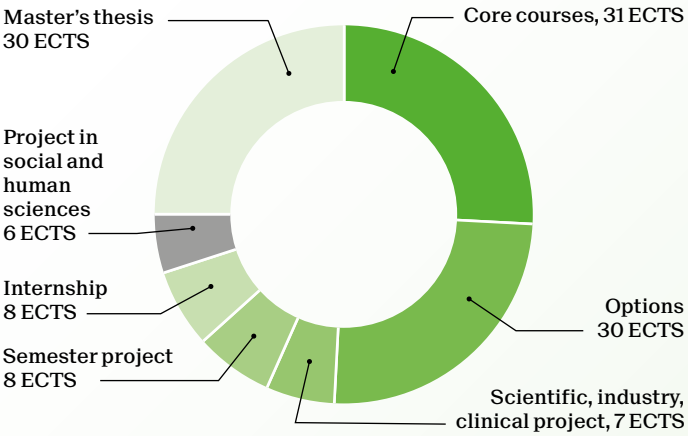
Master of Science in

NEURO-X

2-year program - 120 ECTS



	Credits
Core courses	**31**
Computational neuroscience: Biophysics	5
Computational neuroscience: Neuronal Dynamics	5
Machine Learning	7
Neural Interfaces	6
Neural Signals and Signal Processing	6
Neuroscience: Behavior & Cognition	5
Neuroscience: Cellular and Circuit Mechanisms	5
Neuroscience: From Molecular Mechanisms to Disease	5
Translational Neuroengineering	6

Options	**30**
Area: Technology	
Analysis and modelling of locomotion	4
Basics of robotics	3
Bioelectronics and biomedical microelectronics	3
Biomaterials and tissue engineering	4
BioMEMS	2
Controlling behavior in animals and robots	4
Computational motor control	4
Design technologies for integrated systems	6
Flexible bioelectronics	3
Fundamentals of biosensors and electronic chips	3
Haptic human robot interfaces	3
Neuroengineering on vision	4
Sensors in medical instrumentation	3
Virtual reality	4
Area: Data Science and Machine Learning	
Applied biostatistics	5
Applied data analysis	6
Applied machine learning	4
Applied probability and stochastic processes	4
Artificial neural networks	4
Biomedical signal processing	6
Brain-like computation and intelligence	4
Deep learning	4
Dynamical system theory for engineers	4
Introduction to natural language processing	4
Machine learning for behavioral data	4
Mathematics of data: from theory to computation	4
Optimization for machine learning	5
Understanding statistics and experimental design	4
Area: Imaging and image analysis	
Advanced computer graphics	6
Biomedical optics	3
Biomicroscopy I	3
Biomicroscopy II	4
Computer vision	4
Image analysis and pattern recognition	4
Image Processing I	3
Image Processing II	3
Fundamentals of biomedical imaging	4
Fundamentals of biophotonics	3
Area: Scientific thinking	
Scientific literature analysis in neuroscience	4
Scientific project design in integrative neurosciences	4
Scientific project design in translational neurosciences	4

Students may choose a minor (30 ECTS), e.g.:

- Biocomputing
- Biomedical technologies
- Biotechnologies
- Computational science and engineering
- Data science
- Management, technology and entrepreneurship

Career prospects

Thanks to their interdisciplinary profile and their translational spirit, graduates will have the opportunity to become future leaders, start-up managers, or innovative health professionals in the industry (MedTech, pharmaceutical companies or health care), in hospitals and in research in general. Their ability to see the big picture in terms of systems combined with a realistic perspective of what it means to develop and manufacture a product, as well as their ability to interact with many other types of experts in this field makes them highly esteemed professionals.

School of Life Sciences
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