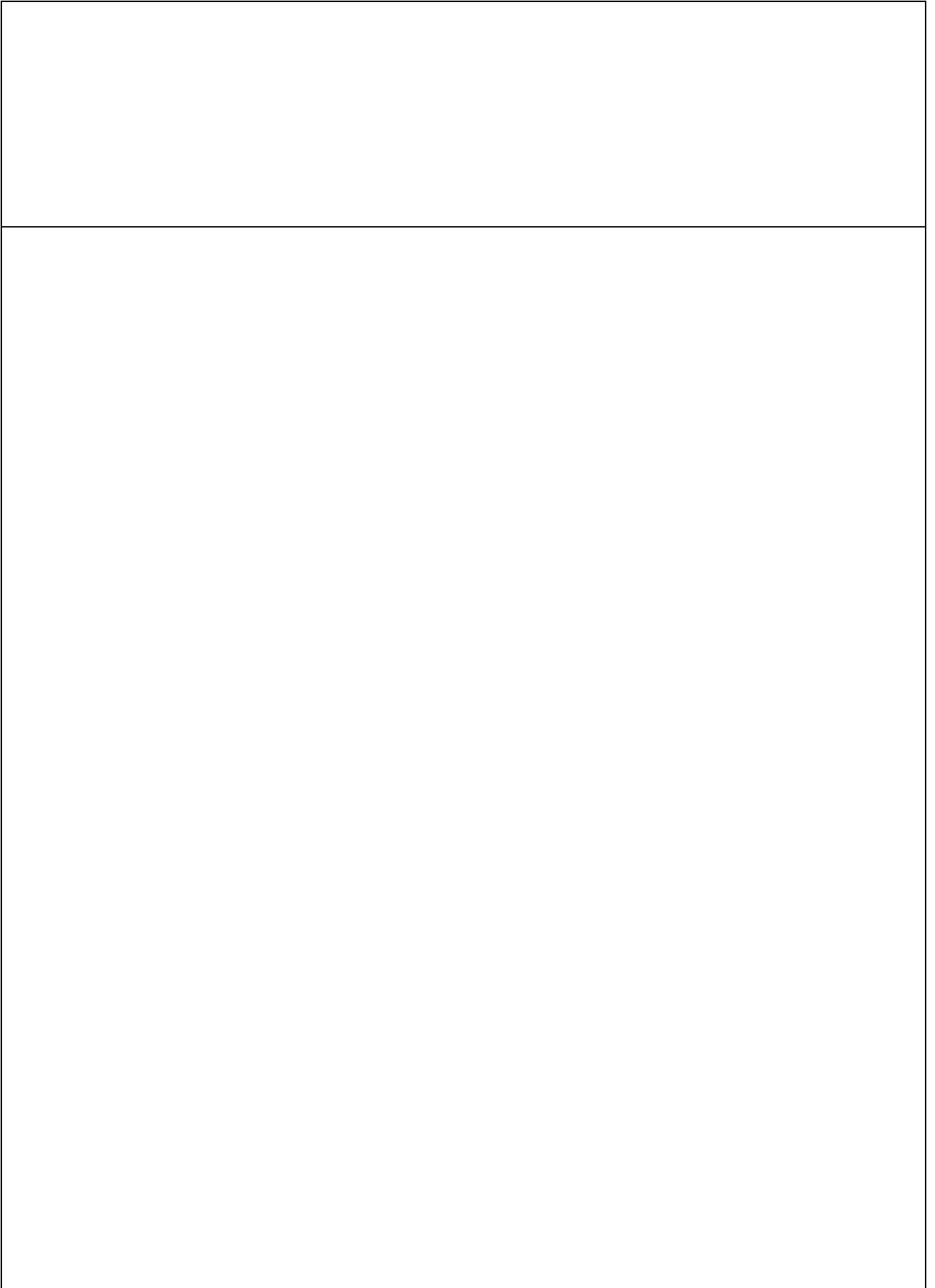
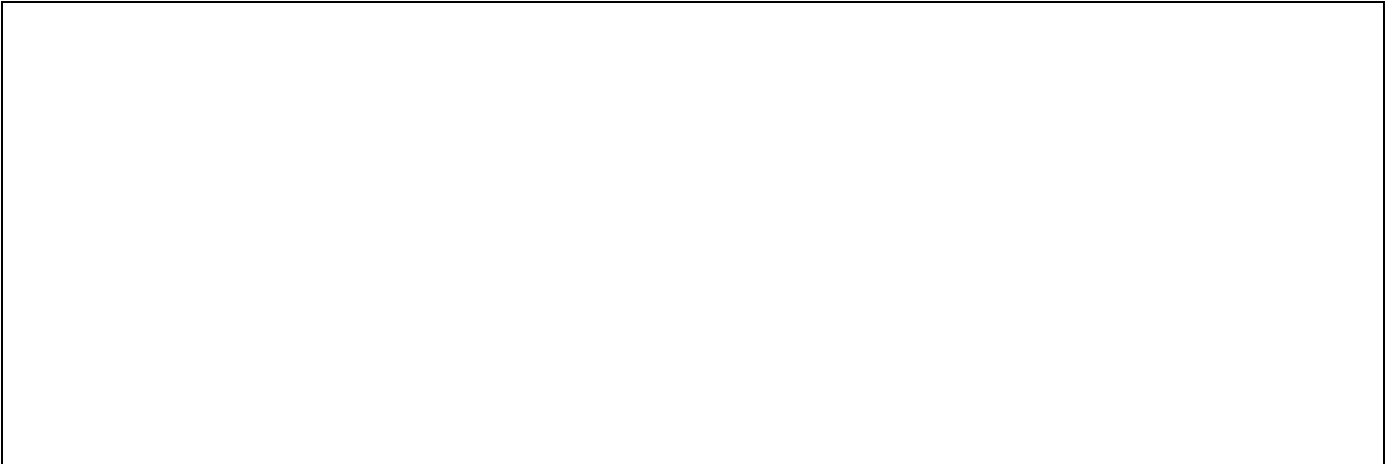


Specifications for Major Program





Start of the Program

R

Position

Time and method of assignment

Method of assignment

Guidance on preparing a graduation thesis

(5) Read an English book in turn with other students and exchange opinions, and introduce the abstract of

Responsibility system

Reviewing Committee (hereinafter, "Program Reviewing

Program Reviewing Committee establishes a loop of improvement in the PDCA cycle

with each other, with the Chair of the Educational Program Reviewing Committee as

Criteria for Program assessment

Implementing the assessment

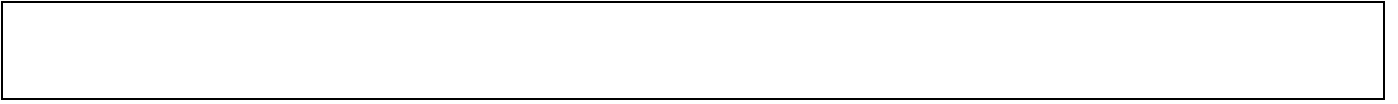
The Program Reviewing Committee plays a leading role in assessing and improving the Program.

explained below. The Program Reviewing Committee examines the validity of the Program's learning &

three programs. Requests for checks and improvements to these shared subjects, when deemed necessary, will be proposed to the Cluster 3 Curriculum Reviewing Committee, and will

Specialized Subject Group Liaison Conference will be proposed to the Program Reviewing Committee. The Program Reviewing Committee, based on these improvement plans, wi

Idea and method of feedback to students



Cluster 3 (Applied Chemistry, Biotechnology and Chemical Engineering)

Required subject (period of registration specified)

Compulsory elective subject (any of these subjects shall be registered)

Free elective subject (any of these subjects shall be registered)

Subject Type		Required No. of credits	Class subjects	No. of credits																								
														Spring								Fall						
						1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T							
Peace Science Courses		2		2	Compulsory elective																							
Basic Courses in University Education		2	Introduction to University Education	2	Required																							
		2	Introductory Seminar for First-Year Students	2	Required																							
		0	Advanced Seminar	1	Free elective																							
Common Subjects		Area Courses		4	Courses in Arts and Humanities/Social Sc	2	Compulsory elective																					
				4	Courses in Natural Sciences	2																						
		Foreign Languages		Basic English Usage		2	Basic English Usage I	1	Required																			
							Basic English Usage II	1																				
				Communication I		2	Communication IA	1	Required																			
							Communication IB	1																				
		Communication		2	Communication IIA	1	Required																					
					Communication IIB	1																						
		Initial Foreign Languages (Select one language from German, French, Spanish, Russian, Chinese, Korean and Arabic)		2	1 subjects from Basic language I	1	Compulsory elective																					
					1 subjects from Basic language II	1																						
Information and Data Science Courses		2	Introduction to Information and Data Sciences	2	Required	©																						
Health and Sports Courses		2		1or2	Compulsory elective																							
Basic Subjects		15	Calculus I	2	Required																							
			Calculus II	2																								
			Linear Algebra																									
			General Mechanics II	2																								
			Experimental Methods and Laboratory Work in Physics I	1																								
		Experimental Methods and Laboratory Work in Physics II	1																									
		Seminar in Basic Mathematics I	1																									
		Seminar in Basic Mathematics II	1																									
		Experimental Methods and Laboratory Work in Biology I	1	Compulsory elective																								
Experimental Methods and Laboratory Work in Biology II	1																											
Basic Electromagnetism	2																											
		2	From all Subject Type		Free elective																							
		44																										

- Note 1 When students fail to acquire the credit during the term or semester marked with _____ in the boxes for the year in which the course is taken, they can take the course in subsequent terms or semesters. Depending on class subject, courses may be offered in semesters or terms different from those scheduled. Please be sure to check the time schedule for Liberal Arts Education subjects to be issued every school year.
- Note 2 The credit obtained by mastery of self-directed study of "Online Seminar in English A B" cannot be counted towards the credit necessary for graduation. The credit obtained by Overseas Language Training can be recognized as Communication _____ or _____ if application is made in advance. For more details, please refer to the article on English in Liberal Arts Education in the student handbook.
- Note 3 We have a recognition of credit system for foreign language proficiency tests. For more details, please refer to the article on Foreign Language in Liberal Arts Education in the student handbook.
- Note 4 Students must take both Experimental Methods and Laboratory WorkI in **Physics I** 1credit and Experimental Methods and Laboratory WorkII in **Physics II** 1credit .
- Note 5: Experimental Methods and Laboratory Work in Biology I should basically be taken together with Experimental Methods and Laboratory Work in Biology II. Person who took Methods and Laboratory Work in Biology I can take Experimental Methods and Laboratory Work in Biology II.

Cluster Requirements for NE320, NE321, NE322, NE323, NE324, NE325, NE326, NE327, NE328, NE329, NE330, NE331, NE332, NE333, NE334, NE335, NE336, NE337, NE338, NE339, NE340, NE341, NE342, NE343, NE344, NE345, NE346, NE347, NE348, NE349, NE350, NE351, NE352, NE353, NE354, NE355, NE356, NE357, NE358, NE359, NE360, NE361, NE362, NE363, NE364, NE365, NE366, NE367, NE368, NE369, NE370, NE371, NE372, NE373, NE374, NE375, NE376, NE377, NE378, NE379, NE380, NE381, NE382, NE383, NE384, NE385, NE386, NE387, NE388, NE389, NE390, NE391, NE392, NE393, NE394, NE395, NE396, NE397, NE398, NE399, NE400

Required

	Credits	Applied Chemistry Biotechnolog y Chemical engineering	1st grade				2nd grade				4th grade			
			Fall				Fall				Spring			
			1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T
Applied Mathematics I	2			4										
Applied Mathematics II	2					4								
Applied Mathematics III	2										4			
Basic Engineering Computer Programming	2					4								
Probability and Statistics	2									4				
Technical English	1								4					
Basic Environmental Sciences	2			4										
Chemical Stoichiometry	2						4							
Basic Organic Chemistry I	2			4										
Basic Organic Chemistry II	2				4									
Physical Chemistry I	2						4							
Biochemistry I	2						4							
Basic Experiments in Chemistry	4								12	12				
Basic Inorganic Chemistry	2			4										
Analytical Chemistry	2						4							
Basic life science	2				4									
Introduction to Applied Chemistry, Chemical Engineering and Biotechnology	2								4					
Introduction to Fundamental Industry	2								4					

Academic Achievements in Applied Chemistry

The Relationship between Evaluation Items and Evaluation Criteria

	Excellent	Very Good	Good
(1) Wide range of basic knowledge on liberal arts and specialized education, and professional basic knowledge on chemistry.	Acquiring the wide range of basic knowledge on liberal arts and specialized education, and professional basic knowledge on chemistry, and being able to explain them.	Acquiring the wide range of basic knowledge on liberal arts and specialized education, and professional basic knowledge on chemistry.	Acquiring the outline of wide range of basic knowledge on liberal arts and specialized education, and professional basic knowledge on chemistry.
(2) Advanced technical knowledge of applied chemistry.	Acquiring the advanced technical knowledge of applied chemistry.	Acquiring the advanced technical knowledge of applied chemistry.	Acquiring the advanced technical knowledge of applied chemistry.

