

## Studies Plan

### Mineur : Neuro-X 2023-24

#### Minor : Neuro-X

	Courses			Exam Session	Exam	Credit
Language	Code	Section	Teacher			
E	<b>Advanced computer graphics</b> CS-440 IN		Jakob	Sum	During the semester	6
E	<b>Advanced methods for human neuromodulation</b> NX-436 NX		Hummel	Win	Written	4
E	<b>Analog IC design</b> EE-320 EL		Shoaran	Win	Written	3
E	<b>Applied biostatistics</b> MATH-493 MA		Goldstein	Sum	During the semester	5
E	<b>Applied data analysis</b> CS-401 SC		West	Win	Written	8
E	<b>Applied machine learning</b> MICRO-455 MT		Billard	Win	Written	4
E	<b>Applied probability &amp; stochastic processes</b> MGT-484 MTE		Sutter	Win	Written	4
E	<b>Artificial neural networks/reinforcement learning</b> CS-456 IN		Gerstner	Sum	Written	6
E	<b>Basics of robotics for manipulation</b> MICRO-450 MT		Bouri	Win	Written	3
E	<b>Bioelectronics and biomedical microelectronics</b> EE-519 EL		Schmid	Win	Written	3
E	<b>Biomedical optics</b> BIOENG-445 SV		Wagnières	Win	Oral	3
E	<b>Biomicroscopy I</b> MICRO-561 SV		Altug	Win	Written	3
E	<b>Biomicroscopy II</b> MICRO-562 SV		Altug Seitz	Sum	During the semester	4
E	<b>Bio-nano-chip design</b> EE-517 EL		Carrara	Win	Written	3
E	<b>Brain-like computation and intelligence</b> NX-414 NX		Mathis	Sum	Written	4
E	<b>Causal thinking</b> MATH-352 MA		Stensrud	Win	Written	5
E	<b>Computational motor control</b> CS-432 SV		Ijspeert	Sum	During the semester	4
E	<b>Computational neurosciences: biophysics</b> NX-450 NX		Romani	Win	Written	5
E	<b>Computational neurosciences: neuronal dynamics</b> NX-465 NX		Gerstner	Sum	Written	5
E	<b>Computer vision</b> CS-442 IN		Fua	Sum	Written	6
E	<b>Controlling behavior in animals and robots</b> BIOENG-456 SV		Ramdya	Sum	During the semester	4
E	<b>Deep learning</b> EE-559 EL		Cavallaro	Sum	During the semester	4
E	<b>Deep learning in biomedicine</b> CS-502 IN		Brbic	Win	During the semester	6
E	<b>Design technologies for integrated systems</b> CS-472 IN		De Micheli	Win	During the semester	6
E	<b>Dynamical system theory for engineers</b> COM-502 SC			Sum	Written	6
E	<b>Fundamentals of biomedical imaging</b> PHYS-438 PH		Gruetter	Sum	Written	4

E	<b>Fundamentals of biophotonics</b> BIO-443	SV	Radenovic	Sum	During the semester	3
E	<b>Fundamentals of biosensors and electronic biochips</b> EE-515	EL		Win	Written	3
E	<b>Haptic human robot interfaces</b> MICRO-553	MT	Bouri Shokur	Sum	Oral	4
E	<b>Image analysis and pattern recognition</b> EE-451	EL	Bozorgtabar Thiran	Sum	During the semester	4
E	<b>Image processing I</b> MICRO-511	MT	Unser Van De Ville	Win	Written	3
E	<b>Image processing II</b> MICRO-512	MT	Sage Unser Van De Ville	Sum	Written	3
E	<b>Introduction to natural language processing</b> CS-431	IN	Bosselut Chappelier Rajman	Win	Written	6
E	<b>Machine learning</b> CS-433	IN	Flammarion Jaggi	Win	Written	8
E	<b>Machine learning for behavioral data</b> CS-421	IN		Sum	Written	6
E	<b>Mathematics of data: from theory to computation</b> EE-556	EL	Cevher	Win	Written	6
E	<b>Nanotechnology</b> MICRO-530	MT	Boero Brugger	Sum	Oral	3
E	<b>Neural circuits of motivated behaviors</b> BIO-499	SV	Kochubey Schneeggenburger	Sum	Written	4
E	<b>Neural interfaces</b> NX-422	NX	Lacour Shoaran	Win	During the semester	6
E	<b>Neural signals and signal processing</b> NX-421	NX	Micera Van De Ville	Win	Written	6
E	<b>Neuroscience: behavior and cognition</b> BIO-483	SV	Blanke Sandi	Sum	Written	5
E	<b>Neuroscience: cellular and circuit mechanisms</b> BIO-482	SV	Crochet Petersen	Win	During the semester	5
E	<b>Neuroscience: from molecular mechanisms to disease</b> BIO-480	SV	Gräff Lashuel Schneider	Win	Written	5
E	<b>Optimization for machine learning</b> CS-439	IN	Flammarion Jaggi	Sum	Written	8
E	<b>Organic and printed electronics</b> MICRO-505	MT	Briand Subramanian	Sum	Oral	2
E	<b>Project in minor Neuro-X</b> NX-493	NX	Profs divers	Sum Win	During the semester	7
E	<b>Scientific literature analysis in neuroscience</b> BIOENG-451	SV	La Manno	Win	During the semester	4
E	<b>Scientific project design in integrative neurosciences</b> BIO-493	SV	Petersen	Win	During the semester	4

<i>E</i>	<b>Sensors in medical instrumentation</b> <i>EE-511</i>	<i>EL</i>	<i>Chételat Ionescu</i>	<i>Sum</i>	<i>Written</i>	<i>3</i>
<i>E</i>	<b>Systems neuroscience</b> <i>NX-435</i>	<i>NX</i>	<i>Mathis</i>	<i>Sum</i>	<i>During the semester</i>	<i>4</i>
<i>E</i>	<b>Translational neuroengineering</b> <i>NX-423</i>	<i>NX</i>	<i>Blanke Courtine Hummel Micera</i>	<i>Sum</i>	<i>Written</i>	<i>6</i>
<i>E</i>	<b>Understanding statistics and experimental design</b> <i>BIO-449</i>	<i>SV</i>	<i>Herzog</i>	<i>Win</i>	<i>Written</i>	<i>4</i>
<i>E</i>	<b>Virtual reality</b> <i>CS-444</i>	<i>IN</i>	<i>Boulic</i>	<i>Sum</i>	<i>During the semester</i>	<i>6</i>
<i>E</i>	<b>Visual intelligence : machines and minds</b> <i>CS-503</i>	<i>IN</i>	<i>Zamir</i>	<i>Sum</i>	<i>During the semester</i>	<i>6</i>