SABANCI UNIVERSITY - FACULTY OF FACULTY OF ENGINEERING AND NATURAL SCIENCES
MOLECULAR BIOLOGY, GENETICS AND BIOENGINEERING PROGRAM RECOMMENDED PROGRAM

Year -1 Freshman Semester-1							
Course Code	Course Name	Course Type	Prerequisite Courses	SU Credits	Enginering Credits (ECTS)	Basic Science Credits (ECTS)	ECTS (Total)
MATH101	Calculus I	University C.		3	0	6	6
NS101	Science of Nature I	University C.		4	0	6	6
CIP101N	Civic Involvement Projects I	University C.		0	0	0	1
HIST191	Principles of Atatürk and the History of the Turkish Revolution I	University C.		2	0	0	3
SPS101	Humanity and Society I	University C.		3	0	0	6
TLL101	Turkish Language and Literature I	University C.		2	0	0	3
IF100	Computational Approaches to Problem Solving	University C.		3	5	0	5
*PROJ 201	*Undergraduate Project Course			1			1
			TERM TOTAL	18	5	12	31

The students have to take *Undergraduate Project Course (PROJ 201) on freshman or sophomore year.

Year -1 Freshman Semester-2							
Course Code	Course Name	Course Type	Prerequisite Courses	SU Credits	Enginering Credits (ECTS)	Basic Science Credits (ECTS)	ECTS (Total)
MATH102	Calculus II	University C.	MATH 101	3	0	6	6
NS102	Science of Nature II	University C.	NS 101	4	0	6	6
AL102	Academic Literacies	University C.		3	0	0	5
HIST192	Principles of Atatürk and the History of the Turkish Revolution II	University C.	HIST 191	2	0	0	3
SPS102	Humanity and Society II	University C.	SPS 101	3	0	0	6
TLL102	Turkish Language and Literature II	University C.	TLL 101	2	0	0	3
*PROJ 201	*Undergraduate Project Course			1			1
			TERM TOTAL	17	0	12	29

The students have to take *Undergraduate Project Course (PROJ 201) on freshman or sophomore year.

Year - 2 Sophomore Semester-3							
Course Code	Course Name	Course Type	Prerequisite Courses	SU Credits	Enginering Credits (ECTS)	Basic Science Credits (ECTS)	ECTS (Total)
*PROJ 201	*Undergraduate Project Course	University C.		1	1		1
CHEM212	General Chemistry for Engineers	Required		3	0	7	7
ENS 210	Computational Biology	Required	MATH 101 & IF 100	3	3	3	6
MATH 201	Linear Algebra	Faculty C.		3	0	6	6
NS 201	Discovering Life	Required		3	1	5	6
HUM 2XX		University C.		3			5
CORE	(Depending on NS 207 move it)	Core		3			6
			TERM TOTAL	18	4	21	36

The students have to take *Undergraduate Project Course (PROJ 201) on freshman or sophomore year.

Year - 2 Sophomore Semester-4							
Course Code	Course Name	Course Type	Prerequisite Courses	SU Credits	Enginering Credits (ECTS)	Basic Science Credits (ECTS)	ECTS (Total)
*PROJ 201	*Undergraduate Project Course	University C.		1	1	0	1
BIO 301	Molecular Biology	Required	NS 201	4		7	7
NS 216	Life on Earth	Required	NS 201	3	1	5	6
MATH 203	Introduction to Probability	Faculty C.	MATH 102	3		6	6
NS 207	Organic Chemistry	Required		4	2	5	7
CORE		Core		3			6
CORE		Core		3			6
			TERM TOTAL	20	3	23	38

The students have to take *Undergraduate Project Course (PROJ 201) on freshman or sophomore year.

Year - 3 Junior Semester-5							
Course Code	Course Name	Course Type	Prerequisite Courses	SU Credits	Enginering Credits (ECTS)	Basic Science Credits (ECTS)	ECTS (Total)
BIO 321	Biochemistry I	Required	NS 201 & NS 207	4		7	7
BIO 303	Genetics	Required	NS 201	4	2	5	7
BIO 335	Experimental Techniques in Biology	Required		3	1	5	6
SPS 303	Law and Ethics	University C.		3			5
FREE				3			6
CORE				3			6
CORE				3			6
			TERM TOTAL	23	3	17	43

Year - 3 Junior Semester-6							
Course Code	Course Name	Course Type	Prerequisite Courses	SU Credits	Enginering Credits (ECTS)	Basic Science Credits (ECTS)	ECTS (Total)
BIO 332	Cell Biology	Required	NS 201	4		7	7
MATH 306	Statistical Modelling	Core	MATH 203	3		6	6
FREE				3			6
AREA				3			6
			TERM TOTAL	13	0	13	25

Year -3 Junior SUMMER							
Course Code	Course Name	Course Type	Prerequisite Courses	SU Credits	Enginering Credits (ECTS)	Basic Science Credits (ECTS)	ECTS (Total)
BIO 395	Summer Internship	Required C.	Junior Standing at the beginning of	0	5	0	5
			TERM TOTAL	0	5	0	5

Year - 4 Senior Semester-7							
Course Code	Course Name	Course Type	Prerequisite Courses	SU Credits	Enginering Credits (ECTS)	Basic Science Credits (ECTS)	ECTS (Total)
BIO 306	Microbiology	Core	BIO 321 & BIO 332	4		7	7
ENS 491	Graduation Project (Design)	Required	BIO 301 or BIO 303	1	2		2
FREE				3			6
FREE				3			6
AREA				3			6
CORE				3			6
			TERM TOTAL	17	2	7	33

Year - 4 Senior Semester-8							
Course Code	Course Name	Course Type	Prerequisite Courses	SU Credits	Enginering Credits (ECTS)	Basic Science Credits (ECTS)	ECTS (Total)
ENS 492	Graduation Project (Implementation)	Required	ENS 491	3	5	0	5
FREE				3			6
AREA				3			6
CORE				3			6
CORE				3			6
			TERM TOTAL	15	5	0	29

SU CREDITS TOTAL: 133
ECTS TOTAL : 240

TRACK ELECTIVE COURSES

DESCRIPTIONS: These are not official tracks but are suggestions for those interested in concentrating in a particular area in Molecular Biology, Genetics and Bioengineering.

1. Suggested Courses for Molecular Biology, Genetics and Bioengineering and Molecular Biology Track

Course Code	Course Name	SU Credits	ECTS
BIO 363_S5	Ecology	3	6
BIO 322_S6	Biochemistry II	3	5
BIO 308_S6	Plant Physiology	3	7
BIO 310_S6	Introduction to Bioinformatics	3	6
BIO 306_S7	Microbiology	4	7
BIO 460_S8	Evolution	3	6
BIO 452_S7	Immunology	3	6
BIO 407_S7	Multicellular Organization	3	5
BIO 467_S8	Signal Transduction	3	6
BIO 423_S7	Neurobiology	3	6

*Semester no

2. Suggested Courses for Molecular Biology, Genetics and Bioengineering and Bioinformatics Track

Course Code	Course Name	SU Credits	ECTS
CS 201_*S3	Programming Fundamentals	3	6
CS 204_S4	Advanced Programming	3	6
DSA 210_S4	Introduction to Data Science	3	6
MATH 204_S4	Discrete Mathematics	3	6
CS 300_S5	Data Structures	3	6
CS 301_S6	Algorithms	3	6
CS 412_S7	Machine Learning	3	6
BIO 460_S8	Evolution	3	6

*Semester no

3. Suggested Courses for Molecular Biology, Genetics and Bioengineering and Bioengineering Track

Course Code	Course Name	SU Credits	ECTS
CS 201_*S3	Programming Fundamentals	3	6
MATH 202_S4	Differential Equations	3	6
DSA 210_S4	Introduction to Data Science	3	6
ENS 202_S5	Thermodynamics	3	6
BIO 310_S5	Introduction to Bioinfomatics	3	6
BIO 444_S7	Bioengineering	3	6
BIO 421_S7	Tissue Engineering	3	6
BIO 460_S8	Evolution	3	6
ME 437_S8	Biomechatronics	3	6
MAT 416_S8	Biomaterials Science and Biocompatibility	3	5

*Semester no

4. Suggested Courses for Molecular Biology, Genetics and Bioengineering and ????? Track

Course Code	Course Name	SU Credits	ECTS