UNIL | Université de Lausanne
Ecole de biologie

Master of Science in Molecular Life Sciences
2011-2012

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

possibility to obtain a mention in bioinformatics or microbiology under the conditions mentioned at the bottom of this page

Autumn Semester (semester 1)

Course	Teaching Staff	Hours per semester C	E/S	PW	Lo	ECTS Credits
General and common activities - Compulsory						
Retreat and BIG seminars	**Fankhauser C., …**				L	
Sequence a genome (Part I)	**van der Meer J.,** Robinson-Rechavi M., …	14	32		L	3
Write a review	**Fankhauser C.,** Sohrmann M., tutors	14		42	L	4
Free time for reading scientific articles etc… (14 x 4 hours)				56		
Total						**7**
Optional (choice -> 9 credits)						
Plant interactions with microbes and insects	**Keel C.**, Paszkowski U., Reymond P.	14			L	1.5
Genetics and evolution of insect and plant development	**Benton R.**, Geldner N.	14			L	1.5
Development of the nervous system	**Braissant O.**	14			L	1.5
Plant functional genetics	**Poirier Y.**	14			L	1.5
Human molecular genetics	**Rivolta C.**, Chrast R.	14			L	1.5
Biotechnology	**Poirier Y.,** Mermod N.	14			L	1.5
Protein homeostasy and adaptation of organisms to stress	**Goloubinoff P.**	14			L	1.5
Elements of bioinformatics *(compulsory for Bioinformatic distinction)*	**Bairoch A.,** Blatter MC.	36		20	G	5
Statistics and probability *(compulsory for Bioinformatic distinction)*	**Abreu Nunes J., Schütz F.**	28		28	G	5
Understanding bacterial metabolism from a genomic perspective	**van der Meer J.**	14			L	1.5
Immunology with relevance to infectuous diseases	**Nardelli D.**, Roger T.	14			L	1.5
Advanced bacterial genetics and small RNA regulation	**Collier J.**, Reimmann C.	14			L	1.5
Virus-host interactions	**Kunz S.**, Herr W., Meylan P.	14			L	1.5
Fungal virulence and pathogenicity	**Sanglard D.**	14			L	1.5
Pratical project						
First step project	**Fankhauser C.**			250		**14**
OR First step project in bioinformatics	**Robinson-Rechavi M.,** Lisacek F. Chopard B, Palagi P.			220		13
Total						**30**

Abbreviations
C = Course
E/S = Exercise/Seminar
PW = Practical Work
Lo = Location (L = registration in Lausanne, G = registration in Geneva)

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Spring Semester (semester 2)

Course	Teaching Staff	Hours per semester C	E/S	PW	Lo	ECTS Credits
General and common activities - Compulsory						
Sequence a genome (Part II)	**van der Meer J.,** Robinson-Rechavi M., …	14	42			3
Write a fellowship	**Fankhauser C.,** Sohrmann M., tutors	7		21		3
Total						**6**
Optional (choice -> 9 credits)						
From receptors to genes: selected chapiters of molecular endocrinology	**Mermod N.**	24			L	3
Genomics, proteomics and quantitative genetics	**Franken P.**, Tafti M., Quadroni M., Goudet J., Weber J., Harshman K.,	24			L	3
Nutrition from a genomic perspective	**Wahli W.**, and others	24			L	3
Recombinant proteins: applications in research and medicine	**Corthésy B.**	12			L	1.5
Scientific Mediation and Communication **(MSc BEC)**	**Desvergne B.,** Kaufmann A.	28			L	3
The effects of the environment on development	**Fankhauser C.,** Hardtke C.	24			L	3
Transmission of signals in plant defence	**Farmer E.**	24			L	3
Institute seminars	**Fankhauser C.**				L	
Bioinformatics for MS data analysis	**Palagi P.,** Müller M.	21		21	G	3
Introduction to systems biology	**Lisacek F.**	8	14		G	2
Selected chapters in bioinformatics	**Lisacek F.,** Palagi P.	34	14		G	3
Phylogeny and comparative methods **(MSc BEC)**	**Salamin N.**	7	14		L	1.5
Datamining for protein function prediction	**Bairoch A.,** Lane L.	4		76	G	5
Structural bioinformatics and molecular modeling	**Scapozza L.**	20		20	G	2
Molecular genetics of populations	**Sanchez-Mazas A.**	20		20	G	5
Phylogeny and molecular evolution	**Montoya J.**	20		20	G	5
Anti-infective agents	**Sanglard D.**, Hauser P., Greub G., Ciuffi A.	14			L	1.5
Bacterial virulence and pathogenesis	**Greub G.**, Hauser P.	14			L	1.5
Cytoskeleton from microbes to man	**Martin S.,** Collier J.	14			L	1.5
Epidemiology	**Blanc D.**, Hauser P., Meylan P., Zanetti G., Sanglard D.	14			L	1.5
Microbes as tools in experimental biology	**Sanglard D.**, Ciuffi A.	14			L	1.5
Microbial ecology	**van der Meer J.,** Sentchilo V.			35	L	1.5
Viral pathogenesis and emerging viruses	**Kunz S.,** Gouttenoire J., Telenti A., Ciuffi A.	14			L	1.5
Compulsory personal research project						
Personal Research Project - Master thesis				280		**15**
Total						**30**

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Semester 3

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

Mention **Bioinformatics** :
first semester : follow the 3 common compulsory courses and the 2 specialized "optional "courses (in blue)
do the first step project in the Bioinformatics program (13 ECTS)
second semester : follow optional courses among all proposed (indicative blue color for courses with bioinformatics contain) .
Master thesis : must belong to the tagged Master thesis "Bioinformatics"

Mention **Microbiology** :
first semester : follow the 3 common compulsory courses and "optional "courses free choice for the first step project
second semester : follow optional courses among all proposed.
At the end of the two semesters **at least 12 ECTS must be obtained on optional specialized courses (in yellow)**
Master thesis : must belong to the tagged Master thesis "Microbiology"