

Curriculum of the Bachelor Program at the Department of Biomedical Sciences, Chang Gung University (For students admitted in Fall, 2025)

Required / Elective	Subject	Year 1		Subject	Year 2		Subject	Year 3		Subject	Year 4	
		F	S		F	S		F	S		F	S
Required Courses	General Biology (1)(2)	2	2	Biostatistics	2		Seminar (1)(2)	2	2			
	General Biology Laboratory (1)(2)	1	1	Biochemistry	4		Independent Study (1)(2)	2	2			
	General Physics		2	Biochemistry Laboratory	2		Genetics	3				
	General Chemistry	2		Molecular Biology		2	Immunobiology	2				
	General Chemistry Laboratory	1		Molecular Biology Laboratory		2	Microbiology		2			
	Organic Chemistry		4	Cell Biology		2	Introduction to Omics		2			
	Experimental Organic Chemistry		1	Physiology		3						
	Basic programming language for biologists		2	Physical Education	0	0						
	Physical Education (1)	0	0	Analytical Chemistry	2							
	Research Orientation (1)	1										
	Biomathematics (1)	2										
Advanced Program in Clinical Trials				Biomedical Data Analysis and Statistical Software		3	Fundamentals of Human Disease	2		Pharmacokinetics and Pharmacodynamics of Clinical Tial	3	
							Basic Pharmacology		2	Clinical Trial Literature Discussion (2)	2	
							Clinical Trial Literature Discussion (1)		2	Clinical Trial Data Science	2	
										Clinical Trial Professional English	2	
										Epidemiology Theory	2	
										Clinical Trial Principles and Methods		2
										Clinical Trial Talent Development		2
Advanced Program in Biotechnology Industry				Molecular Cloning		2	Introduction to Biotechnology Industry	2		Seminar for advanced program in biotechnology industry (1)(2)	2	2
				Advanced Biochemistry		2	Basic Pharmacology		2	<i>Intellectual Properties in Biomedical Industry</i>	2	
				Introduction to Biotechnology Management		3	Biotechnology English		2	Advanced Microbiology	2	
				Research Practice (1)(2)	2	2	<i>Microbiology Laboratory</i>		2	<i>Biotech Industrial Practicum (Summer)</i>	2	
				Biomedical Data Analysis and Statistical Software		3	Strategic Planning for Biomedical Innovation and Start-ups		2	<i>Biopharmaceutical testing Operations</i>	2	
				Life Science Technique (1) (Summer)	2		Stem Cell Biology	2		<i>Biopharmaceutical testing</i>	2	
							Life Science Technique (2) (Summer)	2		<i>Innovation, creativity and entrepreneurship courses</i>	2	
							Tissue Engineering and its Application in Regenerative Medicine		2	<i>Protein biomarker detection and quantification by advanced technologies (Summer)</i>		1

Elective Courses									<i>Practical course of protein biomarker detection and quantification by advanced technologies (Summer)</i>		1	
									Optical Biosensing	2		
									Separation Science	2		
									<i>Bioinformatic analysis</i>		3	
									Life Science Technique (3) (Summer)	2		
	Advanced Program in Biomedical Research			Advanced Biochemistry	2	2	Scientific Writing	2	Seminar (3)(4)	2	2	
				Research Practice (1)(2)	2	2	Cardiovascular Physiology	2	Undergraduate Thesis Research (1)(2)	2	2	
				Introduction to Neuroscience(odd year)	2		Cellular and Synaptic Neurophysiology (even year)	2	Cancer Biology and Cancer Therapy	2		
				Molecular Cloning	2		Introduction to English Scientific Writing and Presentation	2	Epigenetics : Chromatin and Gene Regulation	2		
				Embryology	2		Metabolomics	2	Advanced Microbiology	2		
							Proteomics	2	Biological Model of Cellular Differentiation	2		
							<i>Human Molecular Genetics</i>	2				
							Principles of Developmental Biology	2				
							Basic Pharmacology	2				
							Evolutionary Biology	2				
							Fundamentals of Molecular Virology	2				
							Introduction to Life Science Research	2				
							Big Data Analysis and Visualization	2				
							Bioinformatics	2				
	Advanced English Program in Bioinformatics						Introduction to Biological Databases	3	Bioinformatic analysis	3		
							Bioinformatics	2	<i>Biological Database Management and Applications</i>		3	
									<i>Clinical informatics</i>		3	
									Seminar (3)(4)	2	2	
									Undergraduate Thesis Research (1)(2)	2	2	
									Special Topics in Omics	2		
	Others	Biology -Basic (1)(2)	3	3	Introduction to Biophotonics	2	Animal Behavior	2	Life Science Technique (3) (Summer)	2		
		Popular Science Reading		2	Readings in Medical Literature	2	Metabolomics Laboratory (Summer)	2	Life Science Technique (4) (Summer)	2		
		Taiwan Biodiversity		2	Life Science Technique (1) (Summer)	2	Web Design and Applications	2	<i>Innovative Practices and Research (1)(2)</i>	2	2	
		Biomathematics (2)		2			Experimental Biology	2	Molecular Medicine	2		
		Humanity & Social Aspect of Science	2				Immune Diseases (odd year)	2	Special Topics in Molecular and Cellular Biology		2	
		Research Orientation (2)		1			Biological Psychology	2	<i>Drosophila Model and Human Diseases</i>		2	

						Life Science Technique (2) (Summer)	2		Aging and healthy aging		2
						Practical Training for Biomedical Science Laboratory Assistants (Summer)	2		Biological Database and Systems Biology		2
						<i>An animal model: honey bees</i>	2				
						<i>Special Topics in Aging Research</i>	2				
						Molecular genetics and genomic engineering		2			
	Subtotal	Minimum Credits	12	12			12	12		9	9
		Required Credits (GE credits excluded)	9	12			10	9		0	0
	Note	1. Graduation Credits: 128 credits. (1) Required Courses: 57 credits. (2) Elective Courses: 46 credits. ① At least 42 credits must be electives from the department. ② Up to 4 credits from other departments can be recognized (excluding general education, physical education, and national defense/military training elective courses). ③ Credits from courses listed under university-level interdisciplinary programs or the Biomedical Science department' s specialized programs can be included in department electives if the program is completed. (3) General Education Credits: Refer to the General Education Center's course requirements. English, Core, and Multidisciplinary Courses: 25 credits. 2. Physical Education: Mandatory for freshman and sophomore years, 0 credits. 3. English Graduation Requirement: Students must meet the university' s English proficiency standards to graduate. Refer to the Language Center for details. 4. Specialized Program Requirement: Biomedical Science students must complete at least one of the following programs before graduation: Biomedical Research Program, Biotechnology Industry Program, Clinical Trials Program, All-English Bioinformatics Program. 5. Course Prerequisites: (a) Introduction to Clinical Trial Design and Methods: Requires prior completion of the 2-credit Introduction to Biostatistics. (b) Clinical Trial Pharmacokinetics and Pharmacodynamics: Requires prior completion of the 2-credit Introduction to Pharmacology. (c) Advanced Biochemistry: Requires prior completion of the 4-credit Biochemistry. (d) Molecular genetics and genomic engineering: Requires prior completion of the 2-credit Molecular Biology. 6 .Dual Majors: Students from other departments pursuing a dual major in this department are exempt from completing one of this department' s specialized graduation programs. Students from this department pursuing a dual major in another department are also exempt if they meet the dual major requirements of the other department. 7. The following master' s program courses taken by students of this department may be counted as departmental elective courses. (1) Graduate Institute of Biomedical Sciences: Protein biomarker detection and quantification by advanced technologies, Practical course of protein biomarker detection and quantification by advanced technologies, Drosophila Model and Human Diseases,Biological Database Management and Applications,An animal model: honey bees,Special Topics in Aging Research, Human Molecular Genetics. (2)Master Program in Biotechnology Industry: Intellectual Properties in Biomedical Industry, Biopharmaceutical testing, Biopharmaceutical testing Operations, Innovation, creativity and entrepreneurship courses. (3)Department of Artificial Intelligence Master's Program: Bioinformatic analysis, Clinical informatics.									

Department Chair :

Committee Chair:

Administrative: