

Master of Science in Medical Biology
2010-2011

The Master program has the minimum duration of 3 semesters and comprises 90 ECTS :

- 21 ECTS : Compulsory courses
- 15 ECTS : Optional courses
- 9 ECTS : First step project
- 45 ECTS : Personal research project (Master thesis)

Autumn Semester (semester 1)

Course	Teaching Staff	Hours per semester			ECTS Credits
		C	E/S	PW	
Compulsory					
Cellular biology	Staub O.	12	4		1.5
Immunology and cancer	Luther S.	20	4		3
Cardiovascular diseases	Diviani D.	20	4		3
From the memory to the loss of the memory	Volterra A.	16	4		2.5
Metabolic diseases	Thorens B.	16	4		3
Microbiology	Kunz S.	18	4		3
Publish or Perish: How to increase the impact of your research by a patent ?	Kohler S.	2			0.5
Intracellular signalling	Diviani D.	10	2		1.5
Total					18
Optional (choice -> 3 credits)					
LTK1 Module: Training in Animal Experimentation**	Berthonneche C.	20		20	3
Introduction to clinical research module (EH)	Tappy L.	20		20	3
Practical project					
First step project	Staub O.			282	9
Total					30

** Only the TP will take place in the autumn semester. The courses will be given to the spring semester and need to be validated to obtain 3 credits ECTS

Abbreviations

C = Course
 E/S = Exercise/Seminar
 PW = Practical Work

Master of Science in Medical Biology
2010-2011

Spring Semester (semester 2)

Course	Teaching Staff	Hours per semester			ECTS Credits
		C	E/S	PW	
Compulsory, common core					
Introduction to clinical medicine	Bonny O.	22		28	2.5
Biostatistics and Bioinformatics	Diviani D.		4		0.5
Total					3
One study path among the following four:					
Immunology and Cancer					
	Tschopp J.				12
Cancer	Fasel N., Mayer A., Brisken C., Hegi M., Ruegg C., Petrova T., Levy F.	24		12	3
Immunology	Luther S., Thome M., Held W., Tacchini F., Tschopp J., Kraehenbuhl J-P	52		36	5
Protein analysis - TP Proteomics (68) - TP Proteomics 3D-modeling (8)	Servis C., Quadroni M. Michielin O.	16		76	4
Metabolism					
	Thorens B.				12
Adipocytes and obesity	Giusti V.	4	2		0.5
Experimental techniques : transgenesis and gene knockout	Hummler E.	4	2		1
Genomics of diabetes complications	Chrast R.	4	2		1
Hypothalamus and the interaction between metabolism and reproduction	Pralong F.	4	2		1
Metabolic adaptation to fasting: role of metabolic sensors	Thorens B.	4	2		0.5
Glucose as signal in metabolism regulation	Abderrahmani A.	4	2		1
Mechanisms of hormone and neurotransmitter secretion	Regazzi R.	4			0.5
Brain metabolism	Pellerin L.	4	2		1
Lipid metabolism : theory and experimental techniques / Fetal programming	Tappy L.	4	2		1
Integrated metabolism of cholesterol	Widmann C.	4	1		1
Mitochondrion: role in energetics and cell signalling	Raddatz E.	4	2		1
G-couple receptors and autonomic nervous system	Diviani D.	4	2		1
Metabolic syndrome / epidemiology	Vollenweider P.	4	2		1
Circadian rhythm and metabolism	Gatfield D.	2	2		0.5

Master of Science in Medical Biology
2010-2011

Neurosciences	Volterra A.				12
Neuron-glia biology	Volterra A., Bezzi P., Pellerin L., Tiret P., Tschudi-Monnet F.	18	2		2
Introduction to Psychiatric Neuroscience	Schenk F., Boutrel B., Preismann D., Do K., Marquet P., Eap C. Cardinaux J.-R.,	18	2		2
Brain Development	Hornung J.-P., Chrast R., Lebrand C., Arsenijevic Y.	16		4	2
Modulation of synaptic transmission	Fasshauer D., Lüthi A., Stoop R., Martin J.-L., Pralong E.	14	2		1.5
Neuronal death occurring naturally and in pathological situations	Clarke P., Puyal J., Widmann C., Hirt L., Moore D.	14	2		1.5
Sensory functions	Welker E., Hornung J.-P., Decosterd I., Murray M., Broillet M.-C., Croquelois M.-C., Gosselin R.-D.	24			3
Pharmacological Sciences	Broillet M.-C.				12
Development of therapeutics	Broillet M.-C.	10			1
Drug design	Scapozza L.	4			0.5
Drug discovery / High through put screens	Scheer A.	4			0.5
Fundamental Principles: Pharmacokinetics / Pharmacogenomics	Firsov D.	10	2		1
Metabolism of xenobiotics	Gachon F.	4			0.5
Principles of chemotherapy : Infectious diseases	Staub O.	6	2		0.5
Principles of chemotherapy: Cancer	Staub O.	6	2		0.5
Regulation and regulatory agencies	Schild L.	2			
System Pharmacology: Cardiovascular pharmacology	Kellenberger S. Cotecchia S. Diviani D.	6	2		0.5
System Pharmacology: Neuropharmacology	Cotecchia S., Kellenberger S., Eap C.	16	2		2
System Pharmacology: Endocrine pharmacology	Hummler E.	8	2		1
Seminars on Drug Discovery & Development	Staub O.		10		1
Toxicology	Broillet M.-C.	8	2		1
Visit of an industrial pharmaceutical research center	Staub O., Broillet M.-C.			5	0.5
Optional (choice: one from these three)					
Inflammation and cancer: role of reactive oxygen species	Felley-Bosco E.	10			1.5
Development of drugs : practical aspects	Besseghir K.	10			1.5
Transgenic mice and their application in biomedical research	Hummler E.	10			1.5
Total per study path					15
Compulsory personal research project					
Personal Research Project - Master thesis	Staub O.			280	15

**Master of Science in Medical Biology
2010-2011**

Semester 3

Course			ECTS Credits
Compulsory personal research project			
Personal Research Project - Master thesis			30