Faculty of Science and Technology Curriculum

Faculty of Science and Technology Curriculum Objectives of Education and Research Objectives of Human Resource Development Diploma Policy Curriculum Policy For all English Program Students General Studies Language (ACADEMIC SKILLS / ACADEMIC WRITING) Department of Materials and Life Sciences Bachelor's Program in Green Science Department of Engineering and Applied Sciences Bachelor's Program in Green Engineering Course List

Objectives of Education and Research

To have students gain academic knowledge of a specialized field as their foundation and acquire "combined intelligence," which is characterized by a wide range of knowledge that would enable them to view other fields objectively, through art-science integrated education, so that they can contribute to solving various problems in today's highly diversified society.

Objectives of Human Resource Development

To foster human resources who can contribute to "scientific and technological development" by solving various problems in today's highly diversified society with a broad vision acquired through knowledge of a specialized field and "combined intelligence".

Diploma Policy

The Faculty of Science and Technology aims to foster human resources who have gained understanding of the Christian humanism spirit and have acquired the ability to solve, with a broad and international perspective, the various scientific and technological issues challenging today's highly diversified society, and who can pursue original research based on high ingenuity and creativity and thus contribute to the further advancement of science and technology. With a view to this aim, each department sets standards for the skills and knowledge students should have acquired upon graduation as described herein. Those who have fulfilled the requirements and have passed the thesis defense will be awarded a diploma.

Curriculum Policy

In accordance with the diploma policy, the Faculty of Science and Technology constructs its curriculum as follows:

- 1. To acquire fundamental abilities to solve science and technology issues from a broad international perspective through coursework in lecture-based Faculty of Science and Technology Categories I and II General Courses which students should commonly take.
- 2. Based on the above, to acquire specialized abilities through Departmental Core Courses centered on seminars and laboratory classes and to acquire the ability to pursue research with originality through Specialized Courses characterized by higher expertise.
- The English translation of objectives and policies of the faculty and departments are provided for information, and the original Japanese version remains the sole official version. If there is any discrepancy between the two versions, the Japanese original should take precedence.

For all English Program Students

🖹 7. Faculty of Science and Technology Early Graduation System

For all English Program Students 1. Organization of the Faculty of Science and Technology 2. General Studies (Zengaku Kyotsu Kamoku) 3. Language 4. Specialized Education (Gakka Kamoku) 5. Graduate School 6. Qualifications

1. Organization of the Faculty of Science and Technology

The Faculty of Science and Technology aims to provide students with "cross-disciplinary understanding" that integrates "science" and "technology". With its motto being "human and environmental support," the Faculty seeks to produce graduates who are able to take active steps toward realizing human societies that thrive in harmony with nature. It aims to nurture in students the ability to adapt to today's knowledge-based societies. To this end, the Faculty is made up of the following three departments:

- 1. Department of Materials and Life Sciences
- 2. Department of Engineering and Applied Sciences
- 3. Department of Information and Communication Sciences

Each department offers a variety of unique educational programs. The Department of Materials and Life Sciences aspires to impart to students "new and innovative ways to explore materials that are in harmony with nature"; the Department of Engineering and Applied Sciences endeavors to teach students "ways to create materials and devices that will greatly benefit both global and human environments"; and the Department of Information and Communication Sciences seeks to offer students "an in-depth understanding of humans and society through information".

To meet the diverse needs of internationalization, the Faculty added two new programs taught entirely in English as part of its regular curriculum in September 2012. Students enrolled in those programs are required to complete all courses, take examinations, submit reports, undergo research guidance, and submit their undergraduate thesis in English.

In this Faculty, classes are divided into General Studies courses (Zengaku Kyotsu Kamoku) and Specialized Education courses (Gakka Kamoku). Students must take classes that satisfy all of the requirements for their particular programs. However, since the university is a place where students gain academic knowledge through studying, it is important for students to play an active role in planning the content of their own study programs and take full responsibility for their own learning.

2. General Studies (Zengaku Kyotsu Kamoku)

At Sophia University, University-wide General Studies are designed for students to acquire the abilities necessary for various studies. In addition to learning the spirit of "Christian Humanism" that underlies all Sophia University education, students will cultivate the ability to identify issues, formulate questions, and solve problems from multiple perspectives with a wide range of knowledge. The purpose is to create a foundation for students to continue learning throughout their lives and to contribute to the realization of a better world as people who live "for others, with others."

University-wide General Studies courses are structured into categories by topics and in multiple levels. The students are expected to take these courses throughout their undergraduate studies in order to expand the depth and the width of their learning.

Refer to the General Studies section for further details.

3. Language

For students studying science and technology at the university level, there is an increasing need to acquire the ability to read textbooks and other documents as well as to present the results of their research in various languages. Furthermore, once they graduate, various languages will play an even more important part in their lives, no matter what career path they choose to specialize in. This stems from the international nature of science and technology, and the trend will increase in the future. However, various languages are not only important for practical reasons, but will also help students to develop a rich body of knowledge and ways of thinking, which are essential qualities for scientists and technological experts.

This university serves as a bridge among countries, with teams of excellent instructors to provide students with foreign language guidance. We invite students to take full advantage of the opportunities provided by this superlative learning environment. To avoid having regrets in the future, we encourage students to master various languages while they are at university and their memory is still sharp.

"Academic Skills 1 and 2" are compulsory courses. From Academic Year 2022, Critical Thinking and Discussion became a compulsory course as well. Please see "Language (ACADEMIC SKILLS / ACADEMIC WRITING)".

In addition, for those wishing to take Japanese or any other language course, up to 8 credits from such courses can be included in their graduation requirements for an elective course in General Studies (Zengaku Kyotsu Kamoku).

4. Specialized Education (Gakka Kamoku)

There are four types of Specialized Education (Gakka Kamoku): 1), 2) Faculty of Science and Technology Common Subject Group I and II (which are required for all students in the Faculty of Science and Technology), 3) Core Courses that form the main course groups of each department and 4) Specialized Courses offered by each department. Among these are compulsory courses, compulsory elective courses, elective courses, and optional courses. Optional courses are courses for which credits do not count towards graduation.

For the Faculty of Science and Technology Common Subject Group I and II, students are not permitted to enroll in courses other than those included in the English program (i.e., courses in Japanese). Even if students take courses from Common Subject Group I and II offered for the Japanese-taught program (理工共通科目I群、II 群), their credits cannot be counted for the graduation requirements. However, for the Core Courses and Specialized Courses, students are permitted to enroll in courses other than those included in the English Program.

1. Faculty of Science and Technology Common Subject Group I

The Faculty of Science and Technology Common Subject Group I includes introductory courses related to science and technology that aim to broaden students' knowledge of these fields.

This group includes "English for Science and Engineering".

2. Faculty of Science and Technology Common Subject Group II

This group contains courses that students are required to take in preparation for Core Courses and Specialized Courses.

Students can transfer surplus credits from compulsory elective courses to elective courses in the Faculty of Science and Technology Common Subject Group II.

3. Department Core Courses

Department Core Courses are the groups of courses that form the core curriculum for each department, including experiments, seminars, and graduation research.

Experiment-based and practical courses are merged with courses that are taught in Japanese by experienced teaching staff or international teaching assistants. Seminars and graduation research are supervised by faculty members who accept students.

4. Department Specialized Courses

Regarding elective courses among department courses, the number of credits that students are able to allocate from the elective courses of other departments in the Faculty of Science and Technology is up to half of the credits required for graduation.

5. Graduate School

The graduate school at this university offers master's degree programs and doctoral degree programs. Master's degree programs are two years in duration; upon completion students will earn a master's degree. Given that science and technology include many different fields, the graduate school provides students with a highly specialized education that is based on the knowledge acquired in their undergraduate studies. With advances in science and technology, there is an increasing demand for people to earn master's or doctoral degrees. In addition, reducing the length of study for postgraduate degrees is under consideration. Therefore, we invite students currently enrolled in undergraduate programs to consider continuing their studies at the postgraduate level.

Students who wish to enter the graduate program at Sophia University are able to take certain lectures in their fourth year under the system for graduate school pre-entrance course registration. The credits for the lectures will be admitted as effective credits within the defined limit upon entering the graduate program. Lectures that have been taken under the system for graduate school pre-entrance course registration will not be admitted as effective credits for the graduation of the undergraduate program. For further details of pre-graduate school credits, please consult with your Class Advisor, or Head of Graduate School.

6. Qualifications

By taking the required courses and graduating from one of the departments in this faculty, students can obtain a number of qualifications which may serve as prerequisites for test(s) and/or obtaining licenses (in Japanese language). Please refer to the Academic Handbook (履修要覧) for more details on the main qualifications.

7. Faculty of Science and Technology Early Graduation System

The Faculty has an early graduation system in place for students who wish to enroll in a master's program offered by the university as their first priority and thereafter enroll in a doctoral program of the university. Early graduation refers to graduation for students who have spent three years or more at the university (excluding periods of leave of absence from the university) and fulfilled the prescribed procedures, and will graduate upon completion of their 3rd year (six semesters) or half of their 4th year (seven semesters).

1) Qualifications and Procedures for Requesting Early Graduation

1)-1 Students who have met the following conditions upon completion of their 2nd year are eligible to apply for early graduation registration:

[For students who entered in 2024]

- 1. Have obtained 22 credits or more that count toward graduation from General Studies (Zengaku Kyotsu Kamoku) and have obtained 4 credits or more that count toward graduation from Language, including all the compulsory courses in their 1st year;
- 2. Have obtained 62 credits or more that count toward graduation from Specialized Education (Gakka Kamoku), including all compulsory courses in their 2nd year;
- 3. Have a GPA for all the university-wide courses and Specialized Education (Gakka Kamoku) of 3.65 or higher (numeric value in transcript).

[For students who entered from 2022 to 2023]

- 1. Have obtained 22 credits or more that count toward graduation from General Studies (Zengaku Kyotsu Kamoku) and have obtained 4 credits or more that count toward graduation from Language, including all the compulsory courses in their 1st year;
- 2. Have obtained 60 credits or more that count toward graduation from Specialized Education (Gakka Kamoku), including all compulsory courses in their 2nd year;
- 3. Have a GPA for all the university-wide courses and Specialized Education (Gakka Kamoku) of 3.65 or higher (numeric value in transcript).

[For students who entered in 2021 and before]

- 1. Have obtained 24 credits or more that count toward graduation from General Studies (Zengaku Kyotsu Kamoku) and have obtained 4 credits or more that count toward graduation from Language, including all the compulsory courses in their 1st year;
- 2. Have obtained 60 credits or more that count toward graduation from Specialized Education (Gakka Kamoku), including all compulsory courses in their 2nd year;
- 3. Have a GPA for all the university-wide courses and Specialized Education (Gakka Kamoku) of 3.65 or higher (numeric value in transcript).

[For all students]

- 1)-2 The application procedures for early graduation registration are as follows:
- 1. Receive guidance from the department chair regarding the application for early graduation registration at the end of the 2nd year.
- 2. In addition to registering in Graduation Research 1, submit an Application for Early Graduation Registration, only if approval is obtained from the academic supervisor from whom students wish to receive guidance at the beginning of the 3rd year.

- 3. Receive official approval for the Application for Early Graduation Registration from the above-mentioned academic supervisor for Graduation Research 1.
- 1)-3 Following application for early graduation registration as well as receiving guidance from their academic supervisor, students must submit periodic reports to their academic supervisor about their academic progress and receive appropriate guidance.

2) Evaluation for Early Graduation

Students who meet all of the following conditions are eligible to make a request for early graduation:

- 1. The student in question wishes to graduate early and has registered a request for early graduation;
- 2. At the time of early graduation, the student has obtained credits in all of the prescribed subjects required for graduation;
- 3. At the time of early graduation, the student has a GPA in both university-wide subjects and Specialized Education (Gakka Kamoku) of 3.65 or above in grade transcript.

3) Withdrawal of Registration of Request for Early Graduation, and Changes to the Graduation Period

Students who wish to change the period in which they want to graduate following registration of a request for early graduation or who want to withdraw the request itself are required to complete the following procedures:

- 1. For changes to the period of desired graduation, the student must receive official approval from their academic supervisor on Notification of Change of Early Graduation Date and submit it to the Chairperson of the department by the submission deadline for procedures.
- 2. For withdrawals of requests for early graduation, the student must receive official approval from their academic supervisor on Notification of Withdrawal of Registration of Request for Early Graduation and submit it to the Chairperson of the department by the submission deadline for procedures.

[Procedure] * Please refer to the Loyola bulletin board for distribution of documents and other details

Documents to be submitted	Submission period		
Application for early graduation registration	3rd year, from September 21 to October 20 (except university non-business days and holidays)		
Notification of change of early graduation date	Until the 3rd year spring semester or 2Q course registration period		
Notification of withdrawal of application for early graduation registration (In the case of withdrawal of early graduation application after completing six semesters)	Until 3rd year spring semester course withdrawal period or 2Q course withdrawal period		
Notification of withdrawal of application for early graduation registration (In the case of withdrawal of early graduation application after completing seven semesters)	Until 4th year autumn semester course withdrawal period or 4Q course withdrawal period		

General Studies

General Studies For students who entered in or after 2022 For students who entered before 2022 All Students SAIMS Program Courses Japanese Language Program Other Languages

[For students who entered in or after 2022]

Compulsory Courses

All the compulsory courses are divided into designated timetables (blocks) for each department. The class and the registration code will be posted on My Sophia. Students must check My Sophia and register themselves during the registration period. The following courses are the compulsory General Studies courses.

Studies in Christian Humanism: For Others, With Others Liberal Arts of the Body

Both "Studies in Christian Humanism: For Others, With Others" and "Liberal Arts of the Body" are Quarter courses, and students must take them in the designated block. Students must check their designated class on My Sophia.

Semester Offered	Day & Time		
Autumn	Wed, 3		

Students who are unable to attend the designated "Liberal Arts of the Body" due to mental or physical health issues or other reasons must visit the Center for Liberal Education and Learning office (bldg. No.2, 1F) or contact the office by email (sophia-geo-co@sophia.ac.jp) before the class starts to make an appointment to consult with the instructor. Please bring a medical certificate (a cpoy is acceptable) with you to the interview.

Critical Thinking & Discussion

"Critical Thinking & Discussion" is a semester course. Students must take the course in the designated block.

Semester Offered	Day & Time		
Spring	Tue, 1 Fri, 1		

Overview of Data Science

"Overview of Data Science" is a semester course. Students must take the course in the designated block.

Semester Offered	Day & Time		
Spring	Thu, 5		

Thinking about Issues, Perspectives, and Positionality

"Thinking about Issues, Perspectives, and Positionality" is a semester course. Students must take the course in the designated block.

"Thinking about Issues, Perspectives, and Positionality" is an *asynchronous course. Students must enroll themselves in "Thinking about Issues, Perspectives, and Positionality" on Moodle.

(i) *Asynchronous courses are delivered in video lectures, slides, or other asynchronous formats.

Semester Offered	Day & Time
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Autumn Sat, 5

Note: Students who fail a compulsory course in their first-year must retake the course in the second year or later. ① They may choose from all of the English-taught classes offered. They are lottery courses, and students should register during the lottery registration period.

Compulsory Elective Courses

Studies in Christian Humanism

Studies in Christian Humanism (Compulsory Elective Courses) must be taken in the third semester.



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Course List

Course List				
Registration CD	Semester offered	Course title	Cr.	Day & Time
GSCH0130	Autumn	STUDIES IN CHRISTIAN HUMANISM: PHILOSOPHY OF RELIGIOUS LANGUAGE	2	Tue, 5
GSCH0280	Autumn	STUDIES IN CHRISTIAN HUMANISM: PHILOSOPHY OF HUMAN RIGHTS AND HUMAN DIGNITY	2	Tue, 5
GSCH0331	Autumn	STUDIES IN CHRISTIAN HUMANISM: BIBLICAL FOUNDATIONS AND CONTEMPORARY APPLICATIONS	2	Tue, 5

Students should register for these courses during the lottery registration period.

If a student earns more than the required credits for Studies in Christian Humanism Courses, they will be regarded as General Studies Elective Courses.

Students should register for these courses during the **lottery registration period.** For details, See the page relevant to Lottery Course.

If a student earns more than the required credits for Studies in Christian Humanism Courses, they will count towards as General Studies Elective Courses.

Advanced General Education Courses

Students must take 4 credits from the Advanced General Education courses listed in the University-wide General Studies courses in your junior / senior years. (cf.履修要覧〔学部科目編〕全学共通科目)

☐ Notes on Advanced General Education Courses for FST Students

All Students must take at least 4 credits of "Advanced General Education Course" as a part of General Studies Compulsory Electives.

- Students may take the Advanced General Education Course from the fifth semester (ie. their first semester of junior year).
- If students take more than 4 credits of Advanced General Education Courses, it will be counted as General Studies Electives courses.
- Most of the Advanced General Education Courses are lottery courses. Students must enter during the Lottery entry period. Students may be selected for 2 courses in maximum per semester, and you can register more courses by first-come-first-served base.
- For lottery courses of "Advanced General Education Course", students will not get accepted into more than two course per semester.

If a student earns more than the required credits for Advanced General Education Courses, they will count towards as General Studies Elective Courses.

[For students who entered before 2022]

Health and Physical Education

Students who have not earned credits for "Wellness, the Body and Culture" must take "Wellness, the Body and Culture" (*Asynchronous classes).

(i) *Asynchronous classes are delivered in video lectures, slides, or other asynchronous formats.

Students who entered before 2022 may take any of the following semesters.

Semester Offered	Day & Time
Autumn	Sat, 6
Spring	Sat, 6

Studies in Christian Humanism

Two courses in the category "Studies in Christian Humanism" (キリスト教人間学) for a total of 4 credits are compulsory for all students who are enrolled in the FST. Normally, students must take one course in their first semester and another in the second semester.

Course List

Studies in Christian Humanism

Two courses in the category "Studies in Christian Humanism" (キリスト教人間学) for a total of 4 credits are compulsory for all students who are enrolled in the FST. Normally, students must take one course in their first semester and another in the second semester.

Course

Course				
Registration CD	Semester offered	Course title	Cr.	Day & Time
GSCH0130	Autumn	STUDIES IN CHRISTIAN HUMANISM: PHILOSOPHY OF RELIGIOUS LANGUAGE	2	Tue, 5
GSCH0280	Autumn	STUDIES IN CHRISTIAN HUMANISM: PHILOSOPHY OF HUMAN RIGHTS AND HUMAN DIGNITY	2	Tue, 5
GSCH0331	Autumn	STUDIES IN CHRISTIAN HUMANISM: BIBLICAL FOUNDATIONS AND CONTEMPORARY APPLICATIONS	2	Tue, 5
GSCH0040	Spring	STUDIES IN CHRISTIAN HUMANISM: PHILOSOPHY OF THE HUMAN PERSON	2	Tue, 5
GSCH0330	Spring	STUDIES IN CHRISTIAN HUMANISM: BIBLICAL FOUNDATIONS AND CONTEMPORARY APPLICATIONS	2	Tue, 5

Students should register for these courses during the lottery registration period.

If a student earns more than the required credits for Studies in Christian Humanism Courses, they will be regarded as General Studies Elective Courses.

Students should register for these courses during the **lottery registration period.** For details, See the page relevant to Lottery Course.

If a student earns more than the required credits for Studies in Christian Humanism Courses, they will be regarded as General Studies Elective Courses.

Advanced General Education Courses

Students must take 2 credits from the Advanced General Education courses listed in the University-wide General Studies courses in your third / fourth years. (cf.履修要覧〔学部科目編〕全学共通科目)

□ Notes on Advanced General Education Courses for FST Students

All Students must take at least 2 credits of "Advanced General Education Course" as a part of General Studies Electives.

- Students may take the Advanced General Education Course from the fifth semester (ie. their first semester of junior year).
- If students take more than 2 credits of Advanced General Education Courses, it will be counted credits as General Studies Electives courses.
- Most of the Advanced General Education Courses are lottery courses. Students must enter during the lottery entry period.
- For lottery courses of "Advanced General Education Course", students will not get accepted into more than two course per semester.

If a student earns more than the required credits for Advanced General Education Courses, they will be regarded as General Studies Elective Courses.

[All Students]

Elective Courses

First Year - Student may take up to 4 credits of General Studies Elective Courses each semester .(only for students who entered in or after 2022)

Students may take courses from programs offered by Faculty of Liberal Arts. They must choose the courses either from 100~200 level courses offered by FLA or the Japanese Language Program. Note that only up to 8 credits are approved for courses from Language Programs. Students may also take any courses listed in the University-wide General Studies course as Zengaku kyotsu kamoku (全学共通科目). (cf.履修要覧)

List of Courses (General Studies Elective Courses offered by FLA)

■ List of Courses (General Studies Elective Courses offered by FLA)

AHST2510	Development of Japanese Civilization 1
AHST2520	Development of Japanese Civilization 2
AHST2610	History of Chinese Civilization
ASOC2010	Introduction to Sociology
ASOC2250	Introduction to Japanese Society
ASOC2260	The Good Life: from Self to Society
AANT2020	Introduction to Cultural and Social Anthropology
AANT2030	Nature and Culture
AART2010	Introduction to Art History/Visual Culture 1
AART2500	Introduction to Art History/Visual Culture 2
ALIT2010	Literary Genres
ALIT2310	Introduction to Japanese Literature
ARPH2010	Introduction to Philosophy
ARPH2020	Fundamentals of Religion
AIBE2001/2002	Principles of Microeconomics
AIBE2011/2012	Principles of Macroeconomics
APOL2010	Theories and Themes of Contemporary Politics
APOL2050	Introduction to International Relations
APOL2100	Introduction to Comparative Politics
APOL2150	Controversies in Globalization
ACOM221A/B	Computer Studies 1*
ACOM222A/B	Computer Studies 2*
AENV1310	Environmental Issues 1
AGEO2020	Geography
AMTH1010	College Mathematics
AMTH1111/1112	Mathematics and Statistics for Business and Economics

^{*}N.B. The courses with asterisk carry 2 credits each. Other courses listed are 4 credits

SAIMS Program Courses

☆The Sophia AIMS Program (SAIMS) is a trans-disciplinary program focusing on "Human Development", and its main theme is "Human Ecology: Diversity and Connectivity of Society and Nature". Students from ASEAN countries and Japan will study together in a program that combines the disciplinary frameworks of natural sciences, social sciences, and humanities. All courses are conducted in English (TOEFL iBT79 or its equivalent level is required).

The SAIMS program participants are strongly recommended to take at least one of these courses before or after studying abroad under the SAIMS program.

[]=Lottery Courses. Number in brackets is the capacity.

■ SAIMS Program Courses

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Registration	Semester offered	Course title	Cr.	Instructor	Remarks
CD					
GSS20500	Not offered	CONSERVATION	2		[100]
GSS20501	Not offered	CONSERVATION	2		[100]
GSS20510	Not offered	ENVIRONMENTAL SCIENCE	2		※ , [100]
GSS20511	Not offered	ENVIRONMENTAL SCIENCE	2		※ , [100]
GSS20520	Not offered	SUSTAINABLE DEVELOPMENT	2		※ ,[100]
GSS20521	Not offered	SUSTAINABLE DEVELOPMENT	2		※ , [100]

^{[]=}Lottery Courses. Number in brackets is the capacity.

*Green Science and Green Engineering students (FST English Course Students) can include these courses into their Departmental Specialized Education.

Japanese Language Program

The Center for Language Education and Research offers various levels of Japanese language courses. Students who need to use Japanese in daily life or wish to employ Japanese language proficiency in the workplace after graduation are encouraged to take Japanese language courses.

Students who wish to register for Japanese language courses should take the "Japanese Placement Test" (JPT) offered by CLER. Students will be assigned to the appropriate level and course according to the results of the test. Please note if students fail to take the test, they cannot take the Japanese course this semester.



*Students who have taken the JPT or any Japanese Language Courses at Sophia University before cannot take the JPT again. In these cases, register for the designated course on Loyola.

Students who have never studied Japanese do not need to take the placement test. Instead of taking the JPT, submit the application for JPN111 (JAPANESE 1) to the CLER office by the deadline. Students will be assigned to one of the sections of JPN111. If students fail to register for it, they cannot take the Japanese course in the relevant semester.



* Students who fall into one of the following cases and wish to take JPN111 this semester should also submit the application again to be assigned to one of the classes.

- students who submitted the application for JPN111 (JAPANESE 1) to the CLER office in or before the previous semester but did not register for the designated class
- students who registered for JPN111 but withdrew from the course
- students who failed JPN111

For details regarding the Japanese language program and course registration for Japanese, please refer to "Japanese Language Program" brochure issued by CLER. Also check My Sophia University Bulletin Board "Language courses • LLC" for information.

Other Languages

Students who wish to take language courses, please inquire at the Center for Academic Affairs for details.

Language (ACADEMIC SKILLS / ACADEMIC WRITING)

Language (ACADEMIC SKILLS / ACADEMIC WRITING) Course Descriptions Registration Rules Attendance policy

Course Descriptions

ACADEMIC WRITING 1 (AW1)

In this course, students will develop their academic writing skills using four skills integrated approach to well-equip them to write essays and research papers for undergraduate classes in English. The course will take a task-based, learn through doing approach to writing, starting from finding and evaluating academic sources and developing research questions, through to editing and discussing written work in seminar style classes. Students will write about topics related to modern society in Japan which interest them. Classes will consist of input on academic writing skills from the teacher, in class writing exercises and practice, teacher and peer feedback on students' written work, and presentation and discussion of students' assignments.

ACADEMIC WRITING 2 (AW2)

This course will build on and further develop the academic writing skills learned in Academic Writing 1. Students will undertake a research project involving some original research which culminates in a research paper. This project will also require students to draw from more academic sources and have a focus on critique as well as summary or description. They will also have greater freedom to choose topic related to their own studies or interests.

CRITICAL THINKING & DISCUSSION

In this course, students will develop the critical thinking skills they need to perform well academically as undergraduates and beyond. They will learn key terms and concepts in critical thinking and practice applying those by closely examining a variety of texts on which they will write short summaries or reactions. Through this process, students will also reflect on their own thinking processes and skills. Most in-class work will be based around discussions of the various texts and topics, with input and guidance from the teacher on academic discussion skills. Students will also learn how to demonstrate their critical thinking skills in these discussions.

Registration Rules

[For students who entered from 2020]

ACADEMIC WRITING must be taken in the following sequence:

ACADEMIC WRITING 1 (Autumn)

→ ACADEMIC WRITING 2 (Spring)

- ① [
- * Students cannot register for the next course if they have not completed the previous course. (If students have not passed AW1, they cannot register for AW2. If they are not able to fulfill the course requirements, they have to reregister for AW1 in the following Autumn semester.)
 - * Students cannot register for the same course which they have already passed.
- Students must take all courses and complete 4 credits. (2 credits / course)
- ACADEMIC WRITING is counted as a Compulsory Language Course.
- No withdrawals are allowed for these courses.
- Students should register for these courses during the registration period. Students are required to take designated classes, which will be announced on the My Sophia Bulletin Board at 3 pm on September 24 for ACADEMIC WRITING 1 and at 3 pm on April 7 for ACADEMIC WRITING 2.

[For Students who entered from 2018 to 2019]

- ACADEMIC SKILLS 1/2 is replaced by ACADEMIC WRITING 1/2. Those students who have not completed ACADEMIC SKILLS 1& 2 must take ACADEMIC WRITING 1&2.
- Those students who have only completed ACADEMIC SKILLS 1 must take ACADEMIC WRITING 1 offered in Autumn semester, instead of ACADEMIC SKILLS 2.
- Students must complete 4 credits with ACADEMIC SKILLS / ACADEMIC WRITING.
- ACADEMIC SKILLS / ACADEMIC WRITING is counted as a Compulsory Language Course.
- · No withdrawals are allowed for these courses.
- Students should register for these courses during the registration period. Students are required to take designated classes, which will be announced on the My Sophia Bulletin Board at 3 pm on September 24 for ACADEMIC WRITING 1 and at 3 pm on April 7 for ACADEMIC WRITING 2.

CRITICAL THINKING & DISCUSSION (Spring) (Only for the students who entered in and after 2022).

- CRITICAL THINKING & DISCUSSION is counted for the category of "THE ART OF THINKING AND EXPRESSON".
- No withdrawals are allowed for these courses.
- Students should register for these courses during the registration period. Students are required to take designated classes. The designated classes will be announced on the My Sophia Bulletin Board at 3 pm on April 7.

As for the attendance rules, see "Language (ACADEMIC SKILLS / ACADEMIC WRITING)" > "Attendance policy".

For any detail of designated classes, please check My Sophia Bulletin Board (Language courses • LLC), at the beginning of each semester. The announcement will be done by April 7 (Fri) in the Spring semester

and by September 24 (Wed) in the Autumn semester. This is also the case with repeaters (i.e. those students who have been absent from any semester and have studied abroad).

Attendance policy

In language courses offered by the Center for Language Education and Research (CLER), students are required to attend the following number of classes as listed below. Class attendance is essential for students' learning and is considered a minimum condition for gaining credits for the course. A final grade will be considered based on the evaluation criteria stated in the syllabus of each course, only if the number of required attendances has been met.

Meeting the attendance requirement does not guarantee passing course units. The number of required attendance is a minimum condition and any absences and/or tardies will affect the student's grade. Attendance will be counted from the first class meeting. When a student attends a class in the first week but decides to withdraw from the course and registers for a course with a different registration code, the attendance from the previous course(s) will not be transferred to the newly registered course. The CLER does not allow absences except for the below. Therefore, job hunting, any events related to seminar or extracurricular activities, transportation delays and bereavement leaves are not included. Students should attend classes regularly in case of any sudden illnesses or any reasons other than the "Special Consideration" cases.

Twice-a-week courses

The total number of class sessions: 28 per semester

The number of attendances required: At least 23 per semester

Special Consideration

In any of the following conditions, neither your attendance nor absence will be counted. If applicable, please ask your instructor if you can receive this special treatment.

For up to three weeks, the special treatment will apply. As for the period of absence that goes beyond three weeks, regardless of the reasons you may have, the special treatment will not apply. In addition, if the absence is due to two or more circumstances stated below and exceeds three weeks, special consideration will not cover those additional days. Please ask your instructor about the required number of attendance when the special consideration is granted. If your instructor gives you an assignment to make up for your absence, submission of the assignment becomes the prerequisite for receiving the special consideration. The following apply to the special treatment.

- 1. A case of illness or injury where you submit a medical certificate indicating the necessary period of sick or injury leave (*1)
- 2. When you join the annual Jo-Nan competition and submit an official certificate of participation
- 3. When you have been officially assigned to lay judge (裁判員/Saiban-in/) and must assume the duty
- 4. When you submit a letter that confirms your attendance at teaching practice, volunteer experience study (介護等体験 /Kaigotou Taiken/), or museum practice

The letter should be written by you, indicating the exact dates of your practice period. Refer to the regulations set by the Center for Teaching and Curator Credentials (教職・学芸員課程センター).

(*1)

If it is impossible to specify periods of sickness or injury leave in your documentation for any reason, you should (i) bring the relevant medical certificate and consult the CLER Office (Floor 5, Bldg. 6) as soon as possible. The deadlines for consultation at the CLER office are; Wednesday, July 23 (Spring Semester) / Wednesday, January 21 (Autumn Semester)

Late Arrival

Any student who fails to arrive within the first 30 minutes of a class will be regarded as being absent, even if he/she attends the rest of the class.	

Department of Materials and Life Sciences Bachelor's Program in Green Science

3. Precautions when Choosing Courses

Department of Materials and Life Sciences Bachelor's Program in Green Science Education and Research Objectives Human Resource Development Objectives Diploma Policy Curriculum Policy 1. Courses and Minimum Number of Credits Required for Graduation 2. Distribution of Required Credits

Education and Research Objectives

To have students learn academic subjects, such as physics, chemistry, biology, environmental science, and materials science, in an interdisciplinary manner, understand the fundamentals of atoms, molecules, macromolecules, and materials related to natural phenomena, and improve their ability to apply and practice what they have learned.

Human Resource Development Objectives

To develop human resources who have new perspectives of materials and life sciences and can work toward the sustainable integration of the global environment with science and technology, so that they can contribute to creating materials and technologies on the basis of new concepts.

Diploma Policy

The Department of Materials and Life Sciences aims to foster human resources with integrated knowledge based on a broad perspective and a sense of life and materials harmonized with nature. With a view to this aim, the Department sets standards for the skills and knowledge students should acquire before graduation as described below. Those who have fulfilled the requirements and have passed the thesis defense will be awarded a diploma.

- 1. Understanding of the fundamentals of natural science disciplines and safety and ethical/moral values regarding science and technology
- 2. The ability to understand physical, chemical and natural/living phenomena based on the fundamentals of physics, chemistry and biology.
- The ability to systematically understand the fundamentals of materials and life and contribute to the creation of substances ranging from atoms and molecules to polymers and biological materials as well as technology development.
- 4. The ability to contribute to solving science and engineering issues leading to substances and nanotechnology, harmonization of environment and life, and the creation of high-performance material by acquiring the ability to apply and develop what one has learned theoretically and technologically.

Curriculum Policy

In accordance with the Diploma Policy, the Department of Materials and Life Sciences constructs its curriculum as follows:

- 1. To understand the fundamentals of natural science disciplines and acquire safety and ethical/moral values regarding science and technology through coursework in Science and Technology Category I General Courses.
- 2. To acquire the fundamentals of the natural sciences in general, including physics, chemistry, biology, informatics, and mathematics through coursework in Faculty of Science and Technology Category II General Courses and simultaneously acquire skills in English comprehension and expression by becoming familiar with science and technology-related English communication
- 3. To acquire the ability to contribute to the creation of substances ranging from atoms and molecules to polymers and living molecules through coursework in Departmental Core Courses on materials and life (lectures and laboratory classes in physics, chemistry and biology).
- 4. To study highly academic contents on substances and nanotechnology, harmonization between environment and life, and the creation of high-function materials (Departmental Specialized Subjects) and thus acquire problem-solving approaches to applied and emerging disciplines, interdisciplinary fields and human society.
- 5. To acquire the qualities of a researcher through small-group education where cutting-edge disciplines are understood through graduate research and seminars, and findings are presented, thus acquiring the ability to apply and develop what has been learned theoretically and technologically.

1. Courses and Minimum Number of Credits Required for Graduation

1. Courses and Minimum Number of Credits Required for Graduation

Total: 124 credits are required for graduation.

[For students who entered from 2022]

General Studies (Zengaku Kyotsu Kamoku)

Compulsory: 8 credits (Studies in Christian Humanism: For Others, With Others:

1 credit. Liberal Arts of The Body: 1 credit. Critical Thinking & Writing: 2 credits. Overview of Data Science: 2 credits. Thinking About Issues,

Perspectives and Positionality: 2 credits.)

Compulsory electives: 6 credits (Studies in Christian Humanism: 2 credits. Advanced General Education

Courses: 4 credits)

Electives: 12 credits

Language

Compulsory: 4 credits (English)
Specialized Education (Gakka Kamoku)
Compulsory: 29 credits
Compulsory electives: 13 credits
Electives: 52 credits

[For students who entered from 2020 to 2021]

General Studies (Zengaku Kyotsu Kamoku)

Compulsory: 2 credits (Health and Physical Education: 2 credits)

Compulsory electives: 4 credits (Studies in Christian Humanism)

Electives: 20 credits (including Advanced General Education Courses: 2 credits)

Language

Compulsory: 4 credits (English)
Specialized Education (Gakka Kamoku)
Compulsory: 29 credits
Compulsory electives: 13 credits

Electives: 52 credits

2. Distribution of Required Credits

| 2nd Year | 3rd Year | 4th Year | 4th Year | Autumn Semester | Spring Semester | Autumn Semester | Spring Semester | Autumn Semester | Au Spring Semester Advanced General Education Courses General Studies Elective Courses
Fisty was students may lake General Studies Elective Courses up to 4 credits each semester
Japanese or any other Language (so to Bcr)
100-200 level courses effered by FLA (see p.84)
Credits earned in excess of 6 credits in Complasory Electives will be counted into Electives. 1st Year

Autumn Semester course title cr course title cr course title cr course title

MATHEMATICS A LINEAR ALZEBANA 2 BASIC INFORMATICS**

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3. Precautions when Choosing Courses

1) Specialized Education (Gakka Kamoku)

(1) Classification of Specialized Education (Gakka Kamoku)

Faculty of Science and Technology Common Subject Group I:

These are fundamental courses taken by all students of the Faculty of Science and Technology. Courses in this group consist of compulsory courses (16 credits) and compulsory elective courses (English for Science and Engineering (2 credits)).

Faculty of Science and Technology Common Subject Group II:

This group is a continuation from Group I, which consists of common courses that form the foundation for studying specialized courses. While these courses are taken by all students of the Faculty of Science and Technology, some courses are particularly relevant for each department. Therefore, a number of courses are designated as compulsory elective courses by the department. To graduate, students need 28 credits from this particular group, including 8 credits from the compulsory elective courses.

Department Core Courses:

Courses in this group form the educational core of each department and include experiments, exercises, seminars, and graduation research. Some of the experiment-based and practical courses are compulsory elective courses while others are compulsory courses. A combined total of 16 credits from this group must be completed. Starting in 2021, RESEARCH TRIAL AUTUMN and RESEARCH TRIAL SPRING are also available as the option courses for 3rd year students (see (7)). The purpose of these courses is to provide the students an early-stage experience of actual research activities, within the department, to earn a deep understanding on how to approach research activities and specialized subjects of the department.

Department Specialized Courses:

These specialized courses offered by each department are electives. Students are required to take 32 credits from these courses in order to graduate. The courses listed as SAIMS Program Course with * mark, Will be included as Department Specialized Course.

(2) Credits Required for Graduation

To graduate, students are required to take a total of 94 credits from Specialized Education Courses (Gakka Kamoku): 29 credits from compulsory courses, 13 credits from compulsory elective courses, and 52 credits from elective courses.

(3) English for Science and Engineering

Students are required to take the compulsory elective course "ENGL. FOR SCI/ENGINEERING" from the Faculty of Science and Technology Common Subject Group I.

(4) Faculty of Science and Technology Common Subject Group II

Students must complete 8 credits or more from the compulsory elective courses in this group specified by their department. For students taking more than 8 credits, they can count the extra credits toward the Faculty of Science and Technology Common Subject Group II elective courses. Combined with extra

credits from compulsory elective courses, students must take 20 credits from the elective courses in this group.

(5) Experiment-based and Practical Subjects from Department Core Courses

Students must take 13 credits from the compulsory courses in the Department Core Courses group. In addition, they must take 3 or more credits combined with compulsory elective courses from the Department Core Courses group other than English Courses.

MATERIALS AND LIFE SCIENCES LAB. A, LAB. B and LAB. C are compulsory subjects.

Students must register to one of the compulsive elective subjects CHEMISTRY LAB. 1 or BIOLOGY LAB. 1. Students must register to one of the compulsive elective subjects CHEMISTRY LAB. 2 or BIOLOGY LAB. 2. Students must register to one of the compulsive elective subjects PHYSICAL CHEMISTRY LAB. or BIOLOGY LAB. 3.

There is an upper limit to the student number for each of the above mentioned compulsory elective courses. In case that the upper limit is reached, students with higher GPA×credits are given priority in the placement of the students.

The following quarter courses must be registered during the Autumn and Spring registration periods (as if they are semester courses).

- Autumn: [MATERIALS AND LIFE SCIENCE LAB. C] and [CHEMISTRY LAB. 1 or BIOLOGY LAB. 1]
- Spring: [CHEMISTRY LAB. 2 or BIOLOGY LAB. 2] and [PHYSICAL CHEMISTRY LAB. or BIOLOGY LAB. 3]

Corrections or additions to the above experimental courses during the quarter courses extra course registration period is not allowed.

(6) Department Specialized Courses

Students must take 32 credits or more from elective courses.

(7) Optional Courses within the Department Specialized Courses

RESEARCH TRIAL AUTUMN and RESEARCH TRIAL SPRING are available. These courses are offered by the Materials and Life Science Japanese Language Program but imparted in English. The credits obtained from these courses will not count for the required graduation credits.

- **a)** For a student to be able to register for RESEARCH TRIAL AUTUMN and RESEARCH TRIAL SPRING, the student must have previously passed; EXPERIMENTS & EXERCISE OF BASIC SCIENCE, MATERIALS AND LIFE SCIENCE LAB. A, and B. Additionally, the students are required to possess training on safety procedures equivalent to MATERIALS AND LIFE SCIENCE LAB. C.
- **b)** There is an upper limit to the number of students that the teaching staff can accept each semester. In case that the registered students pass the upper limit, students will be accepted based on the student's grade.
- c) Since these are optional courses their credits do not count as graduation credits, however the department strongly encourages the students to take this opportunity as a first-hand experience on research work.
- **d)** For details, follow the instructions given by the department.

2) Registration Requirements for GRADUATION RESEARCH

- 1. To register for GRADUATION RESEARCH 1, the total number of remaining credits out of the minimum number of credits from courses required for graduation must be 14 or less, including the 4 credits for GRADUATION RESEARCH 1, GRADUATION RESEARCH 2, SEMINAR 1 and SEMINAR 2.
- 2. To register FOR GRADUATION RESEARCH 1, students must have completed the compulsory experimental courses; MATERIALS AND LIFE SCIENCES LAB. A, LAB. B and LAB. C.

- 3. In principle, students take GRADUATION RESEARCH 1 in the autumn semester of the 4th year. Those who meet the above requirements and wish to take it in the following spring semester should inform their department.
- 4. To register for GRADUATION RESEARCH 2, students must have completed GRADUATION RESEARCH 1.
- 5. To register for SEMINAR 1, registration of GRADUATION RESEARCH 1 must be already approved.
 In principle, students must take GRADUATION RESEARCH 1, GRADUATION RESEARCH 2, SEMINAR 1 and SEMINAR 2 with the same instructor. Additionally, to register for SEMINAR 2, it is required to have previously acquired SEMINAR 1.

3) Limit on the Number of Credits per Year/Semester

[For students who entered from 2022]

The following limitations apply to the number of credits that can be registered in each academic year and semester.

☐ (Note 1)

Even if students are within the limits for registering credits in the autumn and spring semesters, the total number of credits registered in both semesters cannot exceed the annual limit.

回 (Note 2)

Those who have registered for the Teacher Certification Program are permitted to register for additional courses even though the limit for the semester has been exceeded after they have registered for the program, which is up to 6 credits in each semester (10 credits each year) from their 2nd year.

(Note 3)

Credits for Japanese Courses offered during Spring/Summer Recess will not be included in the maximum credit limit per year/semester (for FST English program students only).

1st Year			2nd Year			3rd Year			4th Year			Total (Credi ts)
Aut	Spr	Annua l Limit	-									
27	27	49	27	27	49	27	27	49	27	27	49	196

i Spring: Spring • 1Q • 2Q courses, Autumn: Autumn • 3Q • 4Q courses

[For students who entered from 2020 to 2021]

The following limitations apply to the number of credits that can be registered in each academic year and semester.

☐ (Note 1)

Even if students are within the limits for registering credits in the autumn and spring semesters, the total number of credits registered in both semesters cannot exceed the annual limit.

回 (Note 2)

Those who have registered for the Teacher Certification Program are permitted to register for additional courses even though the limit for the semester has been exceeded after they have registered for the

program, which is up to 6 credits in each semester (10 credits each year) from their 2nd year.

□ (Note 3)

Credits for Japanese Courses offered during Spring/Summer Recess will not be included in the maximum credit limit per year/semester (for FST English program students only).

1st Year			2nd Year			3rdYe ar			4th Year			Total (Credi ts)
Aut	Spr	Annua l Limit	-									
26	27	49	27	26	49	25	27	49	26	27	49	196

Spring: Spring • 1Q • 2Q courses, Autumn: Autumn • 3Q • 4Q courses

Department of Engineering and Applied Sciences Bachelor's Program in Green Engineering

🖹 3. Precautions when Choosing Courses

Department of Engineering and Applied Sciences Bachelor's Program in Green Engineering ○ Objectives of Education and Research ○ Objectives of Human Resource Development ○ Diploma Policy ○ Curriculum Policy ○ 1. Courses and Minimum Number of Credits Required for Graduation ○ 2. Distribution of Required Credits

Objectives of Education and Research

To foster students' ability to create entirely new values and functions by acquiring knowledge of materials, devices, energy, machinery, and systems, through an in-depth understanding of physics and mathematics.

Objectives of Human Resource Development

To nurture human resources who can, with a flexible mindset, apply and develop a wide range of knowledge and solid expertise acquired, so that they can contribute to solving various scientific and technological problems.

Diploma Policy

The Department of Engineering and Applied Sciences, aims to foster human resources with solid fundamental knowledge of science and technology who can contribute to the acquisition of new physical values and the development of ingenious technologies. With a view to this aim, the department sets standards for the skills and knowledge students should acquire before graduation as described below. Those who have fulfilled the requirements and have passed the thesis defense will be awarded a diploma.

- 1. The broad ability to address science and technology issues, acquired by studying the fundamentals of science and technology, including natural science disciplines.
- 2. The ability to contribute to the acquisition of new physical values and the creation of functions, nurtured by systematically studying physics, mechanical engineering and electrical and electronics engineering.
- 3. The ability to contribute to the development of ingenious technologies, acquired by studying physics, mechanical engineering and electrical and electronics engineering from the perspectives of "energy creation and use," "understanding substances and creating materials and devices," and "manufacturing and creating systems."
- 4. The ability to pursue original research and thus contribute to the further advancement of science and technology, with the power to solve various science and technology issues acquired by theoretically and technologically applying and developing what one has learned.

Curriculum Policy

The Department of Engineering and Applied Sciences aims to foster the ability to contribute to society by acquiring "combined intelligence," which is an integration of academic disciplines, such as "mechanical engineering," "electrical and electronics engineering" and "physics," and key themes, including "energy creation and use," "understanding substances and creating materials and devices," and "manufacturing and system building." In light of this and in accordance with the diploma policy, the Department constructs its curriculum with courses aligned with the following purposes.

- 1. To acquire qualities that can accommodate the advancement of globalization through coursework in courses aimed at nurturing broad cultural knowledge and widening global perspectives, English courses and courses for the understanding of Christian humanism, offered as university-wide General Courses and Language Courses.
- 2. To acquire the fundamentals of the natural sciences in general, including physics, chemistry, biology, informatics, and mathematics through coursework in Science and Technology Category I General Courses to nurture broad capacities to address various science and technology issues.
- 3. To broadly study the fundamentals of science and technology associated with physics, mechanical engineering and electrical and electronics engineering; select a discipline from physics, mechanical engineering and electrical and electronics engineering based on coursework in lectures, as well as laboratory classes and seminars offered as Department Core Courses and Department Specialized Courses; and therefore, foster the ability to contribute to the acquisition of new physical values and creation of functions by systematically understanding each discipline. Also, to acquire science and technology-related English in order to be able to understand science and technology in English.
- 4. To acquire interdisciplinary abilities to apply and develop what has been learned in real society by using physics, mechanical engineering and electrical and electronics engineering. This is supported by allowing students to select lectures, laboratory classes and seminars from the perspectives of "energy creation and use," "understanding substances and creating materials and devices," and "manufacturing and system building" based on lectures, laboratory classes and seminars in Department Core Courses and Department Specialized Courses.
- 5. To acquire the qualities of a researcher by gaining understanding of cutting–edge disciplines and presenting findings through graduate research and to acquire the ability to apply and develop what has been learned theoretically and technologically.

1. Courses and Minimum Number of Credits Required for Graduation

1. Courses and Minimum Number of Credits Required for Graduation

[For students who entered from 2022]

General Studies (Zengaku Kyotsu Kamoku)

Compulsory: 8 credits (Studies in Christian Humanism: For Others, With Others:

1 credit. Liberal Arts of The Body: 1 credit. Critical Thinking & Writing: 2 credits. Overview of Data Science: 2 credits. Thinking About Issues,

Perspectives and Positionality: 2 credits.)

Compulsory electives: 6 credits (Studies in Christian Humanism: 2 credits. Advanced General Education

Courses: 4 credits)

Electives: 12 credits

Language

Compulsory: 4 credits (English)
Specialized Education (Gakka Kamoku):
Compulsory: 26 credits
Compulsory electives: 25 credits
Electives: 43 credits

Total: 124 credits are required for graduation.

[For students who entered from 2018 to 2021]

General Studies (Zengaku Kyotsu Kamoku)

Compulsory: 2 credits (Health and Physical Education: 2 credits)

Compulsory electives: 4 credits (Studies in Christian Humanism)

Electives: 20 credits (including Advanced General Education Courses: 2 credits)

Language

Compulsory: 4 credits (English)
Specialized Education (Gakka Kamoku):
Compulsory: 26 credits
Compulsory electives: 25 credits
Electives: 43 credits

Total: 124 credits are required for graduation.

2. Distribution of Required Credits

[For students who entered in and after 2024] Department of Engineering and Applied Sciences (Green Engineering)

L'or students	s who ente	reu	in and arter 2024) De	spe	ardilenc of Engineerin	ga	na Applied Sciences ((Gr	reen Engineering/									
OGeneral Stud	lies (Zengak	u Kyo	otsu Kamoku) (26credits	_														
				st	Year	_		nd '	Year		3rd	Ye		4	4th			_
			Autumn Semester		Spring Semester course title	Cr	Autumn Semester		Spring Semester	Cr	Autumn Semester	⊢	Spring Semester course title cr	Autumn Seme			g Semest	
		_	course title Studies in Christian	cr		cr	course title	cr	course title	Cr	course title cr	-	course title cr	course title	cr	cour	se title	10
			Humanism: For Others, With Others	1	Critical Thinking & Discussion	2												
Compulsory	Compulsory	8cr	Liberal Arts of the Body Thinking about Issues,	1	Overview of Data Science	2												
			Perspectives and Positionality	2		L		_				_						
	Studies in Christian Humanism						Studies in Christian Humanism	2										
Compulsory Electives	Humanism Humanism Humanism Humanism Humanism Advanced General Education Courses Advanced General Education Courses Advanced General Education Courses - Central Studies Elective Courses up to 4 credits each semester - Fresh many to defer demants (Fig. 2) - Fresh many to demants (Fig. 2) - Fresh m																	
		_	- Conseel Strution Florities (201								_			_			L
Electives	Electives	12cr	- Freshmen may take Gener - Japanese or any other Lar	ral :	Studies Elective Courses up lage (~8cr)	to 4	4 credits each semester											
						tive	s will be counted into Elective	es.		_		_						_
OLanguage (4cre	dits)				v										411			
			Autumn Semester	st	Year Spring Semester	-	Autumn Semester	na	Year Spring Semester	-	Autumn Semester	Ť	Spring Semester	Autumn Seme	4th		« Camast	- ar
			course title	ar		Gr		cr		ar		+	course title or				se title	
Compul	sory	4cr	Academic Writing 1	2	Academic Writing 2	2	course due	Ci I	course acc	100	tourse title or	_	course title cr	- course due		cou	ac dde	100
OSpecialized Edu	cation (Gakka	Kam	oku) (94credits)															
				lst	Year			nd '	Year		3rd	Ye			4th			
			Autumn Semester	_	Spring Semester	_	Autumn Semester	_	Spring Semester	_	Autumn Semester	₽	Spring Semester	Autumn Seme				
Faculty of Science and Technology Common Subject	Compulsory	16cr	COURSE TITLE WATHEMATICS A CLINEAR ALGEBRAN- MATHEMATICS B (CALCULUS)+ MATHEMATICS EXERCISE 1+ NITRODUCTION OF SCHECE & TOCHNOLOGY BASIC PHYSICS 1 BASIC BIOLOGY		COURSE TITLE BASIC CHEMISTRY BASIC INFORMATICS** EXPERIMENTS A EXECUTE OF BASIC SCIENCE	2 2 1	course title	cr	course title	cr	r course title cr		course title cr	course title	_lor]	cour	se title	To
Group I	Compulsory Elective	2cr	BASIC BIOLOGY					- 1	ENGL FOR SCI/ENGINEERING (ENVIRONMENT)	2		_			_			_
Faculty of Science and Technology Common Subject	Compulsory Elective	16cr					BASIC DIFFERENTIAL EQUATIONS	2 2 2	MATERIATIOS OF ESTATISTICAL DATA ANALYSISI FOLIBLER & LAPLACE TRANSFORMS MOLECULAR BIOLOGY THERMODYNAMICS ATOMIC & MOLECULAR SCIENCES	2 2 2	GEOSCIENCE * 2 ATMOSPHERIC CHEMISTRY * 2 ELECTROMAGNETISM 2							
Group II	Elective	11cr									the FST Common Subject Grou ory elective courses can be cour							
Department Core	Compulsory	10cr							ENGINEERING AND APPLIED SCIENCES 3 ENGINEERING AND APPLIED SCIENCES LAB. 2					GRADUATION RESEARCH	0 1	GRADUATIO	ON RESEARCH	1
Courses	Compulsory Elective	7cr							GREEN ENGINEERING LAB. 1	1	GREEN ENGINEERING LAB. 3 1 TOPICS OF GREEN ENGINEERING 1 2 TOPICS OF GREEN ENGINEERING 2 2 日本語のコア選択必修科目	1	REEN ENGINEERING LAB. 2 1					_
Department Specialized Courses	Elective	32cr	32 credits must be taken fro (Students can include up to				s. pecialized courses of other de	epai	rtments of FST and Japanes	ie p		_		•				Ī
			* The three mathematic cours *Every other year	es	marked with the asterisk mark	shou	ald be taken together in the sam	ne s	semester.									
							CS" is assinged in the Spring se				ter please take this course in the	201	d camacter					

[For students who entered in 2023] Department of Engineering and Applied Sciences (Green Engineering)

OGeneral Studies (Zengaku Kyotsu Kamoku) (26credits)

			1s	it '	Year		2nd Ye	ar		3rd Ye	ar	4th	
			Autumn Semester		Spring Semester		Autumn Semester	Spring Semester	Autumn Semester		Spring Semester	Autumn Semester	Spring Semester
			course title	cr	course title	cr	course title cr	course title c	r course title	or	course title cr	course title cr	course title
			Studies in Christian Humanism: For Others, With Others	1	Critical Thinking & Discussion	2							
Compulsory	Compulsory	8cr	Liberal Arts of the Body Thinking about Issues, Perspectives and Positionality	2	Overview of Data Science	2							
Compulsory	Studies in Christian Humanism						Studies in Christian Humanism 2						
Electives	Advanced General Education Courses	6cr								A	dvanced General Education C	ourses	
Electives	Electives	12ar	- General Studies Elective Co - Freshmen may take Genera - Japanese or any other Lang - 100-200 level courses offer - Credits earned in excess of	d S gua	Studies Elective Courses up age (~8cr) I by FLA (p.84)		credits each semester will be counted into Electives.						

	1st	Year	2nd	Year	3rd	Year	4th Year
	Autumn Semester	Spring Semester	Autumn Semester	Spring Semester	Autumn Semester	Spring Semester	Autumn Semester Spring Semester
	course title c	r course title cr	course title cr	course title cr	course title cr	course title cr	course title cr course title cr
Compulsory 4c	Academic Writing 1 2	Academic Writing 2 2					

OSpecialized Educ	cation (Gakka	Kamo	iku) (94credits)												
			1st	: Y	ear		2r	nd	Year		3rd Year		41	h Year	
			Autumn Semester	Τ	Spring Semester		Autumn Semester		Spring Semester		Autumn Semester	Spring Semester	Autumn Semeste		Semester
			course title cr		course title	cr		cr	course title	cr	course title cr	course title cr	course title	cr cours	e title cr
Faculty of Science and Technology Common Subject	Compulsory	16cr			BASIC CHEMISTRY XMYERMENTS & EXERCISE OF BASIC SCIENCE	1	BASIC INFORMATICS	2							
Group I	Compulsory Elective	2cr							ENGL. FOR SCI/ENGINEERING (ENVIRONMENT)	2					
Faculty of Science and Technology Common Subject	Compulsory Elective	16cr					BASIC DIFFERENTIAL EQUATIONS	2	MATHEMATICS OF INTERTIONAL DATA ANALYSIS FOURSER & LAPLACE TRANSFORMS MOLECULAR BIOLOGY THERMODYNAMICS ATOMIC & MOLECULAR SCIENCES	2	GEOSCIENCE★ 2 ATMOSPHERIC CHEMISTRY★ 2 ELECTROMAGNETISM 2				
Group II	Elective	11cr									the FST Common Subject Group II elery elective courses can be counted as				
Department Core	Compulsory	10cr							ENGINEERING AND APPLIED SCIENCES 3 ENGINEERING AND APPLIED SCIENCES LAG. 2	1			GRADUATION RESEARCH I	1 GRADUATION	PESEARCH 2 1
Courses	Compulsory Elective	7cr							GREEN ENGINEERING LAB. 1		GREEN ENGINEERING LAB. 3 1 GREEN TOPICS OF GREEN ENGINEERING 1 2 TOPICS OF GREEN ENGINEERING 2 2 日本語のコア選択必修科目 12	N ENGINEERING LAB. 2 1			·
Department Specialized Courses	Elective		32 credits must be taken from (Students can include up to 16					pa	rtments of FST and Japanese	e pe	rogram of your department.)				

* The three mathematic courses marked with the asterisk mark should be taken together in the same semeste ★Every other year

[For students who entered in 2022] Department of Engineering and Applied Sciences (Green Engineering)

O General Studies (Zengaku Kyotsu Kamoku) (26credits)

				1et	Year		2	nd Ye	ar	Т	300	d Yea		\neg	4+	h Year	
			Autumn Semester	100	Spring Semester	\neg	Autumn Semester	10 10	Spring Semester	\rightarrow	Autumn Semester	1 60	Spring Semester	٠.	Autumn Semeste		ng Semester
			course title	cr		cr		or	course title	Gr		r			course title		
			Studies in Christian Humanism: For Others, With Others		Critical Thinking & Discussion	2											
Compulsory	Compulsory	8cr	Liberal Arts of the Body	1	Overview of Data Science	2											
			Thinking about Issues, Perspectives and Positionality	2													
Compulsory	Studies in Christian Humanism						Studies in Christian Humanism	2									
Electives	Advanced General Education Courses	6cr										Ad	vanced General Education	Cou	rses		4
Electives	Electives	12cr	- Japanese or any other La - 100-200 level courses off	ral : ingu fere	Studies Elective Courses up age (~8cr) d by FLA (p.84)		credits each semester will be counted into Elective	s.									•

OLanguage (4credits)													
	1s	st Year	Т	2nd	d Ye	ıar		31	rd '	Year	Т	4th Y	ear
	Autumn Semester	Spring Semester	\neg	Autumn Semester	\mathbf{L}	Spring Semester		Autumn Semester		Spring Semester	\perp	Autumn Semester	Spring Semester
	course title	cr course title c	cr	course title cr	r	course title	cr	course title	cr	course title	cr	course title cr	course title c
Compulsory 4cr	Academic Writing 1	2 Academic Writing 2	2										

			course title ci		course title	Cr	course title	Cr	course title	C	course title cr	course title c		course title c		
Compuls	sory	4cr	Academic Writing 1 2	1	Academic Writing 2	2										
OSpecialized Edu	cation (Gakka	Kamo	ıku) (94credits)													
			1st	: Y	/ear		2r	nd	Year		3rd Y	'ear	т	4ti	h Ye	ar
			Autumn Semester	Ι	Spring Semester		Autumn Semester		Spring Semester		Autumn Semester	Spring Semester		Autumn Semeste		Spring Semester
			course title c		course title	cr		cr	course title	cr	course title cr	course title	cr	course title	er	course title
Faculty of Science and Technology Common Subject	Compulsory	16cr			BASIC CHEMISTRY EXPERIMENTS & EXERCISE OF BASIC SCIENCE	1	BASIC INFORMATICS	2								
Group I	Compulsory Elective	2cr		_					ENGL. FOR SCI/ENGINEERING (ENVIRONMENT)	2						
Faculty of Science and Technology Common Subject	Compulsory Elective	16cr					BASIC DIFFERENTIAL EQUATIONS SCIENCE, TECHNOLOGY AND ENVIRONMENT	2	MATHEMATICS OF STATISTICAL DATA ANALYSIS FOURIER & LAPLACE TRANSFORMS MOLECULAR BIOLOGY THERMODYNAMICS ATOMIC & MOLECULAR SCIENCES	2 2 2	GEOSCIENCE★ 2 ATMOSPHERIC CHEMISTRY★ 2 ELECTROMAGNETISM 2					
Group II	Elective	11cr									the FST Common Subject Group ry elective courses can be count					
Department Core	Compulsory	10cr							ENGINEERING AND APPLIED SCIENCES 3 ENGINEERING AND APPLIED SCIENCES LAG. 2	1			aru	ADUATION RESEARCH I	1 GRA	DUATION RESEARCH 2
Courses	Compulsory Elective	7cr							GREEN ENGINEERING LAB. 1	1	GREEN ENGINEERING LAB. 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	GREEN ENGINEERING LAB. 2	1			·
Department Specialized Courses	Elective	32cr	32 credits must be taken from (Students can include up to 16					pa	artments of FST and Japanes	ie p						
			* The three mathematic courses *Every other year	m	narked with the asterisk mark si	houl	ld be taken together in the same		emester.							

[For students who entered from 2020 to 2021] Department of Engineering and Applied Sciences (Green Engineering)

OGeneral Studies (Zengaku Kyotsu Kamoku) (26credits)

		1st	Ye	ar	Т		2nd Y	'ear		3rd	Year		П	4th	Year
		Autumn Semester	Т	Spring Semester		Autumn Semester		Spring Semester		Autumn Semester		Spring Semester	\Box	Autumn Semester	Spring Semester
		course title cr	r	course title	or	course title	ar	course title	ar	course title co	r	course title	cr	course title cr	course title c
Compulsory	2cr	Health and Physical Education 2	Т						_		_		_		
Compulsory Elective	4cr	Studies in Christian Humanism			4										
Elective	20cr	Japanese or any other Lang 100-200 level courses offere General Studies Elective Co	ed	by FLA (p.84)											
		General Ottobes Elective Go	Jul a	103					- 1		Adva	nced General Education	n Co	urses	

OLanguage (4credits)														
	1s	t Year	Т	21	nd `	Year		3r	ďΥ	ear	Т	4th	Year	
	Autumn Semester	Spring Semester	Т	Autumn Semester	П	Spring Semester		Autumn Semester	Т	Spring Semester	Т	Autumn Semester	Spring	Semester
	course title	r course title c	or	course title	or	course title	cr	course title	cr	course title	cr	course title cr	cours	se title o
Compulsory 4cr	Academic Writing 1	2 Academic Writing 2 2	2		_		_		_					

			1st	t Y	ear		2	nd	Year		3rd	Ye	ar		4th \	ear
			Autumn Semester	Ť	Spring Semester		Autumn Semester		Spring Semester		Autumn Semester	T	Spring Semester		Autumn Semester	Spring Semeste
			course title c	r		or		or	course title	o	r course title cr	r	course title	cr	course title cr	course title
Faculty of Science and Technology Common Subject Group I		16cr		8	BASIC CHEMISTRY BASIC BIOLOGY FFFRMENTS & BOXPICSE OF BASIC SICIENCE	2	BASIC INFORMATICS	2								·
	Compulsory Elective	2cr							ENGL. FOR SCI/ENGINEERING (ENVIRONMENT)	2	!					
Faculty of Science and Technology Common Subject	Compulsory Elective	16cr					MATHEMATICS DE CONDICAS OF SOMBIA, VARIBULES BASIC DEFERENTIAL EQUATIONS SCIENCE, TECHNOLOGY AND ENVIRONMENT BASIC PHYSICS 2	2 2	MATHEMATIES OF CETATISTICAL DATA MARLYSI FOURIER & LAPLACE TRANSFORM MOLECULAR BIOLOGY THERMODYNAMICS ATOMIC & MOLECULAR SCIENCE	2 2						
Group II	Elective	11cr									the FST Common Subject Group ory elective courses can be cour					
Department Core	Compulsory	10cr					ENGINEERING AND APPLIED SCIENCES 1 ENGINEERING AND APPLIED SCIENCES 2 ENZINEERING AND APPLIED SCIENCES LAB. 1		ENGMEERING AND APPLIED SCIENCES ENGMEERING AND APPLIED SCIENCES LAN.						GRADUATION RESEARCH 1 1	PACUATION RESEARCH 2
Courses OREEN ENGINEERING LAB. 1 OREEN ENGINEERING LAB. 3 1 OREEN ENGINEERING LAB. 2 1 Tompos of matter bounderings 1 2 Tompos of matter bounder																
Department Specialized Courses	Elective		32 credits must be taken from (Students can include up to 1					age	artments of FST and Japane	ise	program of your department.)					

The three mathematic courses marked with the asterisk mark should be taken together in the same semester.
 For students who entered from 2020, this course is offered in autumn semester of 4th year.
 Every other year.

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[For students who entered from 2018 to 2019] Department of Engineering and Applied Sciences (Green Engineering)

OGeneral Studies (Zengaku Kyotsu Kamoku) (26credits)

Odeneral Studies (Zerigal	tu it	yousu Ramoku) (20credits,	,												
		1st	t Ye	ar	П		2nd `	Year			3rd \	Year	Т	4th Y	fear
		Autumn Semester	Т	Spring Semester	\neg	Autumn Semester	\neg	Spring Semester		Autumn Semester		Spring Semester	Т	Autumn Semester	Spring Semest
		course title c	r	course title	or	course title	cr	course title	cı	course title	cr	course title	or	course title cr	course title
Compulsory	2cr	Health and Physical Education 2	2		_				_		_		_		
Compulsory Elective	4cr	Studies in Christian Humanism	_		4										
Elective	20cr	Japanese or any other Lan 100-200 level courses offe General Studies Elective C	rec	l by FLA (p.84)								A	0-		

OLanguage (4credits)

	1s	t Year	2nd	Year	3rd	4th Year		
	Autumn Semester	Spring Semester	Autumn Semester	Spring Semester	Autumn Semester	Spring Semester	Autumn Semester Spring Semester	
	course title	cr course title cr	course title cr	course title cr	course title cr	course title cr	course title cr course title cr	
Compulson: Aur	Acadomio Skillo 1	2 Acadomio Skillo 2 2						

OSpecialized Education (Gakka Kamoku) (94credits)

			16	st Y	/ear		2	nd	Year		3rd	d Y	ear		4th Y	ear
			Autumn Semester	\Box	Spring Semester		Autumn Semester		Spring Semester		Autumn Semester	I	Spring Semester		Autumn Semester	Spring Semester
				cr		cr		cr		С	r course title c	r	course title	cr	course title cr	course title cr
Faculty of Science and Technology Common Subject Group I		16c		2	BASIC CHEMISTRY BASIC BIOLOGY EXPERIMENTS & EXPLOSE OF BASIC SCIENCE	2	BASIC INFORMATICS	2								
	Compulsory Elective	2cr							ENGL. FOR SCI/ENGINEERING (ENVIRONMENT)	2	!					
Faculty of Science and Technology Common Subject	Compulsory Elective	160	,				MATCHINETE IS CALCULS OF SCHOOL VISIONISH BASIC DIFFERENTIAL EQUATIONS CLOSE, RESPECTABLE OF CONTROL PROPERTY. SILES SCIENCE, TECHNOLOGY AND ENVIRONMENT BASIC PHYSICS 2	2 2 2	WATHEMATIOS OF ISTATESTICAL DATA ANALYSES FOURSER & LAPLACE TRANSFORMS MOLECULAR BIOLOGY THERMODYNAMICS ATOMIC & MOLECULAR SCIENCES	2 2	GEOSCIENCE * ATMOSPHERIC CHEMISTRY * ELECTROMAGNETISM	2				
Group II	Elective	110									the FST Common Subject Groovy elective courses can be co					
Department Core	Compulsory	10c					ENGINEERING AND APPLIED SCIENCES 1 ENGINEERING AND APPLIED SCIENCES 2 ENGINEERING AND APPLIED SCIENCES LAS. 1		ENGINEERING AND APPLIED SCIENCES 3 ENGINEERING AND APPLIED SCIENCES LAB. 2	1					SPADUATION RESEARCH I 1 0	RADUATION RESEARCH 2 1
Courses	Compulsory Elective	7cr							GREEN ENGINEERING LAB. 1	1	GREEN ENGINEERING LAB. 3 TOPICS OF GREEN ENGINEERING 1 TOPICS OF GREEN ENGINEERING 2 日本語のコア選択必修科目・・・	2	GREEN ENGINEERING LAB. 2	1		·
Department Specialized Courses	Elective	32c	32 credits must be taken fro (Students can include up to					de	partments of FST and Japan	nes	e program of your department.)				
			* The three mathematic course *Every other year	es n	narked with the asterisk mark	sho	uld be taken together in the sa	me	semester.							

3. Precautions when Choosing Courses

1) Specialized Education (Gakka Kamoku)

(For students who entered from 2018)

(1) Classification of Specialized Education (Gakka Kamoku)

Faculty of Science and Technology Common Subject Group I:

These are fundamental courses taken by all students of the Faculty of Science and Technology. Courses in this group consist of compulsory courses (16 credits) and compulsory elective courses (English for Science and Engineering (2 credits)).

Faculty of Science and Technology Common Subject Group II:

This group is a continuation from Group I, which consists of common courses that form the foundation for studying specialized courses. While these courses are taken by all students of the Faculty of Science and Technology, some courses are particularly relevant for each department. Therefore, a number of courses are designated as compulsory elective courses by the department. To graduate, students need 27 credits from this particular group, including 16 credits from the compulsory elective courses.

Department Core Courses:

Courses in this group form the core elements of study of each department and include experiments, exercises, seminars, Research Trial Spring, Autumn and graduation research. Some experiment-based and practical courses are compulsory elective courses while others are compulsory courses. A combined total of 17 credits from this group must be completed. Since 2021, Research Trial Spring, Autumn have been established for 3rd year students. The purpose of these courses is to provide the students an early-stage experience of actual research activities within the department, to earn deep understanding on how to approach research activities and specialized subjects of the department.

Department Specialized Courses:

These specialized courses offered by each department are electives. Students are required to take 32 credits from these courses in order to graduate.

The courses listed as SAIMS Program Course with * mark, Will be included as Department Specialized Course.

(2) Credits Required for Graduation

To graduate, students are required to take a total of 94 credits from Specialized Education (Gakka Kamoku): 26 credits from compulsory courses, 25 credits from compulsory elective courses, and 43 credits from elective courses.

(3) English for Science and Engineering

Students are required to take the compulsory elective course "ENGL. FOR SCI/ENGINEERING" from the Faculty of Science and Technology Common Subject Group I.

(4) Faculty of Science and Technology Common Subject Group II

Students must complete 16 credits or more from the compulsory elective courses in this group specified by their department. For students taking more than 16 credits, they can count the excess credits toward the Faculty of Science and Technology Common Subject Group II elective courses. Combined with extra

credits from compulsory elective courses, students must take 11 credits from the elective courses in this group.

(5) Experiment-based and Practical Subjects from Department Core Courses

Students must obtain 10 credits from the compulsory courses in the Department Core Courses group. In addition, they must take 7 or more credits combined with compulsory elective courses from the Department Core Courses group other than English Courses.

(6) Department Specialized Courses

Students must take 32 credits or more from elective courses.

(7) Optional Courses within the Department Specialized Courses

Since 2021, the courses Research Trial Spring, Autumn became available for all students. These courses are offered by the Japanese Program but imparted in English. The credits obtained from these courses will not be counted for the required graduation credits.

- **a)** For a student be able to register Research Trial Spring, Autumn, it must have previously passed; Experiments & Exercise of Basic Science, Engineering and Applied Sciences Lab. 1 and 2. Moreover, it must have registered Green Engineering Lab. 1.
- **b)** There is an upper limit to the number of students that the teaching staff can take each semester. In case that the number of registered students exceeds the upper limit, students will be selected based on the student's grade.
- c) Since these are optional courses, their credits are not counted as graduation credits. However, the department strongly encourages the students to take this opportunity for first-hand experience on research work.
- d) For details, follow the instructions given by the department.

2) Registration Requirements for Graduation Research

- 1. To register for Graduation Research I, the total number of remaining credits out of the minimum number of credits from subjects required for graduation (124 credits) must be 20 or fewer, including 2 credits from Graduation Research I and II.
- 2. To register for Graduation Research II, students must have completed Graduation Research I.
- 3. Generally, students take Graduation Research I in the autumn semester of the 4th year. Those who meet the above requirements and wish to take it in the following spring semester should inform their department.

3) Limit on the Number of Credits per Year/Semester

[For students who entered from 2022]

The following limitations apply to the number of credits that can be registered in each academic year and semester.

中 (Note 1)

Even if students are within the limits for registering credits in the autumn and spring semesters, the total number of credits registered in both semesters cannot exceed the annual limit.

回 (Note 2)

Those who have registered for the Teacher Certification Program are permitted to register for additional courses even though the limit for semester has been exceeded after they have registered for the program, which is up to 6 credits in each semester (10 credits per year) from their 2nd year.

(Note 3)

Credits for Japanese Courses offered during Spring/Summer Recess will not be included in the maximum credit limit per year/semester (for FST English program students only).

1st Year			2nd Year			3rd Year			4th Year			Total (Credi ts)
Aut	Spr	Annua l Limit	-									
27	27	49	27	27	49	27	27	49	27	27	49	196

Spring: Spring • 1Q • 2Q courses, Autumn: Autumn • 3Q • 4Q courses

[For students who entered from 2018 to 2021]

The following limitations apply to the number of credits that can be registered in each academic year and semester.

□ (Note 1)

Even if students are within the limits for registering credits in the autumn and spring semesters, the total number of credits registered in both semesters cannot exceed the annual limit.

回 (Note 2)

Those who have registered for the Teacher Certification Program are permitted to register for additional courses even though the limit for semester has been exceeded after they have registered for the program, which is up to 6 credits in each semester (10 credits per year) from their 2nd year.

(Note 3)

Credits for Japanese Courses offered during Spring/Summer Recess will not be included in the maximum credit limit per year/semester (for FST English program students only).

1st Year			2nd Year			3rd Year			4th Year			Total (Credi ts)
Aut	Spr	Annua l Limit	-									
26	27	49	27	26	49	25	27	49	26	27	49	196

Spring: Spring • 1Q • 2Q courses, Autumn: Autumn • 3Q • 4Q courses

Course List [Faculty of Science and Technology]

Common Subjects in the Faculty of Science and Technology

	Course No.	Numbering	Course title	Cr.	Semester offered	Instructor	Student Year	Remarks
	SCT1230E	SCT106-75e00	INTRODUCTION OF SCIENCE AND TECHNOLOGY	2	AUT	FUJITA / KUROE / SUZUKI / DZIEMINSKA / NAKAMURA	1	○.Team-taught course, Combined with "SCIENCE, TECHNOLOGY AND ENVIRONMENT"
	SCT1150E	MTH101-75e00	MATHEMATICS A (LINEAR ALGEBRA)	2	AUT	TRIHAN, Fabien	1	
	SCT1160E	MTH102-75e00	MATHEMATICS B (CALCULUS)	2	AUT	TRIHAN, Fabien	1	
Faculty of Science and Technology	SCT1170E	MTH103-75e00	MATHEMATICS EXERCISE 1	1	AUT	TRIHAN, Fabien	1	
Common Subject	SCT1030E	PHY101-75e00	BASIC PHYSICS 1	2	3Q	DZIEMINSKA, Edyta	1	
Group I	SCT1190E	CHM101-75e00	BASIC CHEMISTRY	2	SPR	MISAWA / PENAFLOR	1	
	SCT1200E	BIO101-75e00	BASIC BIOLOGY	2	4Q	NIIKURA, Takako	1	
	SCT2030E	MTH104-75e00	BASIC INFORMATICS	2	SPR	TAKAOKA, Eiko	1	
	SCT1210E	SCT102-75e00	EXPERIMENTS & EXERCISE OF BASIC SCIENCE	1	SPR	DZIEMINSKA /FUYUTSUKI / TAMURA / SUZUKI / KONG	1	
	SCT5130E	SCT203-75e00	ENGL. FOR SCI / ENGINEERING (ENVIRONMENT)	2	SPR	FUYUTSUKI Seba	2	
	SCT1220E	PHY102-75e00	BASIC PHYSICS 2	2	SPR	MARRA Pasquale	1~2	S, E
	SCT6690E	MTH201-75e00	MATHEMATICS C1 (STATISTICAL DATA ANALYSIS)	2	SPR	KIMURA, Akitoshi	2	E
	SCT6650E	BIO102-75e00	MOLECULAR BIOLOGY	2	SPR	FUJIWARA / SUZUKI	2	S, E, Team-taught course
	SCT6700E	MTH105-75e00	MATHEMATICS B2 (CALCULUS OF SEVERAL VARIABLES)	2	AUT	MASE, Makiko*	2	Е
	SCT6710E	MTH106-75e00	BASIC DIFFERENTIAL EQUATIONS	2	AUT	ARAI, Mamiko*	2	Е
	SCT6660E	CHM102-75e00	INORGANIC CHEMISTRY (ANALYTICAL CHEMISTRY)	2	SPR	PENAFLOR, Tania	2	s
	SCT6800E	CHM103-75e00	ORGANIC CHEMISTRY	2	SPR	SUZUKI, Yumiko	2	s
	SCT6810E	CHM202-75e00	PHYSICAL CHEMISTRY	2	AUT	NANBU, Shinkoh	2~4	
	SCT6730E	MTH202-75e00	FOURIER & LAPLACE TRANSFORMS	2	AUT	ARAI, Mamiko*	2	Е
	SCT6740E	PHY202-75e00	THERMODYNAMICS	2	SPR	MARRA Pasquale	2	Е
	SCT6750E	BIO201-75e00	CELL BIOLOGY	2	AUT	HAYASHI, Kensuke	2~4	
	SCT6760E	PHY203-75e00	INTRODUCTION TO QUANTUM MECHANICS	2	AUT	MARRA Pasquale	2~4	
	SCT6770E	PHY204-75e00	ATOMIC & MOLECULAR SCIENCES	2	SPR	HARRIES, JAMES*	2	Е
	SCT6780E	CHM201-75e00	GEOSCIENCE	2	4Q	FUYUTSUKI, Seba	3	Ε, ☆
F	SCT6820E	CHM203-75e00	ATMOSPHERIC CHEMISTRY	2	Not Offered		3	E, ☆
Faculty of Science and Technology	SCT6685E	PHY301-75e00	ELECTROMAGNETISM	2	SPR	MARRA Pasquale FUJITA / KUROE /	2	S, E E, Team-taught course, Combined with
Common Subject Group II	SCT6840E	SCT204-75e00	SCIENCE, TECHNOLOGY AND ENVIRONMENT	2	AUT	SUZUKI / DZIEMINSKA / NAKAMURA	2	"INTRODUCTION OF SCIENCE AND TECHNOLOGY "*
	SCT6830E	BIO202-75e00	FUNDAMENTAL BIOCHEMISTRY	2	SPR	KONDO, Jiro	2~4	Intensive Course, Combined with
	SCT6850E	SCT205-75e00	TECHNOLOGY & INNOVATION - CAREER DEVELOPMENT -	2	SPR	Co.) KONDO, Jiro / Others	2~4	Intensive Course, Combined with GSE30090 offered by General Studies
	SCT6870E	CHM208-75e00	CHEMISTRY OF MATERIALS	2	3Q	FUYUTSUKI, Seba	2~4	Only for GE students. Combined with "MATERIALS AND LIFE SCIENCES (CHEMISTRY)"
	SCT6880E	MEC213-75e00	APPLIED MECHANICS	2	AUT	YILMAZ Emir	2~4	Only for GS students. Combined with "BNGINNERING AND APPLIED SCIENCES 1"
	N99226	SAC213-75e00	STUDY ABROAD (INTERNSHIP)	2	SPR	SHIBUYA, Tomoharu	1~4	S, E,Intensive Course1, ※1
	5.3.7	L	Sumber in brackets is the capacity.					l .

^{[] =} Lottery Courses. Number in brackets is the capacity.

Instructor's name with * = adjunct instructor
S = Compulsory Elective for Green Science Course Students
E = Compulsory Elective for Green Engineering Course Students
o = This course cannot be registered by students that have already registered in OUTLINE OF SCIENCE AND TECHNOLOGY

★ = Every Other Year

★= This course cannot be registered by students who entered from 2023.

^{%1} Those who participate in the program and achieve the prescribed results will be awarded credits for the above subjects. There is no need to register for the courses.
Students in their last semester can also participate in the programs but please keep in mind that no credits will be awarded.
For details on eligibility, application period, etc., please refer to the "Study Abroad Handbook" published by the Center for Global Education and Discovery and the bulletin board.
Grades of P (Pass) or X (Pail) will be used for these courses.

Course List [Department of Materials and Life Sciences (Green Science)]

SML2040E PRUND-7-000 MATERIALS AND LIFE SCIENCES (PHINSTRY) 2 3Q FUVUTSUKI, Seba 2		Course No.	Numbering	Course title	Cr.	Semester offered	Instructor	Student Year	Remarks
SML200001 CHINNEY - NOR MATERIALS AND LIFE SCIENCES (SHEADSTRY) 2		SML2040E	PHY101-76e00	MATERIALS AND LIFE SCIENCES (PHYSICS)	2		MARRA, Pasquale		
SML2090E M01010-7000 MATERIALS AND LIFE SCIENCES LIB A 1		SML2050E			2			2	
SML2070E ML000-7000 MATERIALS AND LIFE SCIENCES LAB A 1		SML2060E	BIO101-76e00	MATERIALS AND LIFE SCIENCES (BIOLOGY)	2	AUT	KAWAGUCHI / YASUGI	2	
SML50006 MASCRIALS AND LIFE SCHENCES LAB 1 SPR NOKOTA / PENAFOR 2		SML2070E	MLS101-76e00	MATERIALS AND LIFE SCIENCES LAB. A	1	AUT	N.SUZUKI / FUJIWARA / Y.SUZUKI / N.SUZUKI / FUYUTSUKI / YASUGI /	2	
SML 1006 SML 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 10		SML2080E	MLS201-76e00	MATERIALS AND LIFE SCIENCES LAB. B	1	SPR	YOKOTA / PEÑAFLOR	2	
Department		SML3030E	MLS202-76e00	MATERIALS AND LIFE SCIENCES LAB. C	1	3Q		3	
Care Courses	Department	SML5130E	CHM201-76e00	CHEMISTRY LAB. 1	1	4Q		3	
SMIL6210E BIOD00 7-000 BIOLOGY LAB 1		SML5140E	CHM301-76e00	CHEMISTRY LAB. 2	1	1Q		3	
SNL52108 BIOLOGY LAB 2		SML5150E	MLS303-76e00	PHYSICAL CHEMISTRY LAB.	1	2Q	NANBU / OKADA / KUZE	3	
SML6220E BIOLOGY LAR 2		SML5210E	BIO201-76e00	BIOLOGY LAB. 1	1	4Q		3	
Salia-2016 No.500-70-00 SEMINAR 1		SML5220E	BIO301-76e00	BIOLOGY LAB. 2	1	1Q		3	
SML4000 ML500 76-00 SEMINAR 1 AUT Supervisor 4 SML4000 ML500 76-00 SEMINAR 2 1 SPR Supervisor 4		SML5230E	BIO302-76e00	BIOLOGY LAB. 3	1	2Q		3	
SML050E ML5007-70-00 GRADUATION RESEARCH 1 1 AUT Supervisor 4 4		SML4030E	MLS301-76e00	SEMINAR 1	1	AUT		4	
SML660E ML8007-7660 GRADUATION RESEARCH 2 1 SPR Supervisor 4 1 1 1 1 1 1 1 1 1		SML4040E	MLS302-76e00	SEMINAR 2	1	SPR	Supervisor	4	
SML6500E PHY301-7660 ATOMIC AND MOLECULAR SPECTROSCOPY 2 AUT ODAGIRI, Takeshi 1~4 \$\pprox \$\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmathrm{\pmatrrm{\pmathrm{\pmathrm{\pmatrrm{\pmathrm{\pmatrrm{\pmathrm{\pmatrrm{\pmathrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\pmatrrm{\p		SML4050E	MLS401-76e00	GRADUATION RESEARCH 1	1	AUT	Supervisor	4	
SML6500E CHM002-76600 INSTRUMENTAL ANALYSIS 2		SML4060E	MLS402-76e00	GRADUATION RESEARCH 2	1	SPR	Supervisor	4	
SML6500E CHM905-76-600 INSTRUMENTAL ANALYSIS 2		SML6490E	PHY301-76e00	ATOMIC AND MOLECULAR SPECTROSCOPY	2	AUT	ODAGIRI, Takeshi	1~4	☆
SML6520E CHM304-76-00 ENVIRONMENTAL ANALYTICAL CHEMISTRY 2 Not Offered 1~4		SML6500E	CHM302-76e00	INSTRUMENTAL ANALYSIS	2	AUT	/ UCHIDA / Y.SUZUKI / HASHIMOTO / MISAWA / PE	1~4	
SML6530E CHM300-76-60 GREEN CHEMISTRY 2 SPR HORIKOSHI, Satoshi 1~4 SML6660E PHY304-76-60 RADIATION PHYSICS AND CHEMISTRY 2 Not Offered 1~4 \$\frac{1}{2}\$ SML6550E CHM300-76-60 CATALYSIS CHEMISTRY 2 AUT SUZUKI, Noriyuki 1~4 \$\frac{1}{2}\$ SML6550E CHM300-76-60 CATALYSIS CHEMISTRY 2 Not Offered 1~4 \$\frac{1}{2}\$ SML6580E PHY300-76-60 QUANTUM REACTION DYNAMICS 2 Not Offered 1~4 \$\frac{1}{2}\$ SML6580E PHY300-76-60 QUANTUM REACTION DYNAMICS 2 SPR N.SUZUKI / FUJIWARA 1~4 \$\frac{1}{2}\$ SML6590E EI0300-76-60 STRUCTURAL CHEMISTRY 2 AUT KUZE, Nobuhiko 1~4 \$\frac{1}{2}\$ SML6500E CHM300-76-60 STRUCTURAL CHEMISTRY 2 AUT KUZE, Nobuhiko 1~4 \$\frac{1}{2}\$ SML6700E CHM301-76-60 SEPARATION CHEMISTRY 1N ANALYSIS 2 SPR YOKOTA, Yukie 1~4 Team taught course SML6700E CHM301-76-60 NATURAL PRODUCT AND DRUG DISCOVERY 2 AUT LUHATA, Lokadi 1~4 Team taught course SML6700E CHM304-76-60 NATURAL PHYSICS 2 SPR FUJUTSUKI, Seba 1~4 \$\frac{1}{2}\$ SML6700E PHY300-76-60 ENVIRONMENTAL PHYSICS 2 SPR FUJUTSUKI, Seba 1~4 \$\frac{1}{2}\$ SML6700E ML8300-76-60 ENVIRONMENTAL PHYSICS 2 SPR FUJUTSUKI, Seba 1~4 \$\frac{1}{2}\$ SML6700E ML8301-76-60 ENVIRONMENTAL PHYSICS 2 SPR FUJUTSUKI, Seba 1~4 \$\frac{1}{2}\$ SML6700E ML8301-76-60 ENSEARCH TOPICS IN LIFE SCIENCES 2 SPR FUJUTSUKI / NAGAO / HASHIMOTO / YOKOTA / UCHIDA / PEÑAFLOR CHEMISTRY 1~4 \$\frac{1}{2}\$ SML6750E ML8301-76-60 ESEARCH TOPICS IN PHYSICAL CHEMISTRY AND 2 SPR SML6700E SML6700E ML8301-76-60 ESEARCH TOPICS IN PHYSICAL CHEMISTRY AND 2 SPR SML6700E		SML6510E	CHM303-76e00	ORGANIC AND NATURAL PRODUCT CHEMISTRY	2	SPR	USUKI, Toyonobu	1~4	
SML6660E PHY904-76e-00 RADIATION PHYSICS AND CHEMISTRY 2 Not Offered 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4 1~4		SML6520E	CHM304-76e00	ENVIRONMENTAL ANALYTICAL CHEMISTRY	2	Not Offered		1~4	û
SML6550E CHM300-76-00 CATALYSIS CHEMISTRY 2 AUT SUZUKI, Noriyuki 1~4 \$\frac{1}{1}\$ \$\frac{1}		SML6530E	CHM305-76e00	GREEN CHEMISTRY	2	SPR	HORIKOSHI, Satoshi	1~4	
SML6570E CHM302-76-60 THEORY-AIDED MOLECULAR DESIGN 2 Not Offered 1 ~ 4 \$\frac{\pi}{\pi} \] SML6580E FHY303-76-60 QUANTUM REACTION DYNAMICS 2 Not Offered 1 ~ 4 \$\frac{\pi}{\pi} \] SML6580E FHY303-76-60 QUANTUM REACTION DYNAMICS 2 SPR N.SUZUKI / FUJIWARA 1 ~ 4 \$\frac{\pi}{\pi} \] SML650E MI0030-76-60 SERUCTURAL CHEMISTRY 2 AUT KUZE, Nobuhiko 1 ~ 4 \$\frac{\pi}{\pi} \] SML670E CHM301-76-60 SEPARATION CHEMISTRY IN ANALYSIS 2 Not Offered 1 ~ 4 \$\frac{\pi}{\pi} \] SML671OE CHM311-76-60 METALLIC AND ELECTRONIC MATERIALS 2 SPR YOKOTA, Yukie 1 ~ 4 \$\frac{\pi}{\pi} \] SML671OE CHM311-76-60 NATURAL PRODUCT AND DRUG DISCOVERY 2 AUT LUHATA, Lokadi 1 ~ 4 \$\frac{\pi}{\pi} \] SML671OE CHM312-76-60 RESEARCH TOPICS IN LIFE SCIENCES 2 SPR LIMÃO-VIEIRA, Paulo 1 ~ 4 \$\frac{\pi}{\pi} \] SML511OE MILS301-76-60 RESEARCH TOPICS IN ORGANIC AND INORGANIC 2 AUT SULUKI / NAGAO / MISAWA / KIKAWADA / HASHIMOTO / YOKOTA / UCHIDA / PENAFLOR \$\frac{\pi}{\pi} \] SML6750E MILS301-76-60 RESEARCH TOPICS IN PHYSICAL CHEMISTRY AND 2 SPR KUZE / OKADA / HOSHINO / NANBU / TANAKA / HORIKOSHI / PUYUTSUKI / TAKAHASHI 1 ~ 4 \$\frac{\pi}{\pi} \] SML6750E MILS301-76-60 RESEARCH TOPICS IN PHYSICAL CHEMISTRY AND CHEMICAL PHYSICS 2 SPR KUZE / OKADA / HOSHINO / NANBU / TANAKA / HORIKOSHI / PUYUTSUKI / TAKAHASHI 1 ~ 4 \$\frac{\pi}{\pi} \] SML6750E MILS301-76-60 RESEARCH TOPICS IN PHYSICAL CHEMISTRY AND CHEMICAL PHYSICS 2 SPR		SML6660E	PHY304-76e00	RADIATION PHYSICS AND CHEMISTRY	2	Not Offered		1~4	
SML6580E PHY903-76600 QUANTUM REACTION DYNAMICS 2 Not Offered 1 \(\sigma \) \(\phi \) \(\p		SML6550E	CHM306-76e00	CATALYSIS CHEMISTRY	2	AUT	SUZUKI, Noriyuki	1~4	
SML6590E BI0303-76e00 TOPICS OF PLANT SCIENCE 2 SPR N.SUZUKI / FUJIWARA 1~4 \$\frac{1}{2}\$ SML650E CHM309-76e00 STRUCTURAL CHEMISTRY 2 AUT KUZE, Nobuhiko 1~4 \$\frac{1}{2}\$ SML670E CHM310-76e00 SEPARATION CHEMISTRY IN ANALYSIS 2 Not Offered 1~4 \$\frac{1}{2}\$ SML6710E CHM310-76e00 SEPARATION CHEMISTRY IN ANALYSIS 2 SPR YOKOTA, Yukie 1~4 \$\frac{1}{2}\$ SML6710E CHM311-76e00 METALLIC AND ELECTRONIC MATERIALS 2 SPR FUJITA / TAKEOKA 1~4 Team taught course SML6720E CHM311-76e00 NATURAL PRODUCT AND DRUG DISCOVERY 2 AUT LUHATA, Lokadi 1~4 \$\frac{1}{2}\$ SML6760E CHM324-76e00 NATURAL PRODUCT AND DRUG DISCOVERY 2 SPR FUJUTSUKI, Seba 1~4 \$\frac{1}{2}\$ SML670E SML670E ENVIRONMENTAL PHYSICS 2 SPR FUJUTSUKI, Seba 1~4 \$\frac{1}{2}\$ SML5170E ML8301-76e00 RESEARCH TOPICS IN LIFE SCIENCES 2 Not Offered 1~4 \$\frac{1}{2}\$ TAKEOKA / RIKUKAWA / FUJUTA / N.SUZUKI / SUZUKI / SU		SML6570E	CHM302-76e00	THEORY-AIDED MOLECULAR DESIGN	2	Not Offered		1~4	☆
SML6630E CHM300-76e00 STRUCTURAL CHEMISTRY 2 AUT KUZE, Nobuhiko 1~4		SML6580E	PHY303-76e00	QUANTUM REACTION DYNAMICS	2	Not Offered		1~4	☆
SML6700E CHM310-76-60 SEPARATION CHEMISTRY IN ANALYSIS 2 Not Offered 1 ~ 4		SML6590E	BIO303-76e00	TOPICS OF PLANT SCIENCE	2	SPR	N.SUZUKI / FUJIWARA	1~4	
SML6710E CHM323-76-600 METALLIC AND ELECTRONIC MATERIALS 2 SPR YOKOTA, Yukie 1~4 Team taught course SML6720E CHM311-76-60 POLYMER CHEMISTRY 2 SPR FUJITA / TAKEOKA 1~4 Team taught course SML6740E ML8306-76-600 NATURAL PRODUCT AND DRUG DISCOVERY 2 AUT LUHATA, Lokadi 1~4 \$\frac{1}{2}\$ \$\frac{1}{2}\$ SML6720E CHM324-76-600 NATURAL PRODUCT AND DRUG DISCOVERY 2 SPR FUYUTSUKI, Seba 1~4 \$\frac{1}{2}\$ SML6770E PHY905-76-600 ENVIRONMENTAL PHYSICS 2 SPR LUMÃO-VIEIRA, Paulo 1~4 \$\frac{1}{2}\$ SML5170E ML8301-76-600 RESEARCH TOPICS IN LIFE SCIENCES 2 Not Offered TAKEOKA / RIKUKAWA / FUJITA / N.SUZUKI / N.SUZUKI / SUZUKI / SUZUK		SML6630E	CHM309-76e00	STRUCTURAL CHEMISTRY	2	AUT	KUZE, Nobuhiko	1~4	☆
SML6720E CHM311-76-600 POLYMER CHEMISTRY 2 SPR FUJITA/TAKEOKA 1~4 Team taught course SML6740E ML5306-76-600 NATURAL PRODUCT AND DRUG DISCOVERY 2 AUT LUHATA, Lokadi 1~4 \$\pm\$ SML6760E CHM324-76-600 ENVIRONMENTAL PHYSICS 2 SPR FUYUTSUKI, Seba 1~4 \$\pm\$ SML5170E ML5301-76-600 ENVIRONMENTAL PHYSICS 2 SPR LUMÃO-VIEIRA, Paulo 1~4 \$\pm\$ SML5170E ML5302-76-600 RESEARCH TOPICS IN LIFE SCIENCES 2 Not Offered TAKEOKA/RIKUKAWA/FUJITA/N.SUZUKI/ VSUKI/MISMA/KIKAWADA/HASHMOTO/YOKOTA/UCHIDA/PENĀFLOR CHEMISTRY SML5180E ML5302-76-600 RESEARCH TOPICS IN ORGANIC AND INORGANIC CHEMISTRY SML5180E ML5302-76-600 RESEARCH TOPICS IN PHYSICAL CHEMISTRY AND UCHIDA/PENĀFLOR CHEMICAL PHYSICS SPR SVIZUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI/VSUKI		SML6700E	CHM310-76e00	SEPARATION CHEMISTRY IN ANALYSIS	2	Not Offered		1~4	
SML6750E		SML6710E	CHM323-76e00	METALLIC AND ELECTRONIC MATERIALS	2	SPR	YOKOTA, Yukie	1~4	
SML6740E ML5306-76e-60 NATURAL PRODUCT AND DRUG DISCOVERY 2 AUT LUHATA, Lokadi 1~4 \$\frac{1}{2}\$ SML6760E CHM323-76e-60 INTRODUCTION TO MODELING OF NATURAL PHENOMENA 2 SPR FUYUTSUKI, Seba 1~4 \$\frac{1}{2}\$ SML6770E PHY905-76e-60 ENVIRONMENTAL PHYSICS 2 SPR LUMÃO-VIEIRA, Paulo 1~4 \$\frac{1}{2}\$ SML5170E ML5301-75e-60 RESEARCH TOPICS IN LIFE SCIENCES 2 Not Offered 1~4 \$\frac{1}{2}\$ TAKEOKA/RIKUKAWA/FUJITA/N.SUZUKI/ N.SUZUKI/ N.SUZ		SML6720E	CHM311-76e00	POLYMER CHEMISTRY	2	SPR	FUJITA / TAKEOKA	1~4	Team taught course
SML6770E PHY905-76e-00 ENVIRONMENTAL PHYSICS 2 SPR LIMÃO-VIEIRA, Paulo 1~4 SML5170E MLS301-75e-00 RESEARCH TOPICS IN LIFE SCIENCES 2 Not Offered 1~4 \$\pprox TAKEOKA/RIKUKAWA/ FUJITA/N.SUZUKI/ Y.SUZUKI/NAGAO / MSAWA/KIKAWADA/ HASHIMOTO / YOKOTA/ UCHIDA/PEÑAFLOR CHEMISTRY SML6750E MLS301-76e-00 RESEARCH TOPICS IN PHYSICAL CHEMISTRY AND 2 SPR SPR CUZE/OKADA/HOSHINO / NANBU/TANAKA/ HORIKOSHI/FUYUTSUKI/ 1~4 \$\pprox TAKAHASHI TAKAHASHI 1~4 \$\pprox TAKEOKA/RIKUKAWADA/ 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4 \$\phi TAKAHASHI 1~4		SML6740E	MLS306-76e00	NATURAL PRODUCT AND DRUG DISCOVERY	2	AUT	LUHATA, Lokadi	1~4	
SML5170E MLS301-75c00 RESEARCH TOPICS IN LIFE SCIENCES 2 Not Offered 1 \(\times \) \(\phi \)		SML6760E	CHM324-76e00	INTRODUCTION TO MODELING OF NATURAL PHENOMENA	2	SPR	FUYUTSUKI, Seba	1~4	☆
SML5180E ML8302-75400 RESEARCH TOPICS IN ORGANIC AND INORGANIC 2 AUT TAKEOKA/ RIKUKAWA / FUJITA / N.SUZUKI / Y.SUZUKI / Y.SUZUKI / V.SUZUKI / N.SWA / KIKAWADA / H.SAIMOTO / YOKOTA / U.CHIDA / PEÑAFLOR KUZE / OKADA / HOSHINO / NABU / TANAKA / HORIKOSHI / FUYUTSUKI / TAKAHASHI 1~4 \$\pm\$ GSS20510 ENV206-02400 ENVIRONMENTAL SCIENCE 2 Not Offered 1~4		SML6770E	PHY305-76e00	ENVIRONMENTAL PHYSICS	2	SPR	LIMÃO-VIEIRA, Paulo	1~4	
RESEARCH TOPICS IN ORGANIC AND INORGANIC 2 AUT		SML5170E	MLS301-75e00	RESEARCH TOPICS IN LIFE SCIENCES	2	Not Offered		1~4	☆
SML6750E MLS301-76-00 RESEARCH TOPICS IN PHYSICAL CHEMISTRY AND CHEMICAL PHYSICS 2 SPR NANBU/TANAKA/HORIKOSHI / FUYUTSUKI / 1~4 \$\frac{1}{2}\$ GSS20510 ENV206-02-00 ENVIRONMENTAL SCIENCE 2 Not Offered 1 ~4		SML5180E	MLS302-75e00		2	AUT	FUJITA / N.SUZUKI / Y.SUZUKI / USUKI / NAGAO / MISAWA / KIKAWADA / HASHIMOTO / YOKOTA /	1~4	☆
		SML6750E	MLS301-76e00		2	SPR	NANBU / TANAKA / HORIKOSHI / FUYUTSUKI /	1~4	垃
GSS20520 CMF203-02e00 SUSTAINABLE DEVELOPMENT 2 Not Offered 1~4		GSS20510	ENV206-02e00	ENVIRONMENTAL SCIENCE	2	Not Offered		1~4	
		GSS20520	CMF203-02e00	SUSTAINABLE DEVELOPMENT	2	Not Offered		1~4	

 $\stackrel{\wedge}{
ightharpoons}$ = Every Other Year

Course List [Department of Engineering and Applied Sciences (Green Engineering)]

	Course No.	Numbering	Course title	Cr.	Semester offered	Instructor	Student Year	Remarks
	SEA2040E	MEC101-77e00	ENGINEERING AND APPLIED SCIENCES 1	2	AUT	YILMAZ, Emir	2	Combined with "APPLIED MECHANICS"
	SEA2050E	PHY101-77e00	ENGINEERING AND APPLIED SCIENCES 2	2	AUT	MARRA, Pasquale	2	Combined with "MATERIAL AND LIFE SCIENCE (PHYSICS)"
	SEA2060E	EEE201-77e00	ENGINEERING AND APPLIED SCIENCES 3	2	1Q	KONG, Deshi	2	
	SEA2070E	EAS101-77e00	ENGINEERING AND APPLIED SCIENCES LAB. 1	1	AUT	SUZUKI / SAKAI / HISAMORI / NAKAMURA / TOGASHI / WATANABE	2	
Department Core Courses	SEA2080E	EAS201-77e00	ENGINEERING AND APPLIED SCIENCES LAB. 2	1	SPR	KIKUCHI / SAKAMA* / SHIMOMURA / TAKAI / KUWAHARA / GOTO / NAKAMURA / WATANABE / TAKEHARA / TOGASHI / YILMAZ / DZIEMINSKA / KONG	2	
	SEA5140E	PHY301-77e00	GREEN ENGINEERING LAB. 1	1	SPR	MARRA, Pasquale	2	
	SEA5150E	MEC301-77e00	GREEN ENGINEERING LAB. 2	1	SPR	ICHIYANAGI / CAO / TANAKA / NAGASHIMA / TAKEHARA / HISAMORI	3	
	SEA5160E	EEE301-77e00	GREEN ENGINEERING LAB. 3	1	AUT	SAKAMOTO / TOGASHI / NOMURA / TAKAO / MIYATAKE / KONG	3	
	SEA5170E	EAS301-77e00	TOPICS OF GREEN ENGINEERING 1	2	3Q	DZIEMINSKA, Edyta	3	
	SEA5180E	EAS302-77e00	TOPICS OF GREEN ENGINEERING 2	2	AUT	KONDO, Atsushi*	3	
	SEA4030E	EAS401-77e00	GRADUATION RESEARCH 1	1	AUT	Supervisor	4	
	SEA4040E	EAS402-77e00	GRADUATION RESEARCH 2	1	SPR	Supervisor	4	
	SEA6520E	MEC302-77e00	THERMAL ENERGY CONVERSION	2	AUT	SUZUKI, Takashi	1~4	
	SEA6530E	MEC303-77e00	FLUID ENERGY CONVERSION	2	SPR	WATANABE, Mariko	1~4	
	SEA6540E	MEC304-77e00	ENERGY & MATERIALS	2	AUT	TAKAI, Kenichi	1~4	
	SEA6550E	EEE302-77e00	NUCLEAR ENERGY ENGINEERING	2	AUT	LIEM*/TBA* / TBA*/ TBA*/ TBA*/ KONG / YAGAI / SAKAMOTO /	1~4	Every Other Week, Team-taught course
	SEA6690E	EEE306-77e00	MOTOR DRIVE SYSTEMS	2	SPR	MIYATAKE / KONG	1~4	☆, Team-taught course
Department	SEA6590E	EEE305-77e00	CLEAN ENERGY	2	SPR	YAGAI, Tsuyoshi	1~4	
Specialized Courses	SEA6600E	EAS303-77e00	SIMULATION ENGINEERING	2	AUT	GONSALVES, Tad	1~4	riα
Courses	SEA6610E	INF308-77e00	COMMUNICATION AND NETWORK ENGINEERING	2	SPR	BANDAI / OGAWA / HAYASHI / TAKAHASHI	1~4	Team-taught course
	SEA6620E	EAS403-77e00	TOPICS OF GREEN ENGINEERING 3	2	2Q	KONG, Deshi	1~4	
	SEA6650E	EAS404-77e00	AIRCRAFT DESIGN WITH MECHANICS OF FLIGHT	2	1Q	DZIEMINSKA, Edyta	1~4	
	SEA6585E	EEE304-77e00	POWER ELECTRONICS	2	Not offered		1~4	☆
	SEA6580E	EEE303-77e00	ELECTRIC POWER SYSTEM ENGINEERING	2	AUT	SAKAMOTO, Orie	1~4	
	SEA6700E	EEE308-77e00	FUNDAMENTALS OF SYSTEM ANALYSIS	2	AUT	KONG, Deshi	1~4	
	GSS20510	ENV206-02e00	ENVIRONMENTAL SCIENCE	2	Not offered		1~4	[100]
	GSS20520	CMF203-02e00	SUSTAINABLE DEVELOPMENT Instructor's name with * = adjunct instructor	2	Not offered		1~4	[100]

Instructor's name with * = adjunct instructor

☆=Every Other Year

List for Corresponding Courses [Faculty of Science and Technology]

* Although the language of instruction for the following courses are different, courses listed here are regarded as identical couses.

The students may only take one of the two courses.

	English			Japanese
Course No.	Course Title	1	Course No.	Course Title
SCT6740E	THERMODYNAMICS	\leftrightarrow	SCT68300	熱力学
SCT6760E	INTRODUCTION TO QUANTUM DYNAMICS	↔	SCT68900	量子力学入門
SCT6770E	ATOMIC & MOLECULAR SCIENCES	↔	SCT64800	原子・分子科学
SCT6650E	MOLECULAR BIOLOGY	\leftrightarrow	SCT66800	分子生物学
SCT6750E	CELL BIOLOGY	\Leftrightarrow	SCT62300	細胞生物学
SCT6800E	ORGANIC CHEMISTRY	\leftrightarrow	SCT60600	有機化学(有機分子)
SML6510E	ORGANIC AND NATURAL PRODUCT CHEMISTRY	\leftrightarrow	SML61500	天然有機化学
SML6530E	GREEN CHEMISTRY	\Leftrightarrow	SML61700	グリーンケミストリー
SML6660E	RADIATION PHYSICS AND CHEMISTRY	↔	SML62500	放射線科学
SML6550E	CATALYSIS CHEMISTRY	↔	SML65300	触媒反応化学
SML6570E	THEORY-AIDED MOLECULAR DESIGN	\leftrightarrow	SML64200	理論分子設計
SML6580E	QUANTUM REACTION DYNAMICS	\leftrightarrow	SML65100	原子衝突物理学
SML6590E	TOPICS OF PLANT SCIENCE	\Leftrightarrow	SML65200	植物生理学
SML6630E	STRUCTURAL CHEMISTRY	\Leftrightarrow	SML60100	分子構造化学
SML6700E	SEPARATION CHEMISTRY IN ANALYSIS	\Leftrightarrow	SML60400	分離分析化学
SEA2040E	ENGINEERING AND APPLIED SCIENCES 1	\leftrightarrow	SEA10200	機能創造理工学1
SEA2050E	ENGINEERING AND APPLIED SCIENCES 2	↔	SEA10300	機能創造理工学2
SEA2060E	ENGINEERING AND APPLIED SCIENCES 3	↔	SEA20400	機能創造理工学3
SEA6520E	THERMAL ENERGY CONVERSION	↔	SEA60400	熱エネルギー変換
SEA6530E	FLUID ENERGY CONVERSION	\leftrightarrow	SEA60500	流体エネルギー変換
SEA6540E	ENERGY & MATERIALS	\Leftrightarrow	SEA61800	エネルギーと材料
SEA6690E	MOTOR DRIVE SYSTEMS	\Leftrightarrow	SEA67600	モータドライブシステムI
SEA0030E	MOTOR DRIVE STSTEMS	\Leftrightarrow	SEA67700	モータドライブシステムⅡ
SEA6580E	ELECTRIC POWER SYSTEM ENGINEERING	\Leftrightarrow	SEA65600	電力系統工学
SEA6610E	COMMUNICATION AND NETWORK ENGINEERING	↔	SIC61700	通信ネットワークシステム
SEA6590E	CLEAN ENERGY	\leftrightarrow	SEA65700	電気機器学
SEA6585E	POWER ELECTRONICS	\leftrightarrow	SEA65800	パワーエレクトロニクス
SEA6700E	FUNDAMENTALS OF SYSTEM ANALYSIS	\Leftrightarrow	SEA63100	システム解析の基礎
SML6710E	METALLIC AND ELECTRONIC MATERIALS	\Leftrightarrow	SML65800	金属・電子材料
SML6720E	POLYMER CHEMISTRY	\Leftrightarrow	SML62800	高分子化学
SMILO / ZUE	FOLIMER CHEMISIKI	\Leftrightarrow	SML62900	ソフトマテリアル
SML6620E	TOPICS OF GREEN SCIENCE 3	\Leftrightarrow	SML64500	細胞機能工学
SCT6820E	ATMOSPHERIC CHEMISTRY	↔	SML65600	大気化学

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