

## MSc Biotechnology: Study Plan

(Programme Regulations 2021)

The signed study plan is binding and must be submitted to the student administration ([student-admin@bsse.ethz.ch](mailto:student-admin@bsse.ethz.ch)) *by the end of semester week 4 at the latest*. Changes in the study plan require written approval by the mentor. An updated, signed version of the study plan must be submitted after changes have been made.

Students are responsible to ensure their study plan complies with the study regulations.

Student Name:	
Student Nr:	
Mentor Name:	

<b>Additional Requirements (if applicable)</b>				
Mind the deadlines for completing additional requirement courses!				
Course Nr.	Course Title	ECTS	Semester	Year

<b>Mandatory Core Courses – 22 ECTS</b>				
Closed list. No other course can be added as a core course. All courses are mandatory.				
Course Nr.	Course Title	ECTS	Semester	Year
636-0101-00L	Lecture: Systems Genomics	4	Autumn	
636-0102-10L	Lecture: Advanced Bioengineering	2	Autumn	
636-0201-00L	Lab Course: Methods in Cell Analysis and Lab Automation	3	Autumn	
636-0203-00L	Lab Course: Microsystems and Microfluidics in Biology	3	Autumn	
636-0204-00L	Lab Course: Microbial Biotechnology	2	Autumn	
636-0202-00L	Lab Course: Next-Generation Sequencing	2	Spring	
636-0205-00L	Lab Course: Mammalian Gene Editing	2	Spring	
636-0206-00L	Lab Course: Cellular Engineering Mammalian Cells	2	Spring	
636-0207-00L	Lab Course: Cellular Engineering Stem Cells	2	Spring	

<b>Advanced Courses &amp; Electives – 36 ECTS in total</b>				
Closed list. No other course can be added as a core course. All courses are mandatory.				
<b>Advanced Courses – minimum 22 ECTS</b>				
Closed list. No other course can be added in this category.				
Note: advanced courses marked with an asterisk (*) are mutually exclusive courses: only one of the courses can be taken within the advanced courses category, the second course may be chosen as elective.				
Course Nr.	Course Title	ECTS	Semester	Year
636-0103-00L	Microtechnology (Hierlemann)	4	Autumn	
636-0104-00L	Biophysical Methods (Müller)	4	Autumn	
636-0107-00L	Microbial Biotechnology (Panke)	4	Autumn	
636-0108-00L	Biological Engineering and Biotechnology (Fussenegger)	4	Autumn	
636-0550-00L	Biomolecular Nanotechnology (Nash)	4	Autumn	
636-0109-00L	Stem Cells: Biology and Therapeutic Manipulation Schroeder)	4	Autumn	
636-0117-00L	Mathematical Modelling for Bioengineering and Systems Biology (Iber) *	4	Autumn	

# D BSSE

636-0118-00L	Introduction to Dynamical Systems with Applications to Biology (Khammash) * <i>offered irregularly</i>	4	irregularly	
636-0110-00L	ImmunoEngineering (S. Reddy)	4	Spring	
636-0113-00L	Genome Engineering (R. Platt)	4	Spring	
636-0112-00L	Analytical Methods and Lab-on-Chip Technology for Biology and Molecular Diagnostics (Dittrich)	4	Spring	
636-0111-00L	Synthetic Biology I (Panke / Stelling)	4	Spring	
636-0022-00L	Design of Experiments (Kaltenbach)	4	Spring	
636-0115-00L	Biochemical Engineering (Panke)	4	Spring	
636-0114-00L	Microsensors and Microsystems (Hierlemann) <i>offered two-yearly</i>	4	Spring	
636-0116-00L	Nanomachines of the Cell (Müller)	4	Spring	
636-0121-00L	Single Cell Technologies (Treutlein)	4	Spring	
636-0122-00L	Introduction to Scientific Computing (Vetter)	4	Spring	
636-0123-00L	Spatial Biology of Cancer (Moer)	4	Spring	

## Electives – minimum 10 ECTS

List in the ETH course catalogue. Other courses may be added as electives upon approval of the mentor. Courses from the advanced course category may also be taken as electives.

Course Nr.	Course Title	ECTS	Semester	Year

## Science in Perspective (SiP) – 2 ECTS

List in the ETH course catalogue. A D-BSSE specific SiP course is offered in Basel in the spring.

Course Nr.	Course Title	ECTS	Semester	Year

## Research Project or Industry Internship – 16 ECTS

Duration: 12 weeks full-time.

Must be carried out in a different research group/company department than the master's thesis.

Course Nr.	Course Title	ECTS	Semester	Year
636-0805-00L	Research Project	16		
636-0806-00L	Industry Internship	16		

## Master's Thesis – 44 ECTS

A research project of 35 weeks duration, including a written report and an oral presentation, carried out in a research group at D-BSSE. Note the prerequisites to starting the master's thesis.

Course Nr.	Course Title	ECTS	Semester	Year
636-0900-10L	Master's Thesis	44		

Date:	Date:
Signature Mentor:	Signature Student: