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)

<table>
<thead>
<tr>
<th>Autumn Semester (semester 1)</th>
<th>Hours per semester</th>
<th>ECTS Credits</th>
<th>Limited nb of students</th>
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<tr>
<td><strong>Course</strong></td>
<td>C</td>
<td>E/S</td>
<td>PW</td>
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<tr>
<td>General and common activities - Compulsory</td>
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<tr>
<td>Retreat and BIG Seminars</td>
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<tr>
<td>Sequence a Genome (Part I)</td>
<td>14</td>
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<tr>
<td>Write a Review</td>
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<td>Free time for reading scientific articles etc... (14 x 4 hours)</td>
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<td><strong>Optional (choice -&gt; 9 credits)</strong></td>
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<td>Plant Interactions with Microbes and Insects</td>
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<td>Genetics and Evolution of Insect and Plant Development</td>
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<tr>
<td>Development of the Nervous System</td>
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<tr>
<td>Plant Functional Genetics</td>
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<td>Human Molecular Genetics</td>
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<td>Biotechnology</td>
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<td>Protein Homeostasy and Adaptation of Organisms to Stress</td>
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<td>Elements of Bioinformatics (compulsory for Bioinformatic distinction)</td>
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<td>Advanced Data Analysis in Biology I-II-III-IV (compulsory for Bioinformatic distinction)</td>
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<td>Bacteria Genomes and Genome Evolution</td>
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<td>Immunology with Relevance to Infectious Diseases</td>
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<td>Advanced Bacterial Genetics and Small RNA Regulation</td>
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<td>Virus-Host Interactions</td>
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<td>Fungal Virulence and Pathogenicity</td>
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**Practical project**

| OR  | First Step Project in Bioinformatics | -  | -  | 250 | Robinson-Rechavi M., Lisacek F. Chopard B, Palagi P. | 14 |

C = Course  
E/S = Exercise/Seminar  
PW = Practical Work  
Lo = Location (L = registration in Lausanne, G = registration in Geneva)
### Spring Semester (semester 2)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours per semester</th>
<th>Teaching Staff</th>
<th>ECTS</th>
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<td><strong>General and common activities - Compulsory</strong></td>
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<td>Sequence a Genome (Part II)</td>
<td>14 - 42 -</td>
<td>van der Meer J., Robinson-Rechavi M., …</td>
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<td>Write a fellowship</td>
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<td>Fankhauser C., Sohrmann M., tutors</td>
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<td>From Receptors to Genes: selected chapters of molecular endocrinology</td>
<td>24 - -</td>
<td>Mermod N.</td>
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<td>Nutrition from a Genomic Perspective</td>
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<td>Recombinant Proteins: Applications in Research and Medicine</td>
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<td>Corthésy B.</td>
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<td>The Effects of the Environment on Development</td>
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<td>Herbivory: Why is the Earth Green</td>
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<td>Institute Seminars</td>
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<td>Bioinformatics for MS Data Analysis</td>
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<td>Palagi P., Müller M.</td>
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<td>Introduction to Systems Biology</td>
<td>8 14 -</td>
<td>Lisacek F.</td>
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<td>Selected Chapters in Bioinformatics</td>
<td>34 14 -</td>
<td>Lisacek P., Palagi P.</td>
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<td>Phylogeny and Comparative Methods (MSc BEC)</td>
<td>7 14 -</td>
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<td>Datamining for Protein Function Prediction</td>
<td>4 - 76</td>
<td>Bairoch A., Lane L.</td>
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<td>Molecular Genetics of Populations</td>
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<td>Sanchez-Mazas A.</td>
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<td>Bacterial Virulence and Pathogenesis</td>
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<td>Greub G., Hauser P.</td>
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<td>Cytoskeleton from Microbes to Man</td>
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<td>Epidemiology</td>
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<td>Microbes as Tools in Experimental Biology</td>
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<td>Microbial Ecology</td>
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<td>van der Meer J., Senthio V.</td>
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<td>Viral Pathogenesis and Emerging Viruses</td>
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<td>Kunz S., Gouttenoire J., Telenti A., Ciuffi A.</td>
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### Spring Semester (semester 2) and Autumn Semester (semester 3)

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Compulsory personal research project</td>
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<tr>
<td>Master Thesis</td>
<td>Thesis Director</td>
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</table>

**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"