Master of Science in NEURO-X
2-year program - 120 ECTS

Core courses, 31 ECTS
- 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 ECTS

Area: Technology
- Analysis and modelling of locomotion 4
- Basics of robotics 3
- Bioelectronics and biomedical microelectronics 3
- 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: 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

School of Life Sciences
go.epfl.ch/master-neuro-x
contact: dimitri.vandeville@epfl.ch

Students may choose a minor (30 ECTS), e.g.:
- Biocomputing
- Biomedical technologies
- Biotechnology
- 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.