Course List and Graduation Requirements for International Programs, Chemistry Program – School of Science (for Undergraduates Enrolled in October 2019)

Course Category			Course	Term	Credits				
					No of Credits	Compulsory	Compulsory Elective	Elective	Minimum Requirement
Liberal Arts and Sciences Courses	Basic General Education Courses	First Year Seminar	First Year Seminar A	I	2	2			2
		Language and Culture	Japanese/Languages except English	I, II	12	12			12
		Health and Sports Science	Health and Sports Science: Lecture	I	2	2			2
			Health and Sports Science: Practicum I	II	1	1			2
			Health and Sports Science: Practicum II	III	1	1			
		Partial Sum				18			18
	Basic Courses in Humanities and Social Sciences ★		History	II	2			2	6
			Literature	I	2			2	
			Comparative Studies of Cultures	*2020-I*	2			2	
	Liberal Education Courses in Humanities and Social Sciences ★		Introduction to Cultural Studies	II	2			2	
			Culture and Representation	II	2			2	
			Past and Present of Democracy	*2020-I*	2			2	
			International Society of Globalization Age	I	2			2	
	Liberal Education Courses in Natural Sciences		Biotechnology	I	2			2	4
			Modern Biology	II	2			2	
			Science of Materials	III	2			2	
	Liberal Education Courses in Interdisciplinary Fields ★		Exploration of Japan: From the Outside Looking Inside	II	2			2	consisting of 2 credits from LECNS. see 10 page 1(3)
			Introduction to Career Development Theory	I	2			2	
			Preparedness for Imminent Natural Disasters	III	2			2	
			Thinking about Japanese Society in the 21st Century from Gender Perspectives	I	2			2	
			Special Lecture (Studium Generale I)	I	2			2	
			Special Lecture (Studium Generale II)	II	2			2	
			Special Lecture (Go in Japanese Culture)	III	1			1	
			Special Lecture (Summer Camp for General Academic Skills)	IV	2			2	
	Basic Courses in Natural Sciences		Calculus I	I	2			2	18
			Calculus II	II	2			2	
			Linear Algebra I	I	2			2	
			Linear Algebra II	II	2			2	
			Complex Analysis	III	2			2	
			Fundamentals of Physics I	I	2			2	
			Fundamentals of Physics II	I	2			2	
			Fundamentals of Physics III	II	2			2	
			Fundamentals of Physics IV	II	2			2	
			Fundamentals of Chemistry I	I	2			2	
			Fundamentals of Chemistry II	II	2			2	
			Fundamentals of Biology I	I	2			2	
			Fundamentals of Biology II	II	2			2	
			Fundamentals of Earth Science I	I	2			2	
			Fundamentals of Earth Science II	II	2			2	
			Laboratory in Physics	III	1.5			1.5	1.5
			Laboratory in Chemistry	II	1.5			1.5	
			Laboratory in Biology	II	1.5			1.5	
	Sum for Liberal Arts and Sciences Courses					18	0	29.5	47.5
Courses in Specialized Fields	Basic Specialized Courses	Compulsory Courses ①	Chemistry Seminar I	IV	2	2			4
			Chemistry Seminar II	III	2	2			
		Compulsory Elective Courses ②	Analytical Chemistry	III	2		2		28
			Inorganic Chemistry I	IV	2		2		
			Inorganic Chemistry II	V	2		2		
			Inorganic Chemistry III	VI	2		2		
			Organic Chemistry I	III	2		2		
			Organic Chemistry II	IV	2		2		
			Organic Chemistry III	V	2		2		
			Physical Chemistry I	III	2		2		
			Physical Chemistry II	IV	2		2		
			Quantum Chemistry I	IV	2		2		
			Quantum Chemistry II	V	2		2		
			Quantum Chemistry III	VI	2		2		
			Biochemistry I	III	2		2		
			Biochemistry II	IV	2		2		
			Chemistry of Inorganic Materials I	V	2		2		
			Chemistry of Inorganic Materials II	VI	2		2		
			Mathematical Physics I	III	2		2		
			Mathematical Physics Tutorial I	III	1		1		
		Elective Courses ③	Mathematics Tutorial Ia	I	1			1	8
			Mathematics Tutorial Ib	I	1			1	
			Mathematics Tutorial IIa	II	1			1	
			Mathematics Tutorial IIb	II	1			1	
			Fundamental Physics Tutorial Ia	I	1			1	
			Fundamental Physics Tutorial Ib	I	1			1	
			Fundamental Physics Tutorial II a	II	1			1	
			Fundamental Physics Tutorial II b	II	1			1	
			Cell Biology I	III	2			2	
			Cell Biology II	III	2			2	
			Statistical Physics I (Thermodynamics)	III	2			2	
			Analytical Mechanics I	III	2			2	
			Electricity and Magnetism	IV	2			2	
			Earth and Planetary Science	V	2			2	
			Environmental Earth Science	VI	2			2	
		Partial Sum				4	28	8	40
	Specialized Courses	Compulsory Courses ④	Chemistry Laboratory	V, VI	17	17			37
			Graduation Research	VII, VIII	20	20			
		Elective Courses ⑤	Organic Chemistry IV	VI	2			2	7
			Organic Chemistry V	V	2			2	
			Polymer Chemistry	V	2			2	
			Computational Chemistry	V	2			2	
			Current Organic and Polymer Chemistry	VI	2			2	
			Biochemistry IV	VI	2			2	
			Cell Biology IV	VI	2			2	
			Chemical Physics	V	2			2	
			Biophysics	IV	2			2	
			Structural Chemistry	V	2			2	
		Partial Sum				37	0	7	44
	Sum for Courses in Specialized Fields					41	28	15	84
Total Sum						**59**	**28**	**44.5**	**131.5**

・Confirm the prerequisite for each subject with the syllabus.

・Refer to the derail of the Term on the page 4 of "AY2019 Liberal Arts and Sciences Course Registration Guide for International Programs Sutdents"

★Some of the courses on this column are offered in every other year. Confirm the offering term with the "Liberal Arts and Sciences Class Timetable" of the said year.

Graduation Requirements for International Programs, Chemistry Program – School of Science (for Undergraduate)

1. Liberal Arts and Sciences Courses: A combined total of at least 47.5credits must be acquired.

(1) Basic General Education Courses:
A total of at least 18 credits must be acquired, consisting of 2 credits from first year seminar A, 12 credits from Japanese/Languages except English, 2 credits of Health and Sports Science: Lecture and at least 2 credits from Health and Sports Science: Practicum courses.

(2) Basic Courses in Humanities and Social Sciences and Liberal Education Courses in Humanities and Social Sciences:
A total of at least 6 elective course credits must be acquired from these two Courses Categories.

(3) Liberal Education Courses in Natural Sciences and Liberal Education Courses in Interdisciplinary Fields:
A total of at least 4 elective course credits must be acquired from these two Course Categories, consisting of 2credits from Liberal Education Courses in Natural Sciences.

(4) Basic Courses in Natural Sciences:
A total of at least 19.5 credits must be acquired, consisting of 18 course credits from this category of fundamental science courses except three Laboratory courses and at least 1.5 course credits from the three Laboratory Courses.

2. Courses in Specialized Fields: A combined total of at least 84 course credits must be acquired from these course categories.

(1) Compulsory Courses: A total of 41 compulsory course credits must be acquired, consisting of a total of 37 from Compulsory Specialized Courses ④ and that of 4 compulsory course credits from Compulsory Basic Specialized Courses ①.

(2) Compulsory Elective Courses: A total of at least 28 course credits must be acquired from Compulsory Elective Courses ②.

(3) Elective Courses: A total of at least 15 course credits must be acquired from Elective Courses ③ and ⑤, consisting of a total of at least 8 course credits from Elective Basic Specialized Courses ③ and a total of at least 7 course credits from Elective Specialized Courses ⑤.

(4) If a total of compulsory elective course credits acquired from ② is larger than 28 credits, a maximum of 4 credits out of the exceeding credits can be included in the acquired credits of Elective Specialized Courses ⑤.

Requirements for Advancement for International Programs, Chemistry Program - School of Science (for Undergraduate)

Time the Judgment is made	Course Categories and Required Number of Credits	Students unable to advance to the next year
At the End of the First Grade	A total of a minimum of 20 course credits must be acquired at the end of the first grade.	1. Remain in the first year. 2. Must take no longer than 5 years to complete their first year. [Duration of enrollment (8 years)] minus [second to forth years(3 years)] 3. Students unable to advance to the next year within the 5-year limit stated in 2. above will be expelled from the school.