

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

- 16 ECTS : Module 1 (Compulsory courses + Optional courses)
- 14 ECTS : Module 2 (First step project)
- 15 ECTS : Module 3 (Compulsory courses + Optional courses)
- 45 ECTS : Personal research project (Master thesis)

28.08.13

Autumn Semester (semester 1)

	Course / Enseignement	Hours per semester			Lo	Teaching Staff	ECTS Credits	Limited nb of students
		C	E/S	PW				
MODULE 1	General and common activities - Compulsory / Activités communes et obligatoires							
	Retreat and BIG Seminars <i>Retraite et séminaires BIG</i>	-	-	-	L	Fankhauser C., ...		
	Sequence a Genome (Part I) <i>Séquençage d'un génome I</i>	14	30	-	L	van der Meer J., Robinson-Rechavi M.,	3	
	Write a Review <i>Rédaction d'une revue</i>	15	-	42	L	Fankhauser C., Sohrmann M., tutors	4	
	Free time for reading scientific articles etc... (14 x 4 hours)	-	-	56				
	Subtotal	29	30	98			7	
	Optional (choice -> 9 credits) / Optionnel (choix -> 9 crédits)							
	Plant Interactions with Microbes and Insects <i>Interactions des plantes avec les microbes et les insectes</i>	14	-	-	L	Keel C., P. Reymond	1.5	
	Genetics and Evolution of Insect and Plant Development <i>Génétique et évolution des insectes, développement végétal</i>	14	-	-	L	Benton R., Geldner N.	1.5	
	Development of the Nervous System <i>Développement du système nerveux</i>	14	-	-	L	Braissant O.	1.5	
	Plant Functional Genetics <i>Génétique fonctionnelle des plantes</i>	14	-	-	L	Poirier Y.	1.5	
	Human Molecular Genetics <i>Génétique moléculaire humaine</i>	14	-	-	L	Rivolta C., Chrast R.	1.5	
	Biotechnology <i>Biotechnologie</i>	14	-	-	L	Poirier Y., Mermod N.	1.5	
	Protein Homeostasy and Adaptation of Organisms to Stress <i>Adaptation des organismes au stress et homéostasie des protéines</i>	14	-	-	L	Goloubinoff P.	1.5	
	La recherche dans tous ses états <i>Scientific research in all its forms (in french only)</i>	14	-	-	L	Clavier C.	1.5	
	Elements of Bioinformatics (compulsory for Bioinformatics distinction) <i>Éléments de bioinformatique</i>	36	-	20	G	Bairoch A., Blatter MC.	4.5	
	Advanced Data Analysis in Biology I-III (compulsory for Bioinformatics distinction) <i>Analyse de données en biologie I-III : niveau avancé</i>	26	-	26	L/G	Abreu Nunes J., Schütz F.	4.5	
	Bacteria Genomes and Genome Evolution <i>Génomomes bactériens et évolution du génome</i>	14	-	-	L	van der Meer J.	1.5	
	Immunology with Relevance to Infectious Diseases <i>Immunologie et maladies infectieuses</i>	14	-	-	L	Nardelli D., Roger T.	1.5	
Advanced Bacterial Genetics and Small RNA Regulation <i>Génétique bactérienne avancée et régulation des petits ARN</i>	14	-	-	L	Collier J., Reimann C.	1.5		
Virus-Host Interactions <i>Interactions virus-hôtes</i>	14	-	-	L	Kunz S., Meylan P.	1.5		
Fungal Virulence and Pathogenicity <i>Pathogénicité et virulence fongique</i>	14	-	-	L	Sanglard D.	1.5		
Total						16		
MODULE 2	Practical project							
	First Step Project	-	-	250		Fankhauser C.		
OR	First Step Project in Bioinformatics	-	-	250		Robinson-Rechavi M., Lisacek F. Chopard B, Palagi P.	14	

Abbreviations

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

Distinction **Integrative biology** :
first semester : Follow the 3 common compulsory courses and optional courses
second semester : follow optional courses
 free choice for the first-step project
Master thesis : Free choice for the Master project

Distinction **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
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"

Distinction **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"

Spring Semester (semester 2)

	Course	Hours per semester			Lo	Teaching Staff	ECTS Credits	Limited nb of students
		C	E/S	PW				
General and common activities - Compulsory								
	Sequence a genome (Part II) <i>Séquençage d'un génome II</i>	14	42	-		van der Meer J., Robinson-Rechavi M., ...	3	
	Write a fellowship <i>Rédaction d'une demande de bourse</i>	7	-	21		Fankhauser C., Sohrmann M., tutors	3	
	Subtotal	21	42	21			6	
Optional (choice -> 9 credits) *								
	From Receptors to Genes: selected chapters of molecular endocrinology <i>Des récepteurs membranaires aux gènes</i>	24	-	-	L	Mermod N.	3	
	Genomics, Proteomics and Quantitative Genetics <i>Génomique, protéomique et génétique quantitative</i>	24	-	-	L	Franken P., Tafti M., Quadroni M., Goudet J., Weber J., Harshman K.	3	
	Nutrition from a Genomic Perspective <i>La nutrition sous une perspective génomique</i>	24	-	-	L	Pralong F., Kaessmann H., Xenarios I., Vergères G., Kussmann M.	3	
	Recombinant Proteins: Applications in Research and Medicine <i>Protéines recombinantes : application en recherche et en médecine</i>	12	-	-	L	Corthésy B.	1.5	
	Scientific Mediation and Communication (in french only, MSc BEC) <i>Communication et médiation scientifique (MSc BEC)</i>	28	-	-	L	Michalik L.	3	6
	The Effects of the Environment on Development <i>Effets de l'environnement sur le développement</i>	24	-	-	L	Fankhauser C., Hardtke C.	3	
	Herbivory: Why is the Earth Green <i>Herbivorie : pourquoi la terre est verte</i>	24	-	-	L	Farmer E.	3	10
	Institute Seminars <i>Séminaires d'institut</i>	-	-	-	L	Fankhauser C.		
	Supplement : Sequence a genome II and Write a Fellowship <i>Enseignement complémentaire: Séquençage d'un génome II et Rédaction d'une demande de bourse</i>	-	-	10	L	Fankhauser C., van der Meer J.,	1.5	
	Bioinformatics for proteomics and glycomics <i>Bioinformatique pour la protéomique et la glycomique</i>	21	-	21	G	Palagi P., Müller M.	3	
	Structural bioinformatics and molecular modeling <i>Bioinformatique structurale et modélisation moléculaire</i>	20	-	20	G	Scapozza L.	5	
	Quest for Homologs: How to identify protein family members <i>La Quête des homologues : Comment identifier les protéines d'une même famille</i>	12	-	12	G	Boeckmann B., Hernandez D.	2	
	Introduction to Systems Biology <i>Introduction à la biologie de systèmes</i>	8	14	-	G	Lisacek F.	2	
	Selected Chapters in Bioinformatics <i>Chapitres choisis de Bioinformatique</i>	34	14	-	G	Lisacek F., Palagi P.	3	
	Phylogeny and Comparative Methods (MSc BEC) <i>Phylogénie et méthodes comparatives (MSc BEC)</i>	7	14	-	L	Salamin N.	1.5	
	Datamining for Protein Function Prediction <i>Exploitation de données pour prédire la fonction des protéines</i>	4	-	76	G	Bairoch A., Lane L.	5	
	Molecular Genetics of Populations <i>Génétique moléculaire des populations</i>	20	-	20	G	Sanchez-Mazas A.	5	
	Phylogeny and Molecular Evolution <i>Phylogénie et évolution moléculaire</i>	20	-	20	G	Montoya J.	5	
	Anti-Infective Agents <i>Agents anti-infectieux</i>	14	-	-	L	Sanglard D., Hauser P., Croxatto A., Ciuffi A.	1.5	
	Bacterial Virulence and Pathogenesis <i>Virulence bactérienne et pathogénèse</i>	14	-	-	L	Greub G., Hauser P.	1.5	
	Cytoskeleton from Microbes to Man <i>Cytosquelette: des microbes à l'homme</i>	14	-	-	L	Martin S.	1.5	
	Epidemiology <i>Epidémiologie</i>	14	-	-	L	Blanc D., Hauser P., Meylan P., Zanetti G., Sanglard D.	1.5	
	Microbes as Tools in Experimental Biology <i>Les microbes comme outils de biologie expérimentale</i>	14	-	-	L	Sanglard D., Ciuffi A.	1.5	
	Microbial Ecology <i>Ecologie microbienne</i>	-	-	35	L	van der Meer J., Sentschilo V.	1.5	
	Viral Pathogenesis and Emerging Viruses <i>Pathogénèse virale et virus émergents</i>	14	-	-	L	Kunz S., Gouttenoire J., Teleni A., Ciuffi A.	1.5	
	Total						15	

Spring Semester (semester 2) and Autumn Semester (semester 3)

MODULE 4	Course	Thesis Director	ECTS Credits
Compulsory personal research project			
	Master Thesis		45
<p>Distinction Integrative biology :</p> <p><u>first semester</u> : Follow the 3 common compulsory courses and optional courses</p> <p><u>second semester</u> : follow optional courses</p> <p>free choice for the first-step project</p> <p><u>Master thesis</u> : Free choice for the Master project</p>			
<p>Distinction Bioinformatics :</p> <p><u>first semester</u> : follow the 3 common compulsory courses and the 2 specialized "optional" courses (in blue)</p> <p>do the first step project in the Bioinformatics program</p> <p><u>second semester</u> : follow optional courses among all proposed (indicative blue color for courses with bioinformatics contain) .</p> <p><u>Master thesis</u> : must belong to the tagged Master thesis "Bioinformatics"</p>			
<p>Distinction Microbiology :</p> <p><u>first semester</u> : follow the 3 common compulsory courses and "optional" courses</p> <p>free choice for the first step project</p> <p><u>second semester</u> : follow optional courses among all proposed.</p> <p>At the end of the two semesters at least 12 ECTS must be obtained on optional specialized courses (in yellow)</p> <p><u>Master thesis</u> : must belong to the tagged Master thesis "Microbiology"</p>			