

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	6		3
Cardiovascular diseases	Diviani D.	20	4		3
From memory to memory loss: Alzheimer's disease	Volterra A.	18	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.	12	4		1.5
Total					18
Optional (choice -> 3 credits)					
LTK1 Module: Training in Animal Experimentation**	Berthonneche C., Pedrazzini T.	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

Abbreviations

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

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.	18		36	
Biostatistics and Bioinformatics	Diviani D.		4		
Total					3
One study path among the following four:					
Immunology and Cancer					
	Luther S.				12
Basic immunology	Luther S., Mayer A., Held W., Thome M., Tacchini F.	22	2		
Autoimmunity, allergy and immune response to infections	Acha-Orbea H., Velin D., Zehn D., Perreau M.	17	1		
Basic concepts in cancer biology	Fasel N., Petrova T., Constantinou A., Stamenkovic I.	17	1		
Examples of tumor types	Hegi M., Nardelli D., Hantschel O.	7	1		
Immunotherapy, vaccines, drug development	Romero P., Collin N., Levy F.	11	1		
Protein analysis and peptide-based assays - TP proteomics (26) - TP peptides (26) - TP proteomics 3D-modeling (6)	Quadroni M. Servis C. Michelin O.	18	2	58	
Analysis of naive and activated lymphoid organs - 5 color flow cytometry and FlowJo analysis - Histology - Wrapping up	Wilson A., Ronet C. Luther S., Debard N., Kraehenbuel J-P. Luther S., Kraehenbuel J-P.	6	6	16	
Analysis of healthy and transformed tissues - Histology	Kraehenbuel J-P., Bosman F.		8		
Problem-based learning	Luther S., Debard N., Kraehenbuel J-P.,	5			
Metabolism					
	Widmann C.				12
Adipocytes and obesity	Giusti V.	4	2		
Experimental techniques : transgenesis and gene knockout	Hummler E.	4	2		
Genomics of diabetes complications	Chrast R.	4	2		
Hypothalamus and the interaction between metabolism and reproduction	Pralong F.	4	2		
Metabolic adaptation to fasting: role of metabolic sensors	Thorens B.	4	2		
Glucose as signal in metabolism regulation	Thorens B.	4	2		
Mechanisms of hormone and neurotransmitter secretion	Regazzi R.	4			
Brain metabolism	Pellerin L.	4	2		
Lipid metabolism : theory and experimental techniques / Fetal programming	Tappy L.	4	2		
Integrated metabolism of cholesterol	Widmann C.	4	1		
Mitochondrion: role in energetics and cell signalling	Raddatz E.	4	2		
G-couple receptors and autonomic nervous system	Diviani D.	4	2		
Metabolic syndrome / epidemiology	Vollenweider P.	4	2		
Circadian rhythm and metabolism	Gatfield D.	2	2		

Master of Science in Medical Biology
2011-2012

Neurosciences	Volterra A.				12
Neuron-glia biology	Volterra A., Bezzi P., Pellerin L., Tiret P., Tschudi-Monnet F.	18	2		
Introduction to Psychiatric Neuroscience	Do K., Boutrel B., Preismann D., Marquet P., Eap C. Cardinaux J.-R.,	18	2		
Brain Development	Hornung J.-P., Chrast R., Lebrand C., Arsenijevic Y.	16		4	
Modulation of synaptic transmission	Fasshauer D., Lüthi A., Stoop R., Martin J.-L., Pralong E.	14	2		
Neuronal death occurring naturally and in pathological situations	Toni N., Puyal J., Widmann C., Hirt L., Moore D.	14	2		
Sensory functions	Welker E., Hornung J.-P., Decosterd I., Murray M., Broillet M.-C., Croquelois M.-C., Gosselin R.-D.	24			
Pharmacological Sciences	Broillet M.-C.				12
Development of therapeutics	Broillet M.-C.	10			
Development of drugs : practical aspects	Besseghir K.	4			
Drug design	Scapozza L.	4			
Drug discovery / High through put screens	Scheer A.	4			
Fundamental Principles: Pharmacokinetics / Pharmacogenomics	Firsov D.	10	2		
Pharmacological treatment of metabolic disorders	Gachon F.	2			
Principles of chemotherapy : Infectious diseases	Staub O.	6	2		
Principles of chemotherapy: Cancer	Katanaev V.	6	2		
Regulation and regulatory agencies	Schild L.	2			
System Pharmacology: Cardiovascular pharmacology	Kellenberger S. Cotecchia S. Diviani D.	6	2		
System Pharmacology: Neuropharmacology	Cotecchia S., Kellenberger S., Eap C.	20	2		
System Pharmacology: Endocrine pharmacology	Hummler E.	8	2		
Seminars on Drug Discovery & Development	Staub O., Broillet M.-C.		12		
Toxicology	Broillet M.-C.	8	2		
Visit of an industrial pharmaceutical research center	Staub O., Broillet M.-C.			5	
Inflammation and cancer: role of reactive oxygen species	Felley-Bosco E.	10			
Transgenic mice and their application in biomedical research	Hummler E.	10			
Total per study path					15
Compulsory personal research project					
Personal Research Project - Master thesis	Staub O.			280	15

Master of Science in Medical Biology
2011-2012

Semester 3

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