



Course	Credits	Hours	1 <sup>st</sup> year				2 <sup>nd</sup> year				3 <sup>rd</sup> year				4 <sup>th</sup> year				Note
			Fall		Spring		Fall		Spring		Fall		Spring		Fall		Spring		
			class	lab	class	lab	class	lab	class	lab	class	lab	class	lab	class	lab	class	lab	
Physics principles for biologist	3	3	3																
General Biology-1	3	3	3																
General Biology Lab.-1	1	3	1	2															
General Biology-2	3	3			3														
General Discussion on Biotechnology	2	2			2														
Organic Chemistry	3	3			3														
Organic Chemistry Lab.	1	3			1	2													
Laws, Standards, and Academic Ethics on Biotechnology	2	2			2														
Freshman Seminar	1	1	1																
Analytical Chemistry(Lab)	3	3					3												
Biochemistry-1	4	4					4												
Biochemistry Lab.-1	1	3					1	2											Service Learning
Biochemistry-2	4	4							4										
Microbiology	3	3							3										
Microbiology Lab.	1	3							1	2									
Cell Biology	3	3									3								
Cell Biology Lab.	1	3									1	2							
Bioinformatics-1	2	3											2	1					Computer courses
Molecular Biology	3	3									3								
Biostatistics	3	3									3								
Laboratory Quality Management System	3	3											3						
Research Training 1	1	1											1						
Research Training 2	1	1													1				alternative courses: Internship in Industry

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				class	lab	class	lab	class	lab	class	lab	class	lab	class	lab	class	lab	class	lab			
	Seminar 1	1	1													1	0					
	Seminar 2	1	1															1	0			
	Subtotal	61																				
	Subtotal Required Course Credits	89																				
Professional Elective Courses	Biomedical Program	Animal Physiology	3	3				3														
		Animal Cell Culture and Application	2	2						2												
		Immunology	3	3								3										
		Vaccine & Vaccination	3	3									3									
		Laboratory Animal Medicine	3	3															3			
		Gene Transfer	2	2															2			
		Virology	3	3												3						
		Genomics	3	3						3												
		Molecular genetics and applications	3	3					3													
		Special Topics to Genome Project & Annotation	3	3							3											
		Introduction to Pharmacy	3	3					3													
		Bioinorganic Chemistry	3	3									3									
		Applied Bioinstrumentation and Analysis	3	3									3									
		Bioinformatics-2	2	3													2	1				Computer courses
Special Topics in Molecular Biology	3	3											3									



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			class	lab	class	lab	class	lab	class	lab	class	lab	class	lab	class	lab	class	lab	
Agriculture and Food Industrial Waste Management	2	2										2							
The Principle and Practice of Aquaponics	3	3										3							
Enzymology	3	3											3						
Food Safety	3	3											3						
Fermentation	3	3											3						
The Science and Culture Behind Food Material	3	3											3						
Food Process (Lab)	3	3													3				
Dietary Supplements and Functional Foods	3	3													3				
以上專業選修學程至少需修 20 個學分 Professional electives must be selected at least 20 credit hours																			

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			class	lab	class	lab	class	lab	class	lab	class	lab	class	lab	class	lab	class	lab	
Other Elective Course	Fundamental Chemistry (E)	3	3	3															
	Fundamental Chemistry Lab (E)	1	3	1	2														
	General Biology I (E)	3	3	3															
	General Biology Lab I (E)	1	3	1	2														
	Microbiology (E)	3	3					3											
	Microbiology Lab (E)	1	3					1	2										
	Biochemistry I (E)	4	4					4											
	Biostatistics (E)	3	3									3							
	Programming Design-1	2	3					2	1										
Programming Design-2	2	3							2	1									

General Biology Lab.-2	1	3								1	2								
Bioorganic Chemistry	2	2					2												
Biotechnology Law	2	2								2									
Ecology	2	2										2							
International Biotech Industry												2							
Military Training-1	0	2	2																1-semester courses
Military Training-2	0	2			2														1-semester courses
Nursing-1	0	2	2																1-semester courses
Nursing-2	0	2			2														1-semester courses
Research Paper Writing	1	1											1						
Internship in Industry	1	1																1	
Biosensor	3	3																3	
Biotechnical Intellectual Property Rights and Patents	2	2																2	
Introduction of Bioindustry	2	2																2	
Physic Chemistry	3	3																3	
Subtotal Required Course Credits	89																		
Subtotal Elective Course Credits	39																		
Subtotal Professional Elective Course Credits	20																		
Subtotal Elective courses from other schools	19																		
Grand Total	128																		

## Notes:

1. In accordance with the General Provisions for Study, undergraduate students need to satisfactorily complete Service Learning, meet the university-wide basic competencies of English, Information Technology, Chinese, and Sports, and pass the core competencies of their department to be eligible for graduation.
2. Students who entered in and since the 2008-09 academic year need to complete at least 12 General Education course credits. General Education courses are divided into three areas: Humanities, Social Science, and Natural Science. Each area is divided into two subcategories: core and extended. Students need to take 1 two-credit course in both of the subcategories within each area to be eligible for graduation. Only 12 course credits will be counted toward graduation. Additional course credits earned in General Education courses are not counted toward graduation.
3. Elective credits of the other departments are, at most, 19 credits. Course credits from the "Teacher Education Program" of the Teacher Education Center cannot be counted toward students' final grades.

4. Students can choose the course (E) from BT, which can be counted as their graduation credits under the approval of the department chair, can be included in the elective credits of the department, and can be applied retroactively to students who entered the university before the 2024-2025 academic year.
5. The newly added elective courses in this academic year can be applied retroactively to students who entered the university prior to the 2024-2025 academic year.
6. When taking and retaking professional courses, students can choose the same course name, the same course name (E), or the same course content as substitutions under the approval of the department chair. These courses can be regarded as graduation credits and applied retroactively to students who entered the university before the 2024-2025 academic year.
7. Students can choose the course from BT master program, which can be counted as their graduation credits under the approval of the department chair, and can be applied retroactively to students who entered the university prior to the 2024-2025 academic year.
8. Professional Electives can be selected from two programs of study, students must first complete one of these of study, each consisting of at least 15 course credits.
9. Professional electives must be selected at least 20 credit hours.
10. When retaking the Calculus course, students can choose Calculus I or Calculus II course as substitutions under the approval of the department chair. These courses can be regarded as their graduation credits, and can be applied retroactively to students who entered the university prior to the 2024-2025 academic year.
11. The credits of interdisciplinary focused course program are not included in course structure diagram that can be regarded as the other department credits
12. The required courses on this Course Outline may be counted as elective course credits toward total graduation credits by students who entered the university prior to the 2024 academic year.
13. Graduating students and students in the extended study period who did not pass required courses of Physical Education can waive a maximum of two (2) required Physical Education courses by passing Comprehensive Physical Education I, Comprehensive Physical Education II. This regulation is applicable for those admitted in and prior to 2020-21 academic year.
14. If International students, overseas students or students from Hong Kong and Macao are not good at Chinese, they can take the courses of Basic Chinese I & II through International College instead of taking Chinese Literature: Appreciation and Creative Writing I & II. This regulation can be applied to students who entered the university prior to the 2021-22 academic year.
15. Research Project II and Internship in Industry are optional courses. Students who conduct the type of Research Project I could take the Research Project II continuously or take the Internship in Industry. Both ways will be acceptable for graduation criteria.
16. If International students, overseas students or students from Hong Kong and Macao are not good at Chinese, they can take the courses of Basic Chinese I & II or Chinese Literature I & II through International College instead of taking Chinese Literature: Appreciation and Creative Writing I & II. This regulation can be applied to students who entered

the university prior to the 2023-24 academic year.