MHEDAS
MASTER HEALTH DATA SCIENCE

Master's Degree in Health Data Science

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Master Health Data Science

UNIVERSITAT ROVIRA i VIRGILI

UGA Université Grenoble Alpes

UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

UNIVERSITAT DE BARCELONA

UAB Universitat Autònoma de Barcelona

Universitat de Girona

Universitat de Lleida

UVIC UNIVERSITAT DE VIC UNIVERSITAT CENTRAL DE CATALUNYA

eit Health

Co-funded by the European Union

BIOINFORMATICS BARCELONA

AMGEN®

BASQUE HEALTHCLUSTER

Master's Degree in Health Data Science

Sergio Gómez, Maria Vinaixa (URV)

Outline

- Overview
- Academic information
- Syllabus
- Q&A

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Context

- Big data in healthcare growing fast
- Potential to advance towards precision medicine
- Increasing workforce demand and short supply of specialists
  - Manage, process, get value and knowledge out of these data
- Educational gap

Health data science

- Emerging, fast moving and multidisciplinary discipline

Health data scientist

- Specialist with interdisciplinary mindset
- Collaborative work with faculty and healthcare providers
- Develops and creates models, algorithms and tools
- Uses data mining, statistics, statistical modeling, machine learning and artificial intelligence to understand relationships in health data
- Translates analytics into information
- Large opportunities for entrepreneurship

Our vision

- Build an interdisciplinary domain-dependent technological program
  - Leveraging computational and information sciences to solve problems relevant to biomedicine and healthcare
- Participated by universities, companies, hospitals, and scientific and technical infrastructures
- International
- Promote open science and open education principles, prioritize open resources (data, tools and software)
- Core competencies assembled over the big data value chain
- Train entrepreneurs in the field of digital health

Result

- Master’s Degree in Health Data Science (MHEDAS)

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  - Built upon our previous

Master's Degree in Health Data Science

- Joint effort of eight Universities

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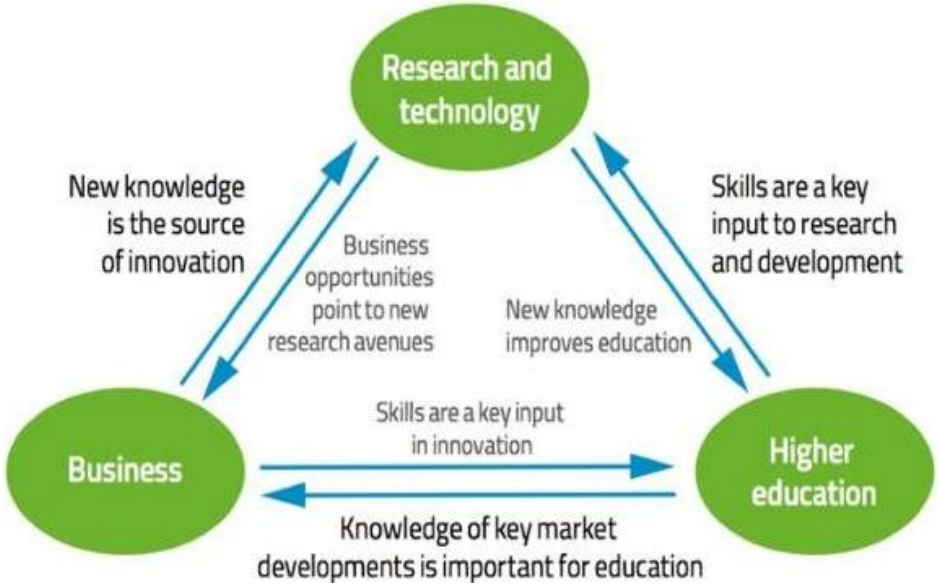
Master's Degree in Health Data Science

- Supported by

- Non-academic partners

Master's Degree in Health Data Science

- **EIT** (European Institute of Innovation and Technology) is an EU body created in 2008 to strengthen Europe's ability to innovate



Master's Degree in Health Data Science

- **EIT** (European Institute of Innovation and Technology) is an EU body created in 2008 to strengthen Europe's ability to innovate

- **EIT Health** is a KIC (Knowledge Innovation Communities) of EIT, established in 2015

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Master's Degree in Health Data Science

Academic information	
ECTS	120
Duration	Two academic years
Type	Online
Language	English
Dates	1st course: September 2026 – June 2027 2nd course: September 2027 – June 2028
Group size	80
Fees	~ 2600€ (UE, Iceland, Norway, Liechtenstein, Switzerland, Andorra*, or resident in Spain) Rest of students: ~ 5800€ (prices for 2025-26)

Master's Degree in Health Data Science

- Teaching
  - URV Virtual campus
  - Synchronous classes / activities
    - Between 14:00h to 18:30h (CET)
  - Mostly practical activities

  - Singular subjects
    - Summer School: 1.5 weeks, end of Q2, face-to-face and online
    - Internship
    - Master's Thesis

Master's Degree in Health Data Science

- Student's profile
  - Graduates with scientific and technical qualification related to bioinformatics, science, and engineering
    - Graduates in biomedical engineering, bioinformatics, computer science, mathematics, physics, statistics, and other related engineering

  - Candidate's requirements
    - English competence (B2 level certificate or equivalent)
    - Digital competence to properly handle virtual training
    - Strong mathematical grounding
    - Good programming skills

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Master's Degree in Health Data Science

- Global view

Year	1st		2nd		Total (ECTS)
Semester	Q1	Q2	Q3	Q4	
Compulsory	22.5	30	15		67.5
Elective	7.5	0	15	6	28.5
Internship				15	15
Master's Thesis				9	9
Total (ECTS)	30	30	30	30	**120**

Semester Q1, compulsory (22.5 ECTS)	ECTS
Electronic health records	4.5
Scientific programming	4.5
Biomedical statistics	6
Medical imaging	4.5
Citizens and patients activities	3

Semester Q2, compulsory (30 ECTS)	ECTS
High-performance and distributed computing	6
Advanced health data analysis	6
Machine learning	6
Business Lab	6
Summer School	6

Semester Q3, compulsory (15 ECTS)	ECTS
Ethics, regulation and privacy	4.5
Project and research methodologies	4.5
Deep learning	6

Semester Q4, compulsory (24 ECTS)	ECTS
Internship	15
Master’s thesis	9

Semester Q1, elective (7.5 ECTS)	ECTS
Biomedical sensors and signal processing	3
Complex networks	4.5
Health data visualization and communication	4.5
Biomedical data challenges	3
Biomedicine for engineers	4.5

Semester Q3, elective (15 ECTS)	ECTS
Biomedical sensors and signal processing	3
Complex networks	4.5
Health data visualization and communication	4.5
Text mining for healthcare	3
Computational epidemiology	4.5
Clinical -omics and translational medicine	4.5
Computer-aided diagnosis and decision making	4.5
Environmental health data analysis	3
IOT and AI for health	3
Proteomics for health research	3

Semester Q4, elective (6 ECTS)	ECTS
Advanced medical image analysis	4.5
Health data integration	3
Prediction of dynamic behavior in molecular networks	3
Tools for neuroengineering and neuroimaging	3

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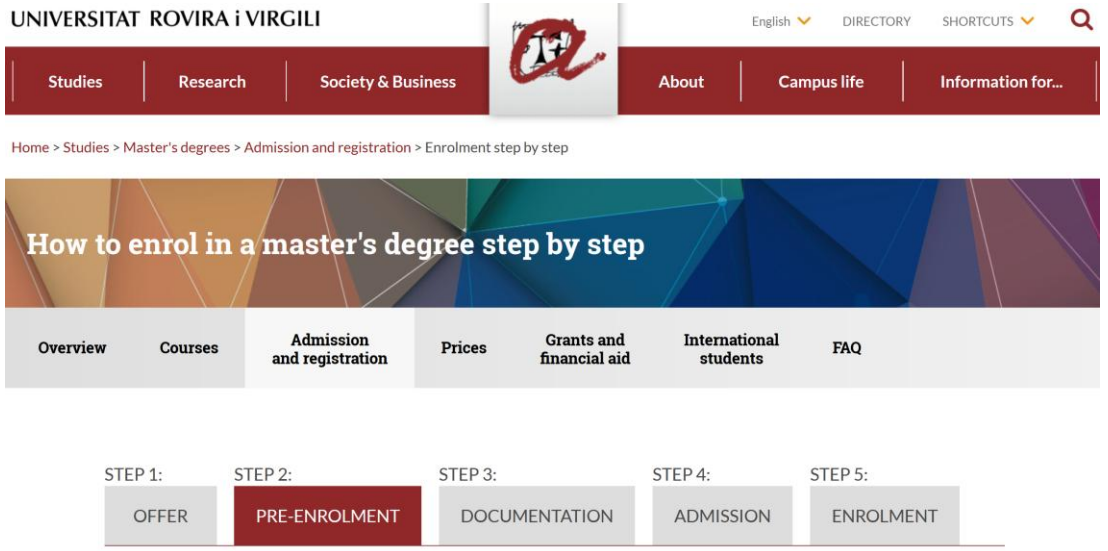
Master's Degree in Health Data Science

- Pre-enrollment calendar
  - Phase 1: March 2 – April 9
  - Phase 2: April 10 – May 14
  - Phase 3: May 15 – July 7
  - Phase 4: July 8 – Sept. 9

- Web: https://www.urv.cat/en/studies/master/courses/health-data-science/
- E-mail: master.health.data@urv.cat

Master's Degree in Health Data Science

- Pre-enrollment details
  - Technical validation
  - Academic admission
    - If your Bachelor's Degree is not in the list, you must ***prove*** your programming skills
  - If admitted
    - Pay a deposit of 400€ to guarantee your place



Master's Degree in Health Data Science

- Enrollment details
  - Only one enrollment period per academic year
  - Full-time dedication
    - Enroll 60 ECTS/year
  - Part-time dedication
    - Recommended: enroll ~40 ECTS/year
  - There are periods for enrollment amendments

Master's Degree in Health Data Science

- Visa for international students?
  - No, since MHEDAS is fully online

- Grants
  - One for MHEDAS (3000€)

Thank you for your attention!

MHEDAS
MASTER HEALTH DATA SCIENCE

- Contact
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  - Secretary
    - masters.scs@urv.cat

- Web
  - https://www.urv.cat/en/studies/master/courses/health-data-science/