



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	
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					

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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											
		Genetics	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		
	Proteomics	3	3											3						
	Developmental Biology	3	3											3						
	Protein Separation and Two Dimensional Electrophoresis	2	2													2				
	Protein preparation and mass spectrum analysis	2	2														2			
Biofood Program	Nutrition	3	3					3												
	Introduction to Biochemistry Engineering	3	3					3												
	Plant Physiology	3	3					3												
	Cosmetics Science	3	3					3												
	Herb Plant Cultivation and Application	3	3					3												
	Food Chemistry	3	3						3											
	Food Analysis (Lab)	3	3						3											
	Tissue culture and Application	3	3						3											
	Environmental Ecology	3	3						3											
	Food Microbiology (Lab)	3	3								3									
	Enzymology	3	3											3						
	Food Safety	3	3											3						
	Fermentation	3	3											3						

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			Fall		Spring		Fall		Spring		Fall		Spring		Fall		Spring		
			class	lab	class	lab	class	lab	class	lab	class	lab	class	lab	class	lab	class	lab	
The Science and Culture Behind Food Material	3	3											3						
Food Process Engineering (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	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						
	The Principle and Practice of Aquaponics	3	3										3						
	Industrial Practice	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			
	Agriculture and Food Industrial Waste Management	2	2																2	
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. Course credits obtained from the Teacher Education Center cannot be counted toward students' final grades.
4. Elective courses credits include BT professional courses and courses from other schools, but the BT Department can only admit maximum 19 course credits.
5. The newly added elective courses in this academic year can be applied retroactively to students who entered the university prior to the 2020 academic year.
6. When retaking the professional courses, students can choose those which are the same course name or the same course content 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 2020 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 2020 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 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 2020 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 2020 academic year.

13. The courses, The Principle and Practice of Aquaponics, may be counted in the Biotechnology Program by students who entered the university can be traced back to the 2017 academic year.

14. The courses, The Science and Culture Behind Food Material, may be counted in the Biofood Program by students who entered the university prior to the 2019 academic year.