

**BİRÜNİ UNIVERSITY**  
**FACULTY OF ENGINEERING AND NATURAL SCIENCES**  
**TEACHING PLAN DEPARTMENT OF MOLECULAR BIOLOGY AND GENETICS**

**1st Semester (Autumn)**

Code	Prerequisite	Course Title	C/E	T	P	L	C	ECTS
BIO115		General Biology I	C	3	0	0	3	6
CHM121		General Chemistry	C	3	0	2	4	6
MAT115		Calculus I	C	3	0	0	3	6
PHY115		Physics I	C	3	0	0	3	6
ATA151		Atatürk's Prin. and His. of Turkish Revolution I	C	2	0	0	2	2
TDI 161		Turkish Language and Literature I	C	2	0	0	2	2
GER101		German I	C	2	0	0	2	2
		<b>TOTAL ECTS</b>						<b>30</b>

**2nd Semester (Spring)**

Code	Prerequisite	Course Title	C/E	T	P	L	C	ECTS
BIO118		General Biology II	C	3	0	0	3	6
CHM116		Organic Chemistry	C	3	0	0	3	4
MAT116		Calculus II	C	3	0	0	3	6
PHY118		Physics II	C	3	0	2	4	6
ATA152		Atatürk's Prin. and His. of Turkish Revolution II	C	2	0	0	2	2
TDI 162		Turkish Language and Literature II	C	2	0	0	2	2
GER102		German II	C	2	0	0	2	2
CAR003		Career Planning	C	1	0	0	1	2
		<b>TOTAL ECTS</b>						<b>30</b>

**3rd Semester (Autumn)**

Code	Prerequisite	Course Title	C/E	T	P	L	C	ECTS
GEN700		Cell Biology	C	3	0	3	5	6
CHM219		Biochemistry I	C	3	0	3	5	8
COM116		Computer Programming	C	1	2	0	2	4
		Technical Elective Course I	E					6
		Technical Elective Course II	E					6
		<b>TOTAL ECTS</b>						<b>30</b>

**4th Semester (Spring)**

Code	Prerequisite	Course Title	C/E	T	P	L	C	ECTS
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CHM220		Biochemistry II	C	3	0	3	5	8
GEN224		General Microbiology	C	3	0	3	5	6
GEN242		Genetics	C	3	0	0	3	4
		Technical Elective Course I	E					6
		Technical Elective Course II	E					6
		<b>TOTAL ECTS</b>						<b>30</b>

5th Semester (Autumn)								
Code	Prerequisite	Course Title	C/E	T	P	L	C	ECTS
GEN311		Molecular Biology	C	3	0	4	5	8
GEN750		Project Design	C	3	0	0	2	6
ISE207		Occupational Health and Safety	C	2	0	0	3	4
		Technical Elective Course I	E					6
		Technical Elective Course II	E					6
		<b>TOTAL ECTS</b>						<b>30</b>

6th Semester (Spring)								
Code	Prerequisite	Course Title	C/E	T	P	L	C	ECTS
GEN336		Molecular Genetics	C	3	0	0	3	6
GEN334		Recombinant DNA Technology	C	3	0	4	5	8
		Technical Elective Course I	E					6
		Technical Elective Course II	E					6
		University Elective Course III	E					4
		<b>TOTAL ECTS</b>						<b>30</b>

7th Semester (Autumn)								
Code	Prerequisite	Course Title	C/E	T	P	L	C	ECTS
GEN431		Graduation Project I	C	0	8	0	4	8
GEN601		Seminars in Molecular Biology and Genetics I	C	3	0	0	3	4
GEN501		Bioinformatics	C	3	2	0	4	6
GEN331		Biotechnology	C	3	0	0	3	6
		Technical Elective Course I	E					6
		<b>TOTAL ECTS</b>						<b>30</b>

8th Semester (Spring)								
Code	Prerequisite	Course Title	C/E	T	P	L	C	ECTS
GEN426		Graduation Project II	C	0	8	0	4	8
GEN800		Internship	C	0	0	0	0	6

		Technical Elective Course I	E					6
		Technical Elective Course II	E					6
		University Elective Course II	E					4
		<b>TOTAL ECTS</b>						<b>30</b>

Technical Elective Course List								
Code	Prerequisite	Course Title	C/E	T	P	L	C	ECTS
BME506		Medical Imaging	E	3	0	0	3	6
BME507		Biosensors	E	3	0	0	3	6
BME508		Machine Learning	E	3	0	0	3	6
GEN602		Seminars in Molecular Biology and Genetics II	E	3	0	0	3	6
GEN702		Histology	E	3	0	0	3	6
GEN703		Enzymology	E	3	0	0	3	6
GEN704		Biostatistics	E	3	0	0	3	6
GEN705		Embryology	E	3	0	0	3	6
GEN706		Ecology	E	3	0	0	3	6
GEN707		Chromosome Biology	E	3	0	0	3	6
GEN708		Botanics	E	3	0	0	3	6
GEN709		Biophysics	E	3	0	0	3	6
GEN710		Evolution & Biodiversity	E	3	0	0	3	6
GEN711		Quantum Physics	E	3	0	0	3	6
GEN712		Membrane Biology	E	3	0	0	3	6
GEN713		Human Physiology	E	3	0	0	3	6
GEN714		Human Genetics	E	3	0	0	3	6
GEN715		Evolutionary Biology	E	3	0	0	3	6
GEN717		Introduction to Pathology	E	3	0	0	3	6
GEN718		Virology	E	3	0	0	3	6
GEN719		Drug-Development	E	3	0	0	3	6
GEN720		Engineering Economy	E	3	0	0	3	6
GEN721		Immunology	E	3	0	0	3	6
GEN722		Developmental Biology	E	3	0	0	3	6
GEN723		Stem Cells	E	3	0	0	3	6
GEN724		Systems Biology	E	3	0	0	3	6
GEN725		Genetic Disorders and Gene Therapy	E	3	0	0	3	6
GEN726		Nutrigenomics	E	3	0	0	3	6
GEN727		Pharmacogenetic	E	3	0	0	3	6
GEN728		Biomaterials	E	3	0	0	3	6
GEN729		Fermentation Technology	E	3	0	0	3	6
GEN730		Plant Molecular Biology	E	3	0	0	3	6
GEN731		Practical DNA Analysis	E	3	0	0	3	6
GEN732		Advances in Molecular Genetics	E	3	0	0	3	6
GEN733		Molecular Biology of Cancer	E	3	0	0	3	6
GEN734		Genetic Basis of Drug Methabolism	E	3	0	0	3	6

GEN735		Transgenic Animals	E	3	0	0	3	6
GEN736		Clinical Genetics	E	3	0	0	3	6
GEN737		Protein Modelling	E	3	0	0	3	6
GEN738		Nanomedicine-Nanotechnology	E	3	0	0	3	6
GEN739		Computational Biology	E	3	0	0	3	6
GEN740		Tissue Engineering	E	3	0	0	3	6
GEN741		Plant Physiology	E	3	0	0	3	6
GEN742		Infectious Diseases	E	3	0	0	3	6
GEN743		Neurobiology and Neuroengineering	E	3	0	0	3	6
GEN744		Introduction to Clinical Biochemistry	E	3	0	0	3	6
GEN745		Molecular Mechanism of Diseases	E	3	0	0	3	6
GEN746		Special Subjects in Molecular Biology and Genetics	E	3	0	0	3	6
GEN747		Nobel Laureates	E	3	0	0	3	6
GEN749		Philosophy of Biology	E	3	0	0	3	6
GEN751		Vaccine Technology	E	3	0	0	2	6
GEN752		Protein Structure and Function	E	3	0	0	3	6
GEN753		Recent Topics in MBG	E	3	0	0	3	6
GEN754		Human Anatomy	E	3	0	0	3	6
TLC 003		Turkish Language for Foreign Students I	E	4	2	0	5	6
TLC004		Turkish Language for Foreign Students II	E	4	2	0	5	6

University Elective Course List								
Code	Prerequisite	Course Title	C/E	T	P	L	C	ECTS
BIR300		Behavioral Science	E	2	0	0	2	4
BIR301		Communication Skills	E	2	0	0	2	4
BIR302		Health Anthropology	E	2	0	0	2	4
BIR303		Leadership	E	2	0	0	2	4
BIR304		Quality Management in Health Care	E	2	0	0	2	4
BIR305		Critical Thinking	E	2	0	0	2	4
BIR306		Public Speaking and Presentation Skills	E	2	0	0	2	4
BIR307		Basic Disaster Information	E	2	0	0	2	4
BIR308		Occupational Health and Safety	E	2	0	0	2	4
BIR309		Sexual Health	E	2	0	0	2	4
BIR310		Healthcare Employee and Patient Safety	E	2	0	0	2	4
BIR311		Medical Terminology	E	2	0	0	2	4
BIR312		Healthy Life and Physical Activity	E	2	0	0	2	4
BIR313		Principles of Health Nutrition	E	2	0	0	2	4
BIR314		Interpersonal Violence and Management	E	2	0	0	2	4
BIR315		Introduction to Psychology	E	2	0	0	2	4
BIR316		Use of Basic Information and Communication Technologies	E	3	0	0	3	5
BIR317		Time Management and Planning	E	2	0	0	2	4
BIR318		Strategic Decision Making	E	2	0	0	2	4

BIR319		Entrepreneurship and Brand Management	E	2	0	0	2	4
BIR320		Technology, Research and Development Management	E	2	0	0	2	4
BIR321		Innovation Management	E	2	0	0	2	4
BIR322		Volunteering	E	1	0	2	2	4
BIR324		Research Studies	E	2	0	0	2	4
BIR327		Techniques in Biological Research	E	3	0	0	3	6
BIR330		Critical Thinking and Creativity	E	3	0	0	3	6
BIR331		Research and Academic Writing	E	2	0	0	2	4
BIR332		Environmental Protection	E	3	0	0	3	6
BIR333		Web Design	E	3	0	0	3	6
BIR334		Bioethics	E	2	0	0	2	4
BIR335		History of Science	E	2	0	0	2	4
BIR336		Art and Interpretation	E	2	0	0	2	4
BIR337		Food Safety and Security	E	2	0	0	2	4
BIR338		Forensic Science	E	2	0	0	2	4
BIR339		Clinical Trials	E	2	0	0	2	4
BIR340		Health Information and Computer Practicals	E	3	0	0	3	6
BIR343		Office Programs	E	2	0	0	2	4
BIR344		Stress Management	E	2	0	0	2	4