toxicology, public health, innovative medical devices.

Infos pratiques

Contacts

Responsable pédagogique

Ahcene Boumendjel

✉ Ahcene.Boumendjel@univ-grenoble-alpes.fr

Responsable pédagogique

Michel Seve

✉ Michel.Seve@univ-grenoble-alpes.fr

Responsable pédagogique

Valerie Guieu

✉ Valerie.Guieu@univ-grenoble-alpes.fr

Responsable pédagogique

David Warther

✉ david.warther@univ-grenoble-alpes.fr

Secrétariat de scolarité

Scolarité BHE

✉ masterbhe@univ-grenoble-alpes.fr

Établissement(s) partenaire(s)

ESI - BioHC Summer Schools

<http://www.esi-archamps.eu/Thematic-Schools/Discover-bioHC>

Lieu(x) ville

 Grenoble

Campus

 Grenoble - La Tronche domaine de la Merci

En savoir plus

Site web du master Ingénierie de la santé

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

Programme

Spécificités du programme

Programme en cours de saisie, se référer aux MCCC dans les pièces à télécharger.

Master 2e année

Semestre 9

	Nature	CM	TD	TP	Crédits
UE Computer-based medicine for chronic diseases (ESI summer school archamps)	UE	40h	35h	15h	6 crédits
UE Proteomics for health research	UE	11h	14h		3 crédits
French as a foreign language (Fall or Spring semester)	UE				3 crédits
UE other UGA's mentions	UE				
UE other UGA's mentions	UE				
UE Innovative cell and gene therapies	UE	50h	10h	15h	6 crédits
UE Animal experimentation	UE	21h		7h	3 crédits
UE Modeling in environmental health	UE				
UE Micro and nanotechnologies for health	UE	24h	6h		3 crédits
UE Pollutants and health	UE	23h	3h		3 crédits
UE Anglais	UE		24h		3 crédits
UE Application of AI for Healthcare	UE	12h	12h		3 crédits
UE Artificial intelligence for OMICS	UE	40h	10h		6 crédits
UE BioHC School "Learning for health data"	UE	20h	30h		6 crédits
UE Biomedicines innovative project	UE	15h	15h		6 crédits
UE Regenerative medicine innovative project	UE	15h	15h		6 crédits
UE In vitro diagnostics innovative project	UE				6 crédits
UE Treatment and prophylaxis of infectious diseases	UE	27h	3h		3 crédits
UE Data analysis in health and environment	UE				3 crédits
Data management technologies, policies and ethics (Fall or Spring semester)	UE				3 crédits
UE Drug repositionning	UE			8h	3 crédits
UE Ethical and societal aspects of Artificial Intelligence	UE	12h	10h		3 crédits

UE Genetics and epigenetics of infertility	UE	24h	3 crédits
UE Internet of things and AI for Health	UE		3 crédits
UE Introduction to AI for Health	UE		3 crédits
UE Machine learning and Deep learning for health	UE		3 crédits
UE Market analysis, finance, strategy	UE	30h	3 crédits
UE Methods and means for biohealth research	UE		6 crédits
UE Neural network modelling AI for Health Applications	UE		3 crédits
UE Biomarkers and In Vitro Diagnostics	UE		6 crédits

Semestre 10

	Nature	CM	TD	TP	Crédits
UE Ecole BioHC (Une école au choix parmi les écoles organisées)	UE				6 crédits
UE Entrepreneurship essentials (EIT)	UE				6 crédits
UE Projet Tutoré	UE				6 crédits
UE Stage EIT	UE				18 crédits
UE Stage 24 ECTS	UE				24 crédits
UE Stage	UE				30 crédits