

MASTER

Public Health

Master 2 Public Health Data Science

Face-to-face and online

What is public health data science?

A way of gathering, analyzing and linking information about people and their health to improve healthcare for all. It is an emergent discipline, arising at the intersection of (bio) statistics, computer science, and epidemiology. It generates data-driven solutions by employing critical thinking and analytics to create knowledge from (big) data.

Training objectives

- › To train professionals in the data science field applied in public health either, in the industry or public sectors.
- › To provide basic skills (scientific expertise, management of complex issues, capacity to manage informational and technological data, etc.) to integrate a PhD program within a research team.
- › To develop knowledge skills that allow to manage projects or multidisciplinary programs in data science in collaboration with partners and networks involved.
- › To know how to conduct research based on public health, from project design to data analysis and presentation of results.
- › To have multidisciplinary skills in epidemiology, computer science and biostatistics.
- › To know how to understand strengths and limits of technologies and digital approaches to public health.

Required profiles

This Master program is for English-speaking students and professionals with an appetite for data science. Prior training in epidemiology, biostatistics and/or in medical informatics is required to attend the courses.

Candidates must be comfortable with data manipulation: data management, analysis, and interpretation. Knowledge of R and Python software is strongly recommended.

For working professionals, it is requested to follow all the courses (face-to-face and online) without any exception: attendance at all courses is mandatory. No time adjustment is allowed to complete the program over 2 years for candidates engaged in professional activities.

Program structure

Semester 3

› Basics (6 ECTS)

Focus on basic knowledge and the functional capabilities of the tools used in health data analytics.

› Electronic health data (6 ECTS)

Focus on the skills required to conceptualize, manage, analyze and communicate via health research carried out by Electronic Health Records (HER) and medicoadministrative databases (MA-DBs).

› Digital cohorts (3 ECTS)

Focus on the skills required to conceptualize, manage, analyze and communicate via cohort studies that integrate digital tools.

› Web-based data (6 ECTS)

Focus on the abilities needed to prepare public health studies which integrate data from social networks and web forums, linked open data and mobile data.

› Omics data (6 ECTS)

Focus on the abilities needed to conceptualize, manage, analyze and communicate using clinical studies that integrate high dimensional data.

Semester 4

› Value creation (3 ECTS, online)

Focus on the dissemination of research results in the academic and industry domains, by developing communication and entrepreneurial skills.

› Internship (30 ECTS)

Students complete their internship either with the research team that generated a project case study during the Public Health Data Science Master's program or else with a team from the extensive research network of the Graduate Program.

Strengths of the program

- › Multidisciplinary training involving the teaching teams of the Bordeaux School of Public Health as well as French and international researchers.
- › Possibility of a double degree between France (University of Bordeaux) and Canada (McGill).
- › Innovative training with flipped classrooms focused on data handling and e-learning courses.

Support services

- › Personalized support and follow-up of students by the teaching team, the scientific director and the pedagogical manager, throughout the year.
- › Individual and collective supervision by the teachers (in person and online).

Professionalization

Mandatory internship between January and August (from 16 to 24 weeks).

Research and professional support

- › Environment of the Inserm U1219 Bordeaux Population Health research center.
- › Numerous collaborations with other research teams in France and abroad.
- › Partnership with the University Bordeaux Montaigne, Science Po Bordeaux, Inserm, Inria.

Acquired competences

- › At the end of the MSc, the student is able to:
- › Wrangle and transform health data to perform meaningful analyses.
- › Visualize and interpret health data and effectively communicate results and findings.
- › Apply statistical methods to draw scientific conclusions from health data.
- › Utilize statistical models and machine learning
- › Collaborate with a team on health data-driven research projects.

And after?

Professional insertion

Positions held by students at the end of their training are all professions whose activity involves, even partially or indirectly, data science in the healthcare field.

More specifically:

- › Researchers or engineers in University and private research teams,
- › Technicians in medical companies, start-ups or contract research organizations (CROs),
- › Digital health consultants or specialists in industry or government departments and agencies,
- › Project managers in a public or private department specialized in data science

Possible further studies

At the end of this Master's degree, students can begin a PhD program.

Program Fact sheet

Diploma

- › 2nd year of Master's degree

Track

- › Public Health

Speciality

- › Public Health Data Science

Location of the training

- › Isped - Carreire site of the University of Bordeaux

Number of places

- › 21 students

Application Requirements

- › Students not having interrupted their studies who have validated:
 - Either 1 year or 2 years of a Master's degree in epidemiology, medical informatics or biostatistics;
 - Either 1 year or 2 years of a Master of Science including the validation of several teaching units in data science, epidemiology, medical informatics or biostatistics.
- › Adults having interrupted their studies* who have or have had professional activities related to the core disciplines of the diploma and:
 - Having validated at least 4 years at the University;
 - Having undergone the validation procedure of the University of Bordeaux concerning their professional and personal experiences.

* This public refers to adults returning to the University (continuous training).

Including:

- Employees in the private sector and civil servants,
- Job seekers,
- Non-employees,
- General public: Anyone can register to this training.
- Beneficiaries with prior learning recognition: total or partial VAE (acquired experience validation), VAPP (recognition of personal and professional learning) allowing to obtain a national diploma.

Language requirements

This program is taught entirely in English. Excellent proficiency in English is therefore required. Non-native English-speaking students have to provide a TOEFL or IELTS certification (TOEFL score of 550/213/79-80 or IELTS score of 6.0).

Training organization

- › Possibility of entering directly to second year of the Master's program without attending the first year of the Master's degree in Public Health at Isped.
- › 1 year divided into 2 semesters, full-time.
- › Theoretical in-class training from early September to mid-March, i.e. 25 weeks of classes, followed by an internship of 6 months.
- › Dissertation defense: late June – September/October

Organization of the courses

- › According to each teaching unit (TU), courses include lectures, tutorials, projects and group workshops.
- › Definition of the internship subject and its follow-up carried out through workshops with the whole class and the members of the teaching team.

Teaching Hours

- › Semester 3: 300 hours.
- › Semester 4: 40 hours + 560 hours of internship.

Knowledge Assessment

- › Courses are organized into TUs and are credited with ECTS.
- › To obtain the diploma, validation of the TUs from both semesters.
- › For each TU: specific knowledge tested by a continuous assessment (individual or by group, oral or written) and/or a final exam.
- › Internship with a written dissertation and oral presentation facing a jury.

Special terms and conditions

- › Training with or without interruption, validation of professional experience.

International

- › Possibility to do the internship abroad (international mobility assistance offered locally).
- › Possibility to apply for a double degree with McGill (first year of the MSc).

Fees and scholarships

Students not having interrupted their studies

Scholarships*

Adults having interrupted their studies

Scholarships*+ Training costs : 4300 €

* For information, 243 € in 2022-2023 for French and EU students, 3770 € for foreign students except EU + CVCU 100 €.

Financial aid may be granted to selected applicants according to criteria of excellence.

Location of the training

Bordeaux School of Public Health

University of Bordeaux

146 rue Léo Saignat - CS61292

33076 Bordeaux Cedex

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Digital Public
Health
Graduate Program

université
de BORDEAUX



Contacts

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Responsible of continuing education

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Management of Bachelor's and Master's courses -Health Department

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Continuous Health Education Unit (UMFCS) for VAE-VAPP

› isped.fc@u-bordeaux.fr

PHASE service (for disabled students, artists, athletes)

› Nelly Garcia

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More information

www.isped.u-bordeaux.fr

How to apply?

Please contact: dph@u-bordeaux.fr

Required documents to apply:

- › Application form
- › Copy of the Graduate certificates/ diplomas
- › Previous transcripts and study plan
- › Curriculum Vitae
- › Cover letter (2 pages max)
- › Recent English Certificate
- › Optional recommendation letters

Selection based on documents and an interview.



In December 2023, Isped was accredited as a School of Public Health by the **Agency for Public Health Education Accreditation (APHEA)**. This international recognition underlines the quality of the training on offer and the excellence of the programmes offered in the field of public health, as well as the resources deployed to welcome students and the general public.